



**Report of
Expert Committee on
Integration of
Commodity Spot and
Derivatives Markets**

**Department of Economic Affairs
Ministry of Finance
Government of India
New Delhi**

February 2018

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FOREWORD

It gives me immense pleasure to submit the Report of the Expert Committee on Integration of Commodity Spot and Derivatives Markets. With increasing commercialization in the space of commodities, marketing reforms become imperative to align the transaction avenues of commodities with changing demands of consumers, traders, processors and other value chain participants.

The Committee has gainfully used the rich experience of its members to debate concurrent policy issues related to integration of spot and derivatives markets like spot exchanges for commodities, and to suggest ways to strengthen the existing institutions regulating the physical markets, which tend to be more segmented vis-a-vis derivative markets. However, the ultimate test of recommendations of the Committee would be confidence it inspires among the stakeholders and its applicability, as seen by the policy makers.

Finally, I must place on record the sincere efforts of Dr. Shashank Saxena, Adviser, Dept. of Economic Affairs and Member-Secretary of the Committee and Ms. Leena Kumar, Assistant Director (Commodity Derivatives), Dept. of Economic Affairs for providing very effective coordinating support and Sh. SK Mohanty, Executive Director, SEBI and Sh. Vikas Sukhwil, DGM, SEBI for providing excellent research assistance to the Committee. I would also like to acknowledge the contribution of Dr. R. Amalorpavanathan, Dy MD, NABARD and Sh. SK Mohanty in preparing the report on Agricultural Commodities and Non Agricultural Commodities, respectively.

Prof. Ramesh Chand

Chairman, Expert Committee and
Member - NITI Aayog

LETTER OF TRANSMITTAL

Dated the 12th February 2018

Shri Arun Jaitely
Hon'ble Finance Minister
Ministry of Finance
Government of India
North Block
New Delhi - 110001

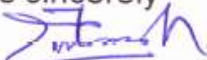
Subject: Report of Expert Committee on Integration of Commodity Spot and Derivatives Markets

Respected Sir

Pursuant to Union Budget Announcement 2017-18, the Department of Economic Affairs, Ministry of Finance had set up an Expert Committee in June 2017 to study and promote creation of an operational and legal framework to integrate spot market and derivatives market for commodities trading. We are pleased to submit the Report of the Expert Committee on Integration of Commodity Spot and Derivatives Markets.

With kind regards

Yours sincerely



Prof. Ramesh Chand

(Chairman and Member, NITI Aayog)



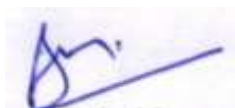
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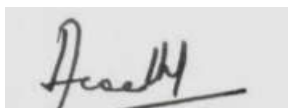
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*Dr. Alka Bhargava, former Joint Secretary (Marketing) was the previous representative of DAC&FW

[#]Sh. Manoj Ahuja, former Principal Secretary (Agriculture and Farmers' Empowerment Department) was the previous representative of Govt. of Odisha

[@]Sh. Rajat Agarwal, former Special Secretary (Expenditure) was the previous representative of Govt. of Punjab.

BACKGROUND

1. While presenting the Union Budget for the financial year 2017-18, in his budget speech the Hon'ble Finance Minister made following announcement:

“The Commodities markets require further reforms for the benefits of farmers. An expert committee will be constituted to study and promote creation of an operational and legal framework to integrate spot market and derivatives market for commodities trading. e-NAM would be an integral part of such framework.”

2. In pursuance thereof, the Government of India (GoI) set up an Expert Committee under the Chairmanship of Prof. Ramesh Chand, Member, NITI Aayog with the following terms of reference (ToR):

- Better price realization for farmers by creating liquid and transparent spot as well as derivatives markets.
- Better access for farmers and businesses to agricultural goods and services across India.
- Empowerment of farmers with knowledge, information and capability to undertake market-driven production.
- Improved efficiency, competitiveness, supporting infrastructure and strong Institutional mechanism by integrating spot with commodity derivatives markets.
- Recommend measures to achieve operationally seamless interconnectedness between fragmented physical commodity markets / commodity exchanges / electronic platforms, the supporting infrastructure, institutions and the various participants.
- Development of regulated electronic spot exchanges both for agricultural and non-agricultural commodities like gold, silver, base metals, energy products for better price discovery and disseminating reference prices for derivatives markets,
- Ease of doing business in the commodities market and related areas in the country.
- Any other matter that government may specify or the Committee considers relevant in this regard.

3. To sum up, the mandate of the Expert Committee was to examine the legal, technical and operational aspects of the commodity spot and derivatives markets with a view to eliminate the gaps and overlaps that

exist between these two markets and recommend requisite measures for achieving the desired integration between the commodity spot and derivatives markets in India.

4. The Expert Committee constituted by the Government comprises two external experts and representatives from various Departments of GoI, State Governments and regulatory organizations as listed out below :
 - Department of Agriculture Cooperation and Farmers' Welfare
 - Department of Commerce
 - Department of Consumer Affairs
 - Department of Economic Affairs
 - Department of Food and Public distribution
 - Department of Legal Affairs
 - Government of Gujarat , Karnataka, Madhya Pradesh, Maharashtra, Odisha and Punjab
 - National Bank for Agriculture and Rural Development (NABARD)
 - Reserve Bank of India (RBI)
 - Securities and Exchange Board of India (SEBI)
 - Warehousing Development and Regulatory Authority (WDRA)

PROCEEDINGS OF THE COMMITTEE AND CONSTITUTION OF GROUPS

1. In the first meeting held on August 02, 2017, the members of the Expert Committee suggested that two separate groups may be created comprising different members of the committee i.e., one group to look into issues relating to the agricultural commodities and the other group to focus on issues relating to the non-agricultural (metals, bullion and energy) commodities. The Committee felt that the issues and challenges concerning agricultural commodities and non-agricultural commodities being different, they need to be separately examined for better appreciation of these commodities which would help the committee to understand the respective markets with better clarity. SEBI was made the coordinator for the group constituted for non-agricultural commodities while NABARD was made the coordinator for the group constituted for agricultural commodities.
2. The Expert Committee nominated the following representatives as the members of the group on agricultural commodities:
 - i. Dr. Alka Bhargava, Joint Secretary (Marketing) (Initially) , Shri P K Swain, Joint Secretary (Marketing) (Presently), Department of Agriculture & Farmers' Welfare, Govt. of India
 - ii. Dr. B. B. Pattanaik, Member-WDRA
 - iii. Dr. Kirit N. Shelat, IAS (Retd.), Executive Chairman (National Council for Climate Change, Sustainable Development and Public Leadership)
 - iv. Dr. R.J.R. Kasibhatla, Deputy Legal Adviser -Department of Legal Affairs, Govt. of India
 - v. Dr. Rajiv Ranjan, Adviser, Department of Economic Policy and Research (DEPR) - RBI
 - vi. Dr. Shashank Saksena, Adviser (Capital Markets) - Department of Economic Affairs, Ministry of Finance, Govt. of India
 - vii. Dr. Susan Thomas, Head, Finance Research Group - IGIDR
 - viii. Shri A. K. Choudhary, Economic Adviser - Department of Consumer Affairs, Ministry of Food, Consumers Affairs and PDS, Govt. of India
 - ix. Shri Bijay Kumar, Principal Secretary (Agriculture & Marketing),- Maharashtra
 - x. Shri Chandrashekhar Vashistha, Addl. Director, State Agricultural Marketing Board - Madhya Pradesh

- xi. Shri Manoj Ahuja, Principal Secretary, Agriculture and Farmers' Empowerment Department (Initially), Dr. Saurabh Garg, Principal Secretary, Agriculture and Farmers' Empowerment Department (Presently) - Odisha
 - xii. Shri Nilambuj Sharan, Economic Adviser - Department of Food and Public Distribution, Ministry of Food, Consumers Affairs and PDS, Govt. of India
 - xiii. Shri R. Manoj, Additional Secretary (Market Reforms) - Karnataka
 - xiv. Shri R. Amalorpavanathan, Deputy Managing Director - NABARD
 - xv. Shri Rajat Agarwal, Special Secretary Expenditure - Punjab
 - xvi. Shri S. Sivakumar - ITC Infotech India Ltd.
 - xvii. Shri Sanjeev Kumar, Secretary (Economic Affairs) - Gujarat
 - xviii. Shri Santosh Kumar Sarangi, Joint Secretary - Department of Commerce, Ministry of Commerce and Industry, Govt. of India
 - xix. Shri Vikas Sukhwai, DGM - Securities and exchange Board of India (SEBI)
3. Similarly following representatives were nominated by the Expert Committee as the members of the group on non-agricultural commodities:
- i. Dr. Kirit N. Shelat, IAS (Retd.), Executive Chairman (National Council for Climate Change, Sustainable Development and Public Leadership)
 - ii. Dr. R.J.R. Kasibhatla, Deputy Legal Adviser - Department of Legal Affairs, Ministry of Law & Justice, Govt. of India
 - iii. Dr. Shashank Saksena, Adviser - Department of Economic Affairs, Ministry of Finance, , Govt. of India
 - iv. Dr. Susan Thomas, Head, Finance Research Group - Indira Gandhi Institute of Development Research (IGIDR)
 - v. Shri Chandrashekhar Vashistha, Additional Director - State Agricultural Marketing Board, Madhya Pradesh
 - vi. Shri Manoj Kumar Dwivedi, Joint Secretary (Export Promotion - Gems and Jewellery) - Department of Commerce, Ministry of Commerce and Industry, Govt. of India
 - vii. Shri S K Mohanty, Executive Director - Securities and exchange Board of India (SEBI)
 - viii. Shri T. Rabi Sankar, Chief General Manager, Financial Markets Regulation Department- Reserve Bank of India (RBI)
4. The Committee had its first meeting at Delhi on August 02, 2017, followed by three more meetings on August 19, 2017, August 26, 2017 and February

11, 2017 respectively. The group on agricultural commodities had its meeting at the head office of NABARD at Mumbai and Delhi on September 28, 2017 and November 18, 2017 respectively. The group dealing with non-agricultural commodities held three rounds of meetings at SEBI Office in Mumbai on October 06, 2017, October 25, 2017 and December 27, 2017. Both the groups have submitted their respective reports to the Committee on the basis of which this report of the Committee has been prepared and the reports of the two groups are placed as annexure to this report.

5. The structure of the report of the Committee is organized as under:
 - Chapter 1: This chapter provides an overview of the commodities market, physical market ecosystem of the including regulations governing those markets, various issues, challenges faced and derivatives markets.
 - Chapter 2: This discusses the basic features and requisites for operation of an electronic platforms for both spot market and derivatives market with relevant suggestions in the Indian context
 - Chapter 3: This chapter highlights various challenges that have to be dealt with for achieving integration of commodity spot and derivatives markets in India and suggestions thereto.
 - Chapter 4: It provides a roadmap along with proposed action plan for acting upon the suggestions /recommendations of the Committee for arriving at the desired level of integration between commodity spot and derivatives market.
 - The reports of the two groups are annexed.
6. The chapters in the report have dealt with the ToR given to the Committee at length under different heads/items and the recommendations of the Committee are based on the ToR assigned to it.

ACKNOWLEDGEMENTS

1. During deliberations, the members of the Expert Committee and the two groups had the benefit of interacting with various external experts from the Farmer Producer Organizations, corporate sector, trade, advisory firms, commodity derivatives exchanges and industry associations etc.
2. The members of the Committee and the groups would like to acknowledge the valuable contributions made by the following experts for sharing their expertise on various commodities and different aspects of commodity markets.

i. Farmers / Farmer Producer Organizations /Associations

- a. Shri Abhishek Saxena and Shri Tofan Ram Meena - Jamwa Ramgarh Farmer Producer Company
- b. Shri Debranjana Pujahari - Aaranyak Agri Producer Company Ltd.
- c. Shri Ghanshyam Jat - Bikaner
- d. Shri Mrinal Aggrawal - Devbhumi Farmers Producers Company Ltd.
- e. Shri Puneet Singh Thind - Ludhiana
- f. Shri S. K. Singh , Shri Rakesh Shukla and Shri P.N. Dogra- Small Farmers Agri Business Consortium (SFAC)
- g. Shri Sanjeev Gupta - Gwalior
- h. Shri Suresh Vesam - Nestham NGO
- i. Shri YogeshThorat - Maha Farmers Producer Company Limited (MAHAFPC)

ii. Industry Associations

- a. Shri Abinash Verma, Shri Adhir Jha and Shri Kiran Wadhwana- Indian Sugar Mills Association (ISMA)
- b. Shri D.N. Pathak and Shri Chirag Badala - Soyabean Processors Association of India (SOPA)
- c. Shri Santosh Joseph - Kerala Cardamom Dealer's Chamber
- d. Shri Vijay Sardana and Shri S P Kamrah - Solvent Extractors Association (SEA)

iii. Precious metals, Gems and stones

- a. Ms. Nirupama Soundararajan and Shri Arindam Goswami - Pahle India Foundation (PIF)

- b. Shri Bhargav Vaidya - B.N. Vaidya & Associates
- c. Shri D.D. Karel, Shri Avinash Goel and Shri Chirag Sheth - Gems & Jewellery Federation (GJF)
- d. Shri H S Pasricha - Bureau of Indian Standards (BIS)

iv. Base Metals

- a. Ms. Ruchi Kukreja- Sesa Sterlite
- b. Shri Dhawal Shah - Metal Recycling Association of India Pvt. Ltd. (MRAI)
- c. Shri Dilip Morzaria - Kamman Group
- d. Shri Sandeep Jain - Bombay Metal Exchange
- e. Shri Sanjeev Ranjan, Shri Avinash Kemna and Shri Mayur Karmarkar - International Copper Association India Ltd.
- f. Shri Vijay Murthy, Shri Sourav Dinda and Shri Abhishek Jha - Hindustan Zinc Limited (HZL)

v. Commodity Derivatives Exchanges

- a. Shri Mrugank Paranjape, Dr. V Shunmugam, Shri Chittaranjan Rege, Shri Sameer Kenia, Ms. Rashmi Nihalani and Shri Girish Dev - Multi Commodity Exchange of India Limited (MCX)
- b. Shri Sameer Shah, Shri Sarat Mulukutla, Shri Abhishek Govilkar and Shri Anshuman Purohit - National Commodity & Derivatives Exchange Limited (NCDEX)
- c. Shri Sanjit Prasad - Indian Commodity Exchange Limited (ICEX)

vi. Petroleum Products

- a. Shri Ashutosh Deshpande -Essar Oil Limited
- b. Shri D.L.N. Sastri and Ms. Meenakshi Aggarwal - Indian Oil Corporation Ltd. (IOCL)
- c. Shri Daniel Santosh - Hindustan Petroleum Corporation Limited (HPCL)
- d. Shri Ranajit Banerjee - Directorate General of Hydrocarbons
- e. Shri Satpal Garg - Petroleum and Natural Gas Regulatory Board (PNGRB)

vii. General and electronic platforms for spot market

- a. Shri Ayush Kakar - Trafigura India
- b. Shri Deepak Bhattacharya, Shri Prashant Jha and Shri Satyavir Singh - Mjunction Service Ltd

- c. Shri Manoj Ranjan - Rashtriya e-Markets Services Private Limited (ReMS)
- d. Shri Muzammil Patel - Deloitte India
- e. Shri Neeraj Kulshrestha and Shri Ranjit Singh - BSE Limited
- f. Shri Rajesh Sinha and Shri Ravindra Shevade - NeML

viii. Commodity Boards and State Agriculture Marketing Board

- a. Dr. Bhaskar N Patil - Maharashtra State Agricultural Marketing Board (MSAMB)
- b. Dr. Binoi K. Kurian - Rubber Board
- c. Shri A. K. Bhatt - Gujarat State Agricultural Marketing Board (GSAMB)
- d. Shri P M Suresh Kumar, Shri M S Ramalingam and Ms. Manta Rupoliya- Spice Board

ix. Warehousing

- a. Shri Maninder Singh Juneja and Shri Neeraj Bhatia - National Bulk Handling Corporation (NBHC)

x. Academic Institutions

- a. Dr. Amar KJR Nayak - Xavier Institute of Management (XIMB), Bhubaneswar
- b. Dr. R Murugesan - Tamil Nadu Agriculture University (TANU)

xi. Banking Sector

- a. Shri Arindom Dutta - Rabo Bank
- b. Shri Sumit Gupta, Shri Krishna Mohan Singh and Shri Vivek Vishal- Yes Bank Limited

3. The Committee would also like to acknowledge the valuable support and assistance extended by the committee secretariat, SEBI and NABARD in organizing the meetings and preparation of the final report.

EXECUTIVE SUMMARY

1. Commodities markets, globally and in India comprise two segments, namely, the market for spot transactions, where purchase (or sale) of commodities and the settlement of the transaction happen almost simultaneously, and the market for derivatives transactions, where settlement of trade takes place at a future date, but with certainty. The commodity derivatives markets are well regulated under a statutory regulator while the spot markets are fragmented, geographically dispersed and primarily regulated by the state governments of the country. Further, spot markets for agriculture are of two types namely primary markets where mainly producers sell their commodities to traders and secondary market where transactions happen between traders. While data and information on prices and quantity transacted in primary agricultural markets is systematically recorded and available in public domain, such data in respect of transactions in secondary agricultural markets is not adequate.
2. Both the spot and derivative markets, while distinct from each other in their form and function, are interlinked. A sound derivatives market delivers two important benefits for its participants namely price discovery and price risk management by stakeholders including farmers, commodity traders and market participants through hedging. Similarly, a well-functioning spot market and a robust warehousing infrastructure provide safeguards in the derivatives market by creating a credible threat of delivery. While the functioning of each of these markets is not contingent on each other, their transparent and efficient functioning in themselves and relative to one another, has the capacity to enhance the effectiveness of the overall functioning of the commodity ecosystem.
3. However, both the segments have their own deficiencies and limitations as well as various inherent challenges that need to be overcome before a comprehensive mechanism for integration between the two segments can be put in place. The Committee dwelt on the salient features of the spot and derivatives markets, the operational complexity and legal challenges that confront these markets, and various remedial measures that are required to be taken to make them operate in a harmonized manner, which have been discussed in detail in the other chapters of the report. The Committee is of a strong view that a number of fundamental reforms are required to be introduced in the spot markets as well as the derivatives

markets for commodities to enable them to serve better various stakeholders, like producers, consumers and other market participants.

4. The integration of commodity spot and derivatives is important for both agricultural and non-agricultural sector, but in our country the agricultural markets are the most potent economic force which cater to a substantial part of GDP (16 percent) and employment (close to 50 percent), hence need of integration is more felt for the overall benefit of the farming community and the society at large. The chapter on “roadmap and action plan for integration of spot and derivatives markets” provides in details the suggestions and recommendations and also a framework for implementation in this regard. The main recommendations of the committee made in this report seeking certain reforms and policy measures are summarized as under:

- a) Adoption of Model APMC Act by States is long overdue. Now, Ministry of Agriculture and Farmers’ Welfare has prepared a new Model Agricultural Produce and Livestock Marketing (Promotion and Facilitating) Act (APLM), 2017 in consultation with states. The change in existing APMC Act on the lines suggested in Model APLM Act, 2017 is critical to improve the efficiency in agricultural markets and to integrate farm level production with end-uses **(Action point: Ministry of Agriculture, State Governments)**.

- b) Farmers should be provided multiple modes for selling of farm produce to fetch the best prevailing price for their produce. Restrictions on farmers to sell their produce only through recognized APMCs may be waived. Under the existing APMC regulations, in case the facilities of APMCs are not used, i.e., if sale is done outside the APMC premises, such as sale on a regulated electronic platform, or regulated private markets etc., APMCs can still levy and collect applicable market fee on sale of such products. Such levy of fees on goods sold outside the facilities of APMCs should be removed, because these are in the form of a statutory levy and not a service, for which a service levy is required. Regulated electronic platforms such as electronic spot markets and spot exchanges may be deemed as market so as to enable direct selling by producers/farmers through multiple modes or on spot exchanges without having to pay any fees to APMCs **(Action point: Ministry of Agriculture, State Governments)**.

- c) While the data of primary agricultural spot market transactions at APMCs mandis are available to policy makers, the mechanism to collect and disseminate the data for the secondary market transactions that occur throughout the year and are also dispersed across the country is inadequate. The Committee is of the view that there should be a sound institutional mechanism to collect, collate and disseminate the data of spot market transactions, both primary and secondary markets, on a regular basis. Improvements required in e-NAM w.r.t auctions, information flow and dispute resolution are discussed in detail in the Report. **(Action point: Ministry of Agriculture, State Governments).**
- d) With a view to increase the bargaining power of small farmers, there is a need to promote farmer producers organizations and cooperatives, so that the farmers get better price realization through collective bargaining power in spot markets and can mobilize bigger lot sizes to hedge and deliver on derivatives platform. **(Action point: Ministry of Agriculture, SFAC, Ministry of Rural Development NABARD).**
- e) Whenever stock limits under Essential Commodities Act (ECA), 1955 are made applicable, the stocks held by farmers' collectives like Farmer Producer Organizations (FPOs) in a warehouse should be exempted from such limits. Also, the stocks held in the WDRA registered warehouses which are publicly disclosed on a day to day basis should be exempted from stock limits **(Action point: Department of Consumer Affairs).**
- f) Large procurement of agricultural produce is undertaken by public agencies like FCI, NAFED at Central and State level. This is meant primarily to ensure MSP or remunerative prices to farmers. In some cases, this benefit does not reach farmers, and traders in the guise of farmers receive MSP. The public procurement agencies should ensure that benefit of public procurement reaches farmers. **(Action point: Ministry of Consumer Affairs, Agricultural Marketing institutions, State Governments)**
- g) Provision for cost effective storage with assaying facilities to the farmers is essential to improve the price realization for the farmers. A wide network of warehousing infrastructure with easy

accessibility to farmers can be vehicle for promoting practice of scientific storage, quality consciousness about crops and also to enable the producers / farmers to seamlessly transact in both spot and derivatives market. Towards this end, private entrepreneurship in agricultural warehousing sector should be incentivized and also all the warehouses operating in the country-both, private and public sector- which provide storage services for agricultural commodities to the third parties, should be required to be registered with the unified authority which would create a robust and standardized warehousing infrastructure in the country. **(Action point: WDRA, CWC, SWC, State Governments).**

- h) There is a need for uniformity of grades for agricultural commodities, depending upon the end use, for ease of understanding and adoptability by various segments of the market. This requires expansion of low-cost, technology based assaying facilities **(Action point: Ministry of Agriculture, State Agriculture Marketing Departments).**
- i) In the physical markets for non-agricultural commodities, like base metals, precious metals and energy related commodities like coal etc., the primary requirement is that of a dedicated government organization/department to oversee the working of the markets of these commodities. The Committee feels that a dedicated controlling ministry for base metals could be created. Ministry of Steel, in this regard, could be entrusted the task of overseeing the markets for all ferrous and non-ferrous base metals. **(Action point: Union Cabinet)**
- j) In addition, a regulated storage infrastructure for non-agri commodities is also needed, more so for high value commodities and WDRA has the natural advantage of venturing into the same. Further, the dedicated department and WDRA could work together to set good delivery norms in various metals, for further standardization of trading in the market for these commodities. **(Action point: WDRA).**
- k) For the growth of domestic metals industry, it is required that Free Trade Agreements, may be reviewed wherever possible **(Action point: Department of Commerce).**

- l) Almost all the base metals are recyclable and during interaction with the stakeholders, the Committee was apprised that approximately 30% consumption of the base metals in India, particularly by the Micro, Small & Medium Enterprises (MSME) segment comes from recycled sources of such metals. Further, rising prices, dominance by a few big players on the supply side, low access to primary markets for raw materials especially by the MSME and environmental policies and regulations, make a strong case for more reliance on recycling of the non-agricultural commodities especially the base metals and precious metals. Therefore, the recycling industry needs to be developed in terms of application of the latest technology, better standards of manufacturing quality, and putting in place an enabling infrastructure to support the industry. A comprehensive policy is needed for recycling of local and imported metal scraps in the country. **(Action point : Ministry of Commerce, Ministry of MSME)**
- m) Derivatives market can achieve better convergence with the spot markets in view of the transparent and reliable spot prices which could be available on a pan-India electronic trading platforms in the same products that would be concurrently traded on both the platforms during same/similar trading hours. Such pan-India electronic spot exchanges need to be well regulated under appropriate regulations as is being done in case of commodity derivatives exchanges. The Committee is aware that SEBI does not have the statutory mandate to regulate commodity spot transactions. During deliberations, SEBI submitted that commodity spot markets do not fall under the ambit of its regulatory purview and it does not have adequate skill set and resources to deal with the spot market of the commodities. Therefore, dissenting from the opinion of committee members to vest it with the powers to regulate the spot exchanges, SEBI suggested that regulation of commodity spot exchanges should be vested with a separate sectoral regulator. However, the committee members are of the view that regulation of such pan-India electronic spot exchanges, which involves attendant risk management, clearing and settlement etc., may be entrusted to a single regulator like SEBI. Further the existing institutional infrastructure of commodity exchanges may

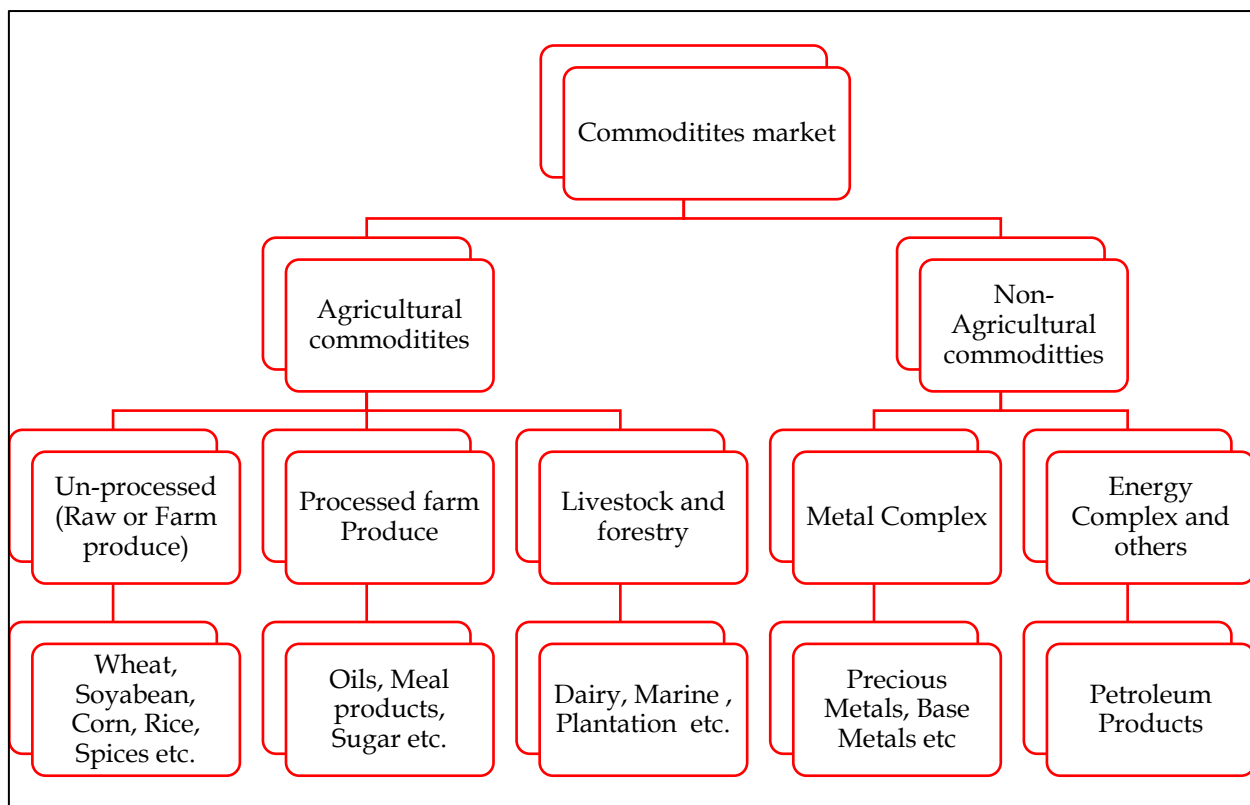
also be utilized, to the extent possible, to create a spot exchange for commodities. **(Action point: Department of Economic Affairs, SEBI)**

- n) In order to attract more and more participants in the commodity derivatives, awareness programs for various stakeholders, like farmers, MSMEs and traders should be carried out with special focus on the efficient use and benefits of commodity derivatives market for risk management and price discovery. **(Action point: SEBI, Exchanges).**
- o) For increased participation, it is required that more hedger centric products be launched in the derivatives markets with greater institutional participation to instill higher liquidity in far month derivatives contracts. **(Action point: Department of Economic Affairs, SEBI, Exchanges).**
- p) At the same time, the cost of trading in derivatives markets should also be rationalized **(Action point: Department of Revenue, SEBI and Exchanges).**
- q) Since India is a major consumer and not just producer/trading centre for many agricultural commodities, derivatives trading in agricultural commodities has seen many discontinuities in the past. The Committee suggests that there should not be sudden discontinuation or disruption in derivatives trading in agricultural commodities due to reasons (such as production shortage/glut, volatility in spot prices, imposition of stock control limits etc.) which are beyond the control of the derivatives market. These issues need to be addressed separately to take the necessary policy decisions. In fact, for the purposes of price stabilization in agricultural commodities, the central and state agricultural marketing institutions can consider derivatives markets (especially option trading) as one of the avenues for price stabilization and forward guidance of spot market prices. **(Action point : State Governments, Ministry of Agriculture, Ministry of Consumer Affairs, SEBI, Exchanges)**

1. COMMODITIES MARKET

1. Worldwide, commodities are strong constituents of primary sector of a country's economy. Commodities are broadly classified as soft and hard commodities. Soft commodities are commodities that are grown and include mainly agricultural, agri-processed commodities such as wheat, soybean, corn/maize, coffee and sugar etc., while the hard commodities are commodities that are mined, such as metals, gold, silver and energy products like oil, gas and coal. A pictorial overview of the commodities market is as below:

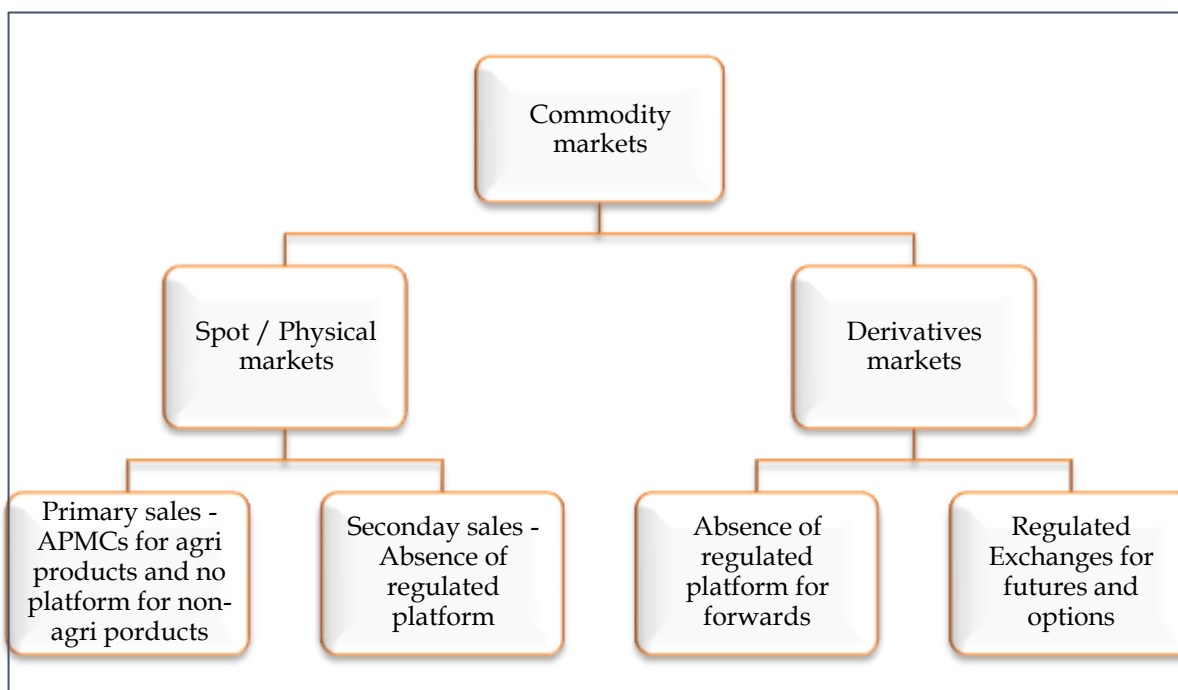
Figure 1: Commodity Classification



2. India is primarily a commodity based economy having a long history of commodities spot and forward markets. The trading in the commodities market can be broadly categorized into two major segments viz., spot/physical segment and derivatives segment. The spot/physical segment can be further categorized into primary and secondary markets. In primary market place, producers sell directly to the buyers, while in secondary market transactions take place between trading entities (excluding producers). The commodity spot/physical segment of

agricultural produce are mostly fragmented and regulated whereas spot markets for non agri commodities are unregulated. Compared to spot market, the derivatives markets are regulated .

Figure 2: Structure of Commodity markets in India



3. India being one of the fastest growing and emerging economies is one of the major consumers of various commodities. India is also import-dependent to meet its demand in most of the non-agricultural commodities as well as some of the agricultural commodities. The production of such import-dependent commodities is negligible or insufficient, especially in petroleum sector, precious metals sector, and edible oil sector. India's rank in global markets in respect of production/consumption of various commodities is illustrated in the following table:

Table 1: India's rank in global markets for select commodities

<i>Sr.</i>	<i>Commodity</i>	<i>Production</i>	<i>Consumption</i>
Agricultural commodities			
1.	Pulses	1	1
2.	Spices	1	1
3.	Guar Seed	1	NA

<i>Sr.</i>	<i>Commodity</i>	<i>Production</i>	<i>Consumption</i>
4.	Sugar	2	1
5.	Castor Seed	1	NA
6.	Cotton	1	2
7.	Rubber	5	2
8.	Wheat	3	3
9.	Soybean	5	NA
10.	Edible Oils	NA	1
11.	Tea	2	2
12.	Jute	1	NA
Ferrous Metals			
13.	Iron Ore	4	3
14.	Steel	3	3
Non Ferrous Metals			
15.	Zinc	5	3
16.	Nickel	No production	7
17.	Aluminium	5	3
18.	Copper	6	9
19.	Lead	2	3
Precious Metals, Gems			
20.	Gold	Negligible production	2
21.	Silver	14	3
22.	Diamond	Negligible production	3
Energy			
23.	Crude Oil	23	3
24.	Natural Gas	28	4
25.	Coal	3	3
<i>NA- Not Available</i>			

4. Universally, commodity sector always adds to the economic growth of the country. Commodities being a prime propeller of the primary economic sector, the abundance of the commodities have always helped nations of the world in their economic growth and prosperities. The importance of commodities is such that many countries have set-up Sovereign Wealth Funds (SWFs) mainly out of the proceeds from the export earnings of their

surplus produces/resources of various commodities and majority of such SWFs have their origin from commodities mainly in non-agricultural sector.

5. In India, the regulatory framework for the commodities markets (both spot as well as derivatives markets) and related ancillary infrastructures are diversified and independent and not unified. Moreover, the ancillary activities involved in the trading of the commodities are highly fragmented throughout the country. This is further explained as below:

a) **Spot market:** The regulation of spot markets for agricultural commodities is decentralized, with state governments independently regulating these markets through Agricultural Produce Market Committee (APMCs) (which are mostly physical yards) for primary sale by farmers while the secondary sales between parties other than farmers operate in unregulated domain. Central Government and some state governments have initiated steps for developing electronic recording systems at APMCs.

Unlike APMCs for the agricultural markets, there is no organized physical market for non-agricultural commodities. There are also no specific laws with respect to the trading of the non-agricultural commodities. There are numerous laws governing various activities involved in the primary production of these commodities. The secondary market, which represents mostly the recycled or scrap market, is highly unorganized and is dispersed amongst large number of tiny units spread across the country which are generally not amenable to enforcement of any laws/regulations applicable to such commodities.

b) **Derivatives market:** The derivatives market is governed by a central legislation, viz., Securities Contracts Regulation Act, 1956 (SCRA), which provides for the legal framework for organized derivatives trading. The derivatives market for the commodities is regulated by SEBI. The pricing of the derivatives contracts of agricultural commodities is anchored on domestic spot prices while the pricing of non-agricultural commodities, except for gold and silver derivatives, are mostly aligned with the global pricing of such contracts.

- c) **Storage Infrastructure:** Storage infrastructure is crucial for the commodities market both for the agricultural as well as non-agricultural commodities. Different categories of commodity groups require different storage practices. For example grains, oils, soymeal, precious metals like gold, petroleum products, base metals, coal or spices etc., would require entirely different sets/types of storage practices. Besides Central Warehousing Corporation (CWC) and State Warehousing Corporation (SWCs) which are public sector warehouse service providers, there are a good number of private players in the agricultural storage space providing warehousing services throughout the country. These warehouses also store a large number of non-agricultural goods and have developed their commodity specific Standard Operating Procedures (SOPs). However, for the petroleum products, there is a sector specific regulator to oversee the oil and natural gas market in the country.

As per the Warehousing (Development and Regulation) Act, 2007, WDRA has been mandated to regulate the warehouses storing goods and issuing Negotiable Warehouse Receipts (NWRs). The goods include both agricultural and non-agricultural commodities. Therefore, there is a regulatory framework available for both agricultural and non-agricultural commodity. However, for sake of ensuring stability in the market, WDRA is contemplating to get the regulatory framework for agricultural commodities stabilized first and then move into regulation of Warehousing relating to non-agricultural commodities. With a view to ensure effective regulation by way of easier / faster registration of warehouses and a robust mechanism for monitoring the surveillance, the WDRA has put in place an online system of registration of warehouses as well as monitoring the regulatory compliance of the registered warehouses.

The Negotiable Warehouse Receipts (NWRs) issued to the depositors (including farmers) against deposit their goods in a WDRA registered warehouses can be pledged with a bank for availing finance against the underlying goods kept in the warehouse.

- d) **Quality or Delivery standards:** Assaying standards for the agricultural commodities are governed by various regulations and systems such as AGMARK, FSSAI, Codex Alimentarius, and APEDA. AGMARK provides for grading of agricultural commodities including processed

items based on the prescribed quality parameters for the purpose of trade. These standards equally apply to farmers' produce if they wish to keep their goods in a public warehouse and intend to avail finance through the Negotiable Warehouse Receipts (NWRs) on pledge of the underlying goods. Codex and APEDA standards relate to export of agricultural commodities (including processed items), whereas FSSAI standards are with respect to food safety standards with consumer perspective.

As far as the non-agricultural commodities are concerned, India has not developed any domestic quality standards for large number of commodities and is relying upon global standards.

- e) **Pricing:** The pricing dynamics for the agricultural commodities is entirely different as compared to the pricing of non-agricultural commodities. The domestic prices of most of the non-agricultural commodities are linked to the global markets. The Indian prices for such commodities are mainly benchmarked on global benchmark prices with required premium/discount to that price (which generally includes cost of transportation, duties, and currency conversion costs etc.). On the other hand there are pricing policies and laws for the agricultural commodities. In some commodities the spot and derivatives markets are well integrated with the global markets. The main reason for the global linkages could be that India does not have its own benchmark prices for such commodities and India generally follows benchmark prices determined in other jurisdictions say, London Metal Exchange (LME) for the non-ferrous metals, Bursa Malaysia for Crude Palm Oil (CPO) etc.

6. The recommendations to improve the efficiency of the physical market ecosystem are covered in the chapter on "Roadmap and Action Plan for Integration of Spot and Derivatives Markets" of this report.

Agricultural commodities

7. The agricultural market is the most potent economic force in the country. The economic survey for financial year 2017-18 has observed that agriculture still accounts for a substantial part of GDP (16 percent) and employment (49 percent). The major components that comprise the agricultural ecosystem of the country are:

- Production of agricultural commodity
 - Warehousing and Storage
 - Pricing
 - Assaying
 - Transport and
 - Agricultural marketing
8. On the production and supply side of the agricultural commodities are the farmers, whose productivity and earnings are dependent upon a number of factors such as:-
- access to adequate irrigation facilities,
 - uninterrupted electricity supply,
 - favorable climatic conditions,
 - soil health,
 - quality seeds,
 - fertilizers,
 - timely access to institutional credit availability,
 - scientific storage and assaying facilities,
 - transportation and
 - access to the technological advancements in sowing, cultivation and harvesting.
 - access to markets and availability of a remunerative price for his produce.
9. Due to lack of access to these facilities coupled with the fact that the average farm size is small, the output of Indian farmer has been deficient in terms of quality and quantity/yield. The agricultural commodity markets are also marred by factors such as poor infrastructure, involvement of commission agents, non-transparent price discovery process, poor price dissemination mechanisms, restrictive regulations, and non-transparent levies/charges on the sale of farm produce. All these factors together act as a hindrance in achieving higher realization of the agricultural produce which cause farmers' distress.
10. The transactions in agricultural commodities have been predominantly regulated through primary acts like Essential Commodities Act, 1955 (ECA) and model Agricultural Produce Market Committee Act (APMC). The administration of these statutes lies with the State Governments allowing them to control procurement, storage and movement of commodities. The APMC mandates purchase of notified agricultural

commodities through market yards popularly known as “mandis” to protect the farmers’ interest while ECA imposes restrictions on storage and movement of certain ‘essential’ commodities. However, the outcome of enforcement of these regulations has often been found to be lacking in uniformity across different parts of the state and in different states of the country and in most places has led to fragmentation of the market. Therefore, it is difficult to state if the regulation of agricultural markets in the country has helped in achieving the desired goal of running the agricultural markets in a disciplined & organized manner and in improving the earning power of the producers (farmers).

11. While on the one hand, agricultural output suffers from lack of adequate irrigation facilities, crop failures, high input costs, labour issues, low yields, debt burden and lack of timely institutional credit availability etc., on the other hand, poor earnings from farm produce by the farmers has been on account of lack of efficient agricultural marketing, lack of avenues for transparent price discovery, lack of adequate and cheap storage and transportation facilities etc.
12. The report of the group on agricultural commodities (annexed to this report) has dealt in detail about the agricultural markets. The recommendations made in the chapter “Roadmap and Action Plan for Integration of Spot and Derivatives Markets” of this report could help to improve the efficiency of the physical market ecosystem for the agricultural commodities market.

Non-agricultural commodities

13. The non-agricultural commodities are classified into various broad complexes namely ferrous metals, non-ferrous metals, precious metals, gems and stones, energy products and others. Each group of non-agricultural commodities has its unique set of challenges involving regulations on exploration, storage facilities and marketing of such commodities. The production side of such commodities is concentrated amongst a few players only (sector being capital intensive) as compared with their agricultural counterparts.
14. The base metal industry generally incorporates a range of activities along various stages of the value chain including mining, smelting, recycling, refinery, processing and fabrication etc. Metals are key intermediate inputs

in industrial production and they lay the foundation of any economy. Iron Ore and Steel (which is produced from iron ore) is the most important base metal which is mostly used for construction, transportation equipment, and machinery. Copper is the second-most-important base metal used predominantly in electrical wire. The third-most-important base metal is Aluminum which is used in the aerospace industry as well as other industries requiring light metal. The rise in the infrastructure development and automotive production could be major factors for driving growth in the metals and mining sector. Recycling is also an important part of metal industry as recycling process is much less energy intensive than the production of primary metal. Advanced economies rely more on recycling. There is a need to put emphasis on recycling of non-agricultural commodities to the extent possible.

15. The precious metals, gems and stones sector/ industry is highly fragmented, unorganized and mainly confined to family owned businesses. The activities along the value-chain comprise sourcing, processing, manufacturing and selling of precious metals and gemstones such as gold, platinum, silver, diamond, ruby, sapphire, etc. among others. There is a perception that this sector is highly opaque.
16. While there are numerous laws dealing with various activities involved in the production of these base metals and precious metals industry, there are no specific laws with respect to the trading of the non-agricultural commodities. The secondary market, which represents mostly the recycled or scrap market, is highly unorganized and is dispersed amongst large number of tiny units spread across the country that are generally not amenable to enforcement of any laws/regulations applicable to such commodities.
17. Adverting to the energy sector that comprises the coal, oil and natural gas, it is among one of the core industries which plays a crucial role in influencing decision making even in respect of other important sectors of the economy. India is largely dependent on the import of a wide range of gas and petroleum products. The energy sector has its own inherent issues like lack of adequate infrastructure including transportation and storage facility and absence of an active spot market.
18. The report of the group on non-agricultural commodities (annexed to this report) has dealt in detail about these markets. The recommendations

made in the chapter “Roadmap and Action Plan for Integration of Spot and Derivatives Markets” of this report could help to improve the efficiency of the physical market ecosystem of the non-agricultural commodities market.

Derivatives market

19. Major economies of the world, whether developed or developing have exchanges that offer trading in commodity derivatives. Some of these exchanges have set themselves as the benchmark markets and the prices on such exchanges act as benchmark prices that are followed by rest of the world in respect of various commodities in physical market. Organized trading on an exchange started in 1848 with the establishment of the Chicago Board of Trade (CBOT) in USA. In India, futures trading in commodities started with the setting up of the Bombay Cotton Trade Association in 1875. Government of India enacted the Forward Contracts (Regulation) Act, 1952, in terms of which the futures trading was regulated by Forwards Markets Commission (FMC). However, following the food shortages in 60s, futures market was banned in most commodities for many years.
20. The liberalization of the economy in the early 1990s led to policy changes in India. The commodity derivatives market in India, has come under the regulation of SEBI following merger of erstwhile FMC with it, with effect from September 28, 2015. Currently, both futures and options are permitted in the Indian commodity derivatives markets. Derivatives trading is permitted in 91 notified commodities of which, derivatives contracts in respect of around 40 commodities are presently offered for trading by the commodity derivatives exchanges.
21. Globally, the share of commodity derivatives out of the total exchange traded derivatives contracts across all the segments for the calendar year 2017 stood approximately at 22%, while for India the share was approximately 6%. With regard to the volumes of only commodity derivatives (across all commodities), the distribution of volume for different groups of commodities across all major exchanges in the world vis-à-vis the commodity exchanges in India are compared as under:

Table 2: Commodity derivatives volumes - 2017

<i>% of number of contracts traded</i>				
	<i>Futures</i>		<i>Options</i>	
<i>Segment</i>	<i>Global</i>	<i>India</i>	<i>Global</i>	<i>India</i>
Energy	38.3	48.0	61.7	0
Non-precious/Base Metals	33.1	30.6	4.0	0
Agriculture	23.5	8.5	29.9	0
Precious Metals	5.1	12.9	4.4	100

22. Generally, commodity derivatives market in India are relatively small as compared to the size of commodity derivatives markets of other jurisdictions such as USA, China and Europe. Some of the factors that have probably contributed to the slow growth of the Indian commodity derivatives markets vis-à-vis the global markets are absence of participation of financial institutions, absence of product innovations, high cost of trading, trading restrictions and inadequate support infrastructure across the country in terms of warehouses, quality testing labs to strengthen delivery mechanism of commodities, especially for agricultural commodities.
23. Nevertheless, for the calendar year 2017, India's Guar Seed futures contract has made it to the top 40 agricultural contracts traded worldwide. Similarly contracts on silver, nickel, copper, lead and zinc traded in Indian commodity exchanges are figured in top 40 metal contracts traded worldwide, while contracts on crude oil and natural gas also figure in the Top 40 energy contracts traded worldwide. The recommendations made in the chapter "Roadmap and action plan for integration of spot and derivatives markets" of this report could help Indian commodity derivatives to improve its efficiency vis-à-vis global counterparts and also strive to set global benchmarks in at least some commodities.

2. ELECTRONIC SPOT MARKET PLATFORM

1. The national multi-commodity derivatives exchanges have been operating quite successfully over the last 14 years thereby helping in price discovery of future prices of several agricultural and non-agricultural commodities on a pan-India level and is facilitating in price risk management. However when it comes to spot trading of commodities, the Committee observes that until the introduction of electronic national agricultural markets (e-NAM) by the GoI in the year 2016 for providing the farmers with an electronic on-line market place for agricultural produce, there has been no serious effort to create any unified national level (or even state level) spot markets either for agricultural or non-agricultural goods in India. The efforts made by the govt. of Karnataka to create an unified market platform (UMP) through the Rashtriya eMarket Services Private Ltd. (ReMS) is laudatory, as it has already demonstrated how a small market reform measure by allowing participation in online marketing by farmers has yielded in actual increase in their price realization. The ReMS initiative is similar to the eNAM, however, replicating such UMPs on a pan-India basis integrating all the states, giving access to all the farmers of the country to online trading or for selling their produce outside the mandis could be a huge operational and legal challenge and also time consuming process that can take years to fructify. The Committee also took note of the fact that there exist a few e-auction platforms in private sector such as NCDEX eMarkets Limited (NeML) for agricultural commodities and M-junction for base metals (mainly steel), who are proving platforms for e-auction of goods for specific sellers and buyers in an unregulated atmosphere, hence fall short of being called pan-India spot market for commodities. Thus, the absence of a regulated pan-India electronic spot market platform in India is in stark contrast to the success of pan-India derivatives trading exchanges in India.
2. Electronic spot markets for commodities play a crucial role in integration of localized physical market, establishing direct link between the buyer and seller and providing a transparent mechanism of price discovery. It is in recognition of these benefits that various Acts like the Model Agricultural Produce and Livestock Marketing (Promotion & Facilitation) Act, 2017 have encouraged the setting up of electronic trading platforms for notified agricultural commodities, including livestock. There is thus a strong case for development of integrated electronic spot markets

providing access to on-line trading of commodities both intra-state and inter-state in the line of e-NAM and ReMS for which the Government has already initiated various reforms in agricultural marketing. To supplement such efforts, efforts should also be made to set up national level commodity spot exchanges which can cater to all participants across the value chain. It is proposed that regulation of such pan-India electronic spot exchanges, which involves attendant risk management, clearing and settlement etc., may be entrusted to SEBI. The existing institutional infrastructure of commodity derivatives exchanges may be utilized, to the extent possible, to create a spot exchange for commodities. The Committee is however, aware that SEBI does not have the statutory mandate to regulate commodity spot transactions. During deliberations, SEBI submitted that commodity spot markets does not fall within its regulatory purview and it does not have adequate skill set and resources to deal with the spot market of the commodities. Therefore, it was suggested by SEBI that regulation of commodity spot exchanges should be vested with a separate sectoral regulator.

Benefits and advantages

3. The benefits and advantages of having a regulated pan-India electronic spot exchange for commodities would be multifold as outlined under:-

a) Benefits to the value chain participants

- For farmers, it would provide more options for selling their produce at competitive returns. It may also allow them to sell only to the extent of actual need and hold the rest of the produce in designated warehouses. It may also curb information asymmetry by providing a transparent platform giving same pricing information to everyone.
- For traders, it may provide access to larger national market for secondary trading.
- For bulk buyers, processors, exporters, possibility to meet their procurement needs by direct participation in the spot market may reduce their intermediation cost.
- For consumers, it may provide stable prices and availability.
- Participation in the spot market through a centralized exchange, would reduce costs associated with identifying suitable market outlets, need for physical inspection of quality and searching for buyers or sellers.

b) Benefits to the Government

- For governments and regulators, it may lead to better monitoring and regulation.
- Pan-India electronic spot market platform would lead to better information dissemination for all stakeholders.
- Better realization of fees/cess or levies, as all trades/deliveries can be tracked on such platforms.
- This could also help in channeling the demand-supply information into a central place thereby creating meaningful data inputs for better policy formulation.

c) Benefits to the ecosystem

- Cohesion between the futures and physical markets may be improved through the transparency of national spot pricing and a better platform for tendering or taking delivery.
- In case commodity is assayed before trading, it may also lead to the assurance in the quality of the commodity to the buyers and gradually lead to the standardization of the quality of commodity. This may also influence improvement in quantity and quality production.
- As price of a commodity on an electronic spot exchange is determined by a wider cross-section of people from across the country, in contrast to the present scenario where price discovery for commodities happens only through local participation, such platforms can lead to efficient price determination. This will ensure transparency in price discovery.
- With the expected participation by large numbers of value chain participants across the country the pan-India spot exchanges may eliminate the possibility of cartelization and other such manipulative practices prevalent in commodity markets.
- Development of robust commodity spot exchanges especially for agricultural commodities can also usher in best practices in commodity trading with respect to quality grading & assaying and may encourage creation of extensive network of warehouses with assaying facilities, apart from lowering transaction cost, facilitating trading in relatively smaller quantities etc.
- Improvement in liquidity of goods on such spot exchanges may make bank finance easily available against the goods stored in the warehouse. This will improve holding capacity of the

farmers/producers and in the long run may incentivize farm production and reduce rural poverty.

- From risk management point, a more transparent and technologically advance system would reduce the scope of intentional/un-intentional manipulation of tendering/auctioning and trading process.
- A single market may also lead to lower operational cost as technological advancement would result in improvement of accounting of all the transactions that are taking place in the market.

Key operative principles

4. The key operative principles for setting up of a regulated pan-India electronic spot market platform for commodities would be as under:
 - Price discovery is based not only on commodity itself but based on location, quality parameters and terms of delivery and payment.
 - Direct participation by physical traders should be feasible.
 - Every trade shall result in delivery and payment i.e. trade for trade (T2T).
 - The stock has to be physically available with the seller or can be “manufactured” and delivered within a short time frame (to ensure no mark to market obligations required)
 - Buyers have to put up margins before placing orders (pre-order margining)
 - Delivery modes could be third party warehouse with third party custody, seller warehouse (especially for processed commodities) or direct delivery between buyer and seller.
 - Strict limits on outstanding obligations and limits on daily volumes of each participant including clients of members may be put in place so as to ensure that risk remains within limits.
 - Feasible physical lot sizes.
 - Escrow mechanism (neither party of both goods and money) between buyer and seller instead of settlement guarantee. Penalty and compensation structure for defaults.

Challenges

5. There are some challenges for developing a regulated pan-India electronic spot market platform for commodities some of which are highlighted as under:

- **Diversity of grades:** An electronic spot trading platform pre-supposes standardization of commodities so as to serve as an effective price discovery platform for such commodities. Therefore, it is essential to have standardization or develop delivery standards before offering a commodity for spot trading on an electronic spot exchange. However, wide quality variations in farm produce within a state, and even wider variations across states, pose a challenge for defining common quality parameters for a commodity before the same is offered for trading. This issue is prominent in agricultural commodities. Under the circumstances, the spot exchange may not rely on offering standardized contracts alone, and may also consider offering trading of customized or *over-the-counter* contracts. AGMARK standards provide quality parameters for different agricultural commodities (including processed items). The percent value of these parameters for a sample derived by a registered warehouse may be used by any commodity derivatives exchange to decide about its own quality level (grade) for a realistic price discovery. This will facilitate and integration of regulated warehouses with the commodity exchanges. There may be diversity with respect to inferring grade standards for commodities at different levels of the refractions and other quality parameters in a given sample across different trading platforms. What is therefore needed, is harmonizing quality parameters for different commodities. The value of the parameters assigned to a commodity sample at any of the trading platform would help in interpreting the grade relevant to specific market.
- **Limitation of Assaying:** Scientific assaying of commodities may take some time before they can be recorded into online trading system for trading, more so in case a chemical test is required for assaying in an outside laboratory. However, assaying physical quality for grading a commodity on parameters such as moisture, physical impurity, and shrunken/ shriveled grains etc. may not take much time. Today, devices are available to undertake physical and chemical test at the level of a warehouse with a great degree of accuracy. However, there

would always be a need for development of regulated assaying infrastructure.

- **Need for creation of India delivery standards:** It is a fact that there is no domestic delivery standards created for any of the commodities which remains a main challenge in physical markets. For many of the global products, the market prevalent standards are not in conformity with the internationally accepted standards. Since most these commodities are imported, there is a necessity to set domestic product standards that can be comparable with international standards. Even in commodities such as Gold, Silver or Diamond where India has large market shares, there does not exist any domestic official deliverable standards, which deprives India of a level playing field in global trade.
- **Order Matching:** Given the inherent non-homogeneous nature of commodities, the auction formats can take different forms on the electronic spot exchanges (in addition to standard bid-ask matching on stock exchange). Some of these are ascending/descending auctions, buyers auction (anchored by large seller), sellers auction (anchored by large buyer), pre-audit auction (where the potential buyers can pre-audit the quality of commodity in warehouse) etc. Further, the contracts manifesting out of these auctions have different attendant risk margins (for e.g. margins in pre-audit contract would be lesser as it is backed by physical commodity to begin with). As a result of these different kinds of bilateral matching, series of prices emerge on the spot exchange corresponding to series of grades of the same commodity. However, the potential buyers generally rely on the assaying done by a regulated warehouse unless there are specific quality issues connected to commodities covered in a specific NWR.
- **Warehouse / Transportation Infrastructure:** As all the contracts of spot exchange must result in physical delivery, there should be a widespread network of regulated warehousing/vaults infrastructure to facilitate ease of giving/taking delivery throughout the country. Transportation infrastructure also needs to be further developed to boost growth of commodities trading. However, since electronic negotiable warehouse receipts facilitate transfer of title of goods without physical movement they provide an option to keep the stock in the warehouse safely till the depositor/buyer decides to take physical delivery of the goods.
- **Membership of exchanges:** Given the diversity of trades and bilateral nature of contracts, some commodity spot exchanges/auction platforms have evolved by offering Direct Trading Access (as opposed

to access via broker's terminal in spot markets for equity and other securities). Accordingly at present, the guidelines for registration process/KYC of the clients etc., are independently laid out by such platforms. These may require streamlining from the regulatory point of view.

- **Dispute Resolution:** Based upon the nature of parties involved, two kinds of dispute may arise in the trade executed on the spot exchange platform – one, between buyer and seller and another between client and exchange. While the exchanges mediate in the former, there are no guiding principles for the same in the absence of a regulator. Further, in the disputes between an exchange and a client, there should be a regulator to act as the natural adjudicating authority. In case of agricultural commodities, this role is presently played by Directorate of Marketing (DMI) of the concerned State Government (which issues the license to the spot exchange to trade in agricultural commodities under the State APMC Act). However, for trading in other commodities, there is no such adjudicating authority.
- **Risk Management/Clearing and Settlement:** Electronic trading platforms for commodities typically function on the principle of *first delivery, then payment* on sell-side and *first payment, then delivery* on the buy-side. This may obviate the need for Settlement Guarantee Fund at the exchange level. In addition, a small, pre-stipulated margin is generally taken as an advance payment to incentivize performance of the contract. This way, the exchanges can offer *compensation guarantee* rather than *settlement guarantee*, by way of forfeiture of margins. Further, given the direct trading access of clients and bilateral nature of contracts, netting of funds is also bilateral in nature. Such an arrangement may not be systemically prudent hence needs to be addressed.
- **NWR based trading:** Another issue that has been raised before the Committee is to allow spot trading in commodities by way of electronic trading of Negotiable Warehouse Receipts (NWRs). WDRA has initially launched Electronic Negotiable Warehouse Receipts (e-NWRs) for agricultural commodities stored in its registered warehouses. The e-NWR, is an instrument that contains details about the commodities with respect to its quantity as well as qualitative parameters apart from details of the owner of the commodity.

Issues in regulating commodity spot exchanges

6. Diverse regulations and regulators in the leg of physical settlement and dynamic nature of contracts suggest that possibility of replicating the regulatory model of stock exchanges in commodity markets is limited. Regulation of spot exchanges covering the entire spectrum of commodities across the country would pose a humungous challenge due to the following:-
- a) There is no definition of a spot exchange, either in the Central List or State list or in any of the existing regulations. It may be necessary to define the same, preferably under a relevant section of the Union List and in the relevant regulations that may be formulated/proposed to administer the spot exchanges.
 - b) Presently spot market regulation is under the purview of the Ministry of Consumer Affairs and not under the Ministry of Finance. This has been the case presumably because spot markets are almost always associated with agricultural commodities and not with non-agricultural commodities.
 - c) The Indian constitution has placed spot market trading under the ambit of the State Governments, hence, spot markets need to comply with provincial/state government laws and regulations (Stamp Act etc.).
 - d) Spot contracts for commodities per se are not under the ambit of Securities Contracts Regulation Act (SCRA), 1956. However, there is a definition of the ready delivery contracts provided in SCRA the transactions in which are outside the purview of SCRA.

Possible models of regulating electronic spot market trading platforms / spot exchanges for commodities

7. Once a spot trade enters the settlement stage, the delivery mechanism that exists in the country is commodity specific. For e.g. WDRA regulated warehouses for delivery of agricultural products, load dispatch centres (under CERC) for delivery of electricity, pipelines (regulated by Petroleum and Natural Gas Regulatory Board (PNGRB)) for delivery of natural gas etc. However, these commodity specific regulators, which largely work in the physical market segment, do not have any control over various pre-settlement trading activities that are common to all types of commodities

such as Order Matching, Delivery v/s Payment, Clearing and Netting of Funds etc. Therefore, irrespective of existence of diverse regulators existing for physical settlement specific commodities, it may be desirable and feasible too, to have a common regulator for regulating the pre-settlement phase of the electronic trading in commodities.

8. In light of the above, two possible models for regulation for electronic spot trading platforms / spot exchanges can be suggested:

a) **SRO/Distributed Regulation Model:** In this set-up, the Spot Exchange/Electronic Trading Platform could be a Self-Regulated Organization (SRO) regulating different stages of the trade in compliance with the regulations as they exist. This would mean that the Order-Matching and Auction Formats could be decided by the Exchange, Payments and Funds Clearing aspect could be regulated by Reserve Bank of India (authorizing agency under Payment and Settlement Systems Act, 2007), the physical delivery could be regulated by Commodity - Specific regulators in the physical market, who could also be in a better position to enforce compliance to Good Delivery Standards in specific commodities.

However, such SRO model will grant the spot exchanges a lot of liberty to conduct their business without any regulatory oversight on them. Such liberty may be misused, norms of risk management may be compromised and transparency in trade may get eroded if the SRO is not governed well by the management thereby putting the interest of participants in danger. Also, the dispute resolution (where Spot Exchange is one of the parties) may remain unaddressed. Therefore, the SRO model may require detailed study and deliberations in view of experiences from such models operating in past and a strong regulatory framework for SRO may have to be put in place before the model is adopted .

b) **Regulation by Centralized agency and its Pre-requisites:** Alternatively, a Central Agency like SEBI could be made the regulator for regulating and enforcing all pre-Settlement activities to begin with. Its natural advantage in regulating electronic trading in securities market could be leveraged to adapt best practices in risk management, fund settlement and dispute resolution on electronic trading platforms in commodities. However, the physical settlement of the commodities

may be segregated as far as regulation is concerned and it may continue to be executed as per the standards set by physical markets regulators/agencies in commodities.

The above model of regulation by SEBI, however, would require enabling amendments to Securities Contracts (Regulation) Act (SCRA), 1956. These amendments have to not just empower SEBI with prescription powers (related to trading and risk management standards) but also with powers to enforce the same. It requires further deliberations apart from taking a major policy decision with regard to vesting SEBI with additional responsibly pertaining to commodity spot market.

e-NAM trading platform in Agriculture Sector

9. As stated earlier, for the agricultural sector Government has initiated some steps with regard to spot trading on electronic platform with the launch of e-NAM while in the non-agricultural sector there exists no such regulated electronic spot market platform (except for the power exchanges under regulation of CERC).
10. National Agriculture Market (eNAM) is a pan-India electronic trading portal launched by the Government of India, with an objective to network the existing APMC mandis to create a unified national market for agricultural commodities. To begin with eNAM aims to integrate 585 mandis across different states of the country by March, 2018 of which as of October 31, 2017, around 470 APMCs of 14 states have been integrated on eNAM Platform and rest are expected to be connected by March, 2018.
11. The eNAM Portal aims to provide a single window service for all APMC related information and services. This includes commodity arrivals & prices, buy & sell trade offers, provision to respond to trade offers, among other services. While material flow (agriculture produce) continues to happen through mandis, an online market reduces transaction costs and information asymmetry.
12. The Ministry of Agriculture and Farmer Welfare has already initiated process for integrating eNAM with eNWRs so that the quantity and quality parameters captured in the eNWR also move to the eNAM platform in the prescribed format to facilitate sale of goods on eNAM platform without physically bringing them to the mandi. The model

APLM Act, 2017 circulated by the Government of India to all the States for notification also has the provision of notifying the warehouses as a sub mandi clearing regulatory hurdles in trading of goods kept in the warehouse through mandi. This will save the farmer from physically bringing the goods to a mandi and making a distress sale on whatever price he gets on that day. The eNAM - eNWR integration will also provide greater opportunities for price discovery across the States/ Country.

13. However, in order to operate the eNAM at its full potential and to pass on the intended benefit to the farmers, following steps are required to be undertaken :

- a) Each eNAM/APMC market should have appropriate storage facility to provide cost effective warehousing facilities to the sellers (farmers) so as to avert distress sale. If necessary, APMCs may invite private players to build warehouses at the site of the mandis.
- b) Mode of payment should ensure prompt payment from buyer to farmer. APMC markets should move towards electronic payments.
- c) A buyer, irrespective of his location, should participate in any market of his choice. The required agri-logistics infrastructure for storage and transportation is to be put in place.
- d) An institution to support inter-mandi trade and movement of produce, including dispute resolution mechanism should be established.
- e) Auction of the produce should take place simultaneously on one common electronic platform in all APMC markets in the country, as well as in the private markets, as and when they come to be established.

14. There are a few limitations pertaining to operational and infrastructural issues of eNAM as observed below :

- a) APMCs are dealing in wide variety of commodities; however it is observed that many a times, major commodities that have arrivals in large quantities during harvest period, are kept out from the e-NAM platform due to time constraints. Generally, commodities having arrivals in fewer quantities are preferred as they are easy to handle on eNAM platform. Under eNAM simplified quality standard for 90 commodities are being finalized covering most of the goods which come to the respective mandis. Moreover, the Government is also considering deployment of automated assaying equipment's for a fast quality assaying mechanism. It is hope that this will cover the major

commodities that have arrivals in large quantities during harvest period.

- b) APMCs are lacking in operational assaying lab for grading of the commodities prior to put them for online auction. Though some of the labs do have some basic instruments like moisture meter and weighing machine etc., this is a major deficiency noticed in majority of APMCs thereby affecting the prospect of introducing online trading platform in such APMCs. APMCs need to be well equipped with the basic assaying equipment's including automatic analyzers for both physical as well as chemical quality.
- c) In many APMCs, the details of trade are captured from the auction booklet (buyer, seller, seller's address, commodity name, quantity and auction rate etc.,) and uploaded on eNAM website for each individual auction. Thus, in such APMCs strictly speaking, online auction of commodities on eNAM platform is not taking place and the data of manual trading is being recorded into the system after the auction is done offline.
- d) Significant variation has been observed in arrival data of AGMARKNET and eNAM, as AGMARKNET data records actual transaction data while eNAM records the data captured at the arrival gate of the APMC.

15. The aforesaid issues and shortcomings of eNAM need to be addressed to make eNAM an effective platform of online spot trade by farmers and for making it an efficient platform for price discovery.

3. CHALLENGES, SUGGESTIONS FOR INTEGRATION OF SPOT AND DERIVATIVES MARKETS

Need for Integration of spot and derivatives market

1. The commodity markets have two segments, viz., the spot market and the derivatives market. Although these two segments operate in same ecosystem but on different market principles and function differently from each other, they have a symbiotic relationship as derivatives market is strongly anchored on the spot market. As discussed earlier, the commodity derivatives markets provide a platform for discovery of future prices of a commodity and also offer the participants in the spot market an opportunity to hedge themselves against fluctuations in future prices of the underlying commodities. Since the derivatives market ensures that the future and spot price of a commodity converges on the day the derivative contract expires for settlement, the discovery of real-time spot prices of a commodity on a pan-India electronic spot exchange will certainly strengthen the convergence of spot and future prices of a commodity thereby enhancing efficiency of both spot and derivatives market. Thus, efficient functioning of these two markets could enhance the effectiveness of the overall functioning of the commodity ecosystem and in-turn benefit all the stakeholders.
2. Stakeholders of a commodity, whether producers, farmers, traders or consumers would like to use commodity market for various reasons such as price discovery and predictable pricing, hedging, product quality, meeting export needs, inventory management, transparency in dealings, dispute resolution, timely delivery/sale of quality goods along with guaranteed payments and protection against inflation etc. In order to deliver these benefits in a seamless manner, it is necessary that the commodity spot and derivatives market function in an integrated manner so that the physical market participants in the commodity market, derive full benefit from both the markets and fulfill their marketing and hedging needs in an efficient way. 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.
3. In order to achieve the integration of spot and derivative markets in commodities, there is a need to overcome the following challenges :

- a) **Legal challenges:** There is no specific central law in the country for setting-up of or regulation of pan-India electronic spot market platform, spot exchanges in agricultural or non-agricultural commodities. The central law is for the Stock exchanges and futures markets under entry 48 of the union list. Thus, in absence of any central law for the regulation of the spot exchanges in commodities market (whether agricultural commodities or non-agricultural commodities), the commodity spot exchanges/platforms are required to be incorporated as normal companies under the provisions of the Companies Act.

In the Constitution of India, the Legislative power in respect of the subject matter 'trade and commerce' within a State or between different States are dealt within following three entries of the Seventh Schedule to the Constitution:-

- **The Union List** - Entry no. 42 of List I relating to "Inter-State trade and commerce".
 - **The State List** - Entry no. 26 of List II relating to "Trade and commerce within the State subject to the provisions of entry 33 of List III".
 - **The Concurrent List** - Entry no. 33 of List III relating to "Trade and commerce in, and the production, supply and distribution of,-
 - a. The products of any industry where the control of such industry by the Union is declared by Parliament by law to be expedient in the public interest, and imported goods of the same kind as such products;
 - b. Foodstuffs, including edible oilseeds and oils;
 - c. Cattle fodder, including oilcakes and other concentrates;
 - d. raw cotton, whether ginned or unginned, and cottonseed; and,
 - e. raw jute
- b) **Multiple regulators and regulations:** The commodities markets have numerous regulators as compared to its counterpart capital markets.
- SEBI is regulator for the commodity derivatives markets for agricultural as well as non-agricultural commodities.
 - The spot markets for the agricultural commodities are within the purview of the respective state governments. As regards non-agricultural commodities, especially for precious metals and non-ferrous base metals, there is no dedicated central agency.

- The Warehousing (Development & Regulation) Act, 2007 empowers WDRA to regulate warehouses storing goods i.e. both agriculture and non-agricultural commodities and issuing NWRs. However, WDRA has taken a strategy to first stabilize the agri warehousing and then enter into regulation of non-agri commodity warehousing. For the non-agricultural commodities especially for precious metals, non-ferrous metals at present there is no central/state agencies to regulate warehousing of such commodities. However, for the oil and gas sector PGNRB acts as nodal agency for formulating policies for storage.
 - There are various governmental agencies which are entrusted in regulation of trading/quality/movement of commodities.
- c) **Storage**: Storage infrastructure is integral to the functioning of a smooth spot and derivatives market in commodities. The regulation of warehouses and adequate scientific storage facilities enhances the trustworthiness, standardized procedures, transparency in commodities handling and trading.

At present, for agricultural commodities besides Central Warehousing Corporation (CWC) and State Warehousing Corporation (SWCs) which are public sector warehouse service providers, there are a good number of private players providing warehousing services throughout the country, which are regulated by WDRA. WDRA, the nodal agency primarily registers and regulates the warehouses which issue / intend to issue Negotiable Warehouse Receipts (NWRs). But for non-agricultural commodities (precious metals, gems, ferrous metals and non-ferrous metals) there is no dedicated agency which regulates vaults or warehouses. Further, the capacity of the available warehousing infrastructure is inadequate and the industry is localized, unorganized, and fragmented.

- d) **Ancillary infrastructure**: Lack of ancillary infrastructure such as adequate transport system (which is suitable for transport of specific commodities), regulated assaying and refining and testing facilities, trained and certified human resources, uniform quality standards etc., across the country do pose a challenge to the growth of these sectors.
4. Integration of spot and derivative markets can be achieved by overcoming above challenges and undertaking various steps as suggested below:

- Reforms in the underlying physical markets
 - Development of a regulated Pan-India electronic spot platform and/or regulated commodity spot exchanges
 - Reforms in derivative markets
 - Warehousing and development of storage infrastructure
 - Continuous collection and dissemination of data with regard to spot and derivative market
 - Reforms in the Quality standards
 - Ancillary Infrastructure development
 - Certification requirements
 - Developing robust dispute resolution mechanism
5. The Committee is aware that one-size-fits-all solution cannot and should not be made applicable on all commodities and wherever required appropriate modifications depending upon the nature of the commodity should be carried out. The recommendations made in the chapter “Roadmap and action plan for integration of spot and derivatives markets” of this report could help Indian commodity markets improve its efficiencies and provide its benefits to value chain participants.

4. ROADMAP AND ACTION PLAN FOR INTEGRATION OF SPOT AND DERIVATIVES MARKETS

1. The integration of commodity spot and derivatives markets would be highly beneficial to the primary producers and value chain participants, if the same is effectively implemented. The measures which have been suggested in this chapter for improvement in spot/physical and derivatives markets and the synergies that would flow from these measures are expected to result in effective convergence and integration between the two segments. The roadmap below outlines Short, Medium and Long term measures for improving efficiency of spot and derivatives markets and their integration. The short term measures are those that can be implemented within a period of one year, medium term measures are implementable between 1-3 years while long term measures would require a time period of more than 3 years for implementation.

A. Agricultural Spot Markets

1) Change in Market Regulations

Adoption of Model APMC Act by States is long overdue. Now, Ministry of Agriculture and Farmers' Welfare has prepared a new Model Agricultural Produce and Livestock Marketing (Promotion and Facilitating) Act (APLM), 2017 in consultation with states. The change in existing APMC Act on the lines suggested in Model APLM Act, 2017 is critical to improve the efficiency in agricultural markets and to integrate farm level production with end-uses.

(Action: Ministry of Agriculture, State Governments

Time frame: Short Term)

2) Multiple modes to the farmer for selling his farm produce

The present system of agricultural marketing mandates sale/purchase of agricultural commodities through notified market yards. This is depriving farmers from sale of produce through any other better paying channel. In order to enable farmers to get best possible price for their produce, it is suggested that:

- a. There should be multiple modes of selling of farm produce, so that farmers can sell their produce at the competitive prevailing price.

- b. Restriction on farmer to sell his produce only through recognized APMCs should be removed.
- c. Levy of fees by APMCs on goods sold should be restricted to the produce sold within the APMC market yard and such fee should be treated as service charge and not treated as statutory tax.

(Action: Ministry of Agriculture, State Governments

Time frame: Short term)

3) **Farmers' Producers Organizations (FPOs)/cooperatives**

In India, the average size of agricultural land holding is very small which involves strong scale disadvantage both in input market and output market. Further, each farmer makes individual bid to sell his produce at the market yard and most of times fetches low prices due to low scale and weak bargaining power. Success has been observed in the dairy sector where the cooperatives are working in the interest of the farmers and such cooperatives have provided better price realization to farmers over the years. Similar models may be replicated (by modifying suitably keeping in mind the characteristics of the commodity/sector) in other agricultural products or sectors.

FPOs have emerged as a very successful business model, particularly, for small holders. However, their number remains very small. There is a pressing need to organize farmers in FPOs at large scale in all the States of the country so that farmers get better price realization through their collective bargaining power. This will also enable the farmers to participate in derivatives markets in a bigger way.

The tax exemption to Farmers Producers Companies (FPCs) proposed in the Finance Bill, 2018 may be used as an additional incentive to encourage formation of FPOs in larger numbers this should also lead to post-harvest value addition to raise farmers' income. In order to further encourage the farmers' groups it is suggested that:

- a. The registration process for formation of Farmer Producer organizations (FPOs)/FPCs etc., should be reviewed and the documents/registration/licensing requirements for forming such institutions should be streamlined and simplified.
- b. The FPOs should be exempted from stock limits under ECA, 1955. The FPOs should be trained in carrying out processing of farm commodities, so that they generate additional income by selling

such processed commodities. This would in turn help in generating additional revenues to the members of such FPOs.

(Action: Ministry of Agriculture, Ministry of Consumer Affairs, state governments, SFAC, NABARD

Time frame: Short term, Medium term)

4) Scientific storage of commodities across country

Warehousing Development and Regulatory Authority (WDRA) is entrusted with the responsibility to register and regulate the warehouses which issue / intend to issue Negotiable Warehouse Receipts (NWRs). In order to develop, regulate and promote scientific storage of commodities, it is suggested that:

- a. All the warehouses, which provide storage services to the third parties should be required to register with the WDRA. This would help in creating a robust and standardized warehousing infrastructure.
- b. There is a need of streamlining governance of warehousing under WDRA (excluding special commodities like petroleum products etc.).
- c. WDRA should prescribe detailed Standard Operating Procedure (SOPs) for the scientific storage practices for the individual commodities and should take measures to enforce quantity and quality norms for the underlying goods stored in the registered warehouses.
- d. A diverse network of warehouses should be developed across the country to service a wide range of commodities. Such network of professional and scientific storage facilities should be closer to the farms.
- e. Warehousing / storage industry should be accorded infrastructure industry status with necessary incentives to set up warehouses across the country.
- f. Specialized storage for perishable and semi-perishable commodities should be provided at concessional rate of power.

(Action: Ministry of Agriculture, Ministry of Consumer Affairs, WDRA, SWCs, CWC, warehouse operators, and all stakeholders

Time frame: Medium term and ongoing)

5) Assaying facilities

Assayed goods are found to fetch better prices as compared to mixed/non-assayed lots. To popularize assaying, the Committee makes following recommendations:

- a. Awareness programs for the farmers should be carried out to highlight the benefits of the assaying.
- b. There is a need for the development of network of cost effective assaying facilities in agricultural markets across the country for all types of commodities.
- c. Electronic spot market platforms should adopt state-of-the-art technologies to enable quick and accurate assaying at reasonable costs.
- d. Assaying of goods should be mandatory for electronic spot exchanges.

(Action: FSSAI, AGMARK, Regulator of Spot Exchanges
Timeframe -Long term and ongoing)

6) Institution for developing grades and standards of commodities

Currently there are two agencies prescribing grades and standards, viz., AGMARK and FSSAI. In addition to these there are various other standards for specific purposes like FCI standards, CODEX standards and APEDA standards. Ministry of Agriculture should unify the grades in consultation with relevant authorities depending upon end use for easy understanding and adaptability by all segments of the markets.

(Action: Ministry of Agriculture, Directorate of Marketing and Inspection, Ministry of Health & Family welfare, FSSAI, FCI, APEDA.
Time frame: Medium Term and ongoing)

7) Procurement Schedule and programs

- a. Public agencies procure small to significant quantity of various agricultural commodities to meet some public purpose. Such procurement should be aligned to fluctuations in production, market arrivals and prices to safeguard interest of farmers and check price volatility.
- b. Large procurement of agricultural produce is undertaken by public agencies like FCI, NAFED at Central and State level. This is meant primarily to ensure MSP or remunerative prices to farmers. In some cases, this benefit does not reach farmers, and traders in the guise of

farmers receive MSP. The public procurement agencies should ensure that benefit of public procurement reaches farmers.

- c. The procurement agencies may also like to use the facility of eNWRs which will save the farmers from transporting their goods to multiple locations and also greatly reduce the logistic cost to the agency. These agencies may like to keep the stock in the regulated warehouses till further movement is warranted. The procurement agency may also plan staggered procurement of agricultural commodities stored in warehouses registered with WDRA to avoid rush in mandis / procurement centres at the time of harvest which often leads to fall in market prices.
- d. These institutions may also explore the electronic spot market platform / exchanges, derivatives markets or contract farming as source for procurement of the agricultural commodities

(Action: Ministry of Consumer Affairs, Agricultural marketing institutions, state governments

Time Frame: Short term)

8) Review of ECA, 1955

- a. In view of the changing market dynamics and improvement in food security situation, there is a need to revisit the definition of the essential commodities and the list of essential commodities under ECA. All commodities that are covered under the ECA are not equally essential at all times. The provisions under ECA should be used in extreme conditions and not used frequently.
- b. The stocks held in the WDRA registered warehouses which are publicly disclosed on a day to day basis should be exempted from stock limits.

(Action: Ministry of Agriculture, Ministry of Consumer Affairs and State Governments.

Time frame: Long term and ongoing)

9) Electronic platforms as markets

- a) Regulated electronic platforms such as electronic spot markets and spot exchanges should be deemed as market yards under the present system of marketing.
- b) Such electronic spot markets and spot exchanges should be kept out of the requirement of payment of fees to APMCs.

(Action: APMCs, Ministry of Agriculture, State Governments

Time frame: Long term and ongoing)

10) Improvements in eNAM

In order to provide the intended benefits of eNAM to the farmers, following steps are required to be undertaken:

- a) Each eNAM/APMC market should have appropriate storage facility to provide cost effective warehousing facilities to the sellers (farmers) so as to avert distress sale. If necessary, APMCs may invite private players to build warehouses at the site of the mandis.
- b) Mode of payment should ensure prompt payment from buyer to farmer. APMC markets should move towards electronic payments.
- c) A buyer, irrespective of his location, should be allowed to participate in any market of his choice. The required agri-logistics infrastructure for storage and transportation is to be put in place.
- d) An institution to support inter-mandi trade and movement of produce, including dispute resolution mechanism should be established.
- e) Auction of the produce should take place simultaneously on one common electronic platform in all APMC markets in the country, as well as in the private markets, as and when they come to be established.
- f) There should be regular flow of information on prices and trades executed on eNAM, commodity spot and derivatives exchanges from one platform to the other to achieve integration of the markets.

(Action: Ministry of Agriculture, State Governments

Time frame: Long term and ongoing)

11) Food Parks and Agro-Processing Units

There is lot of emphasis and resource support for food processing sector as the development of food processing industry and its linkage with agriculture have remained subdued. To harness the potential of various initiatives in this area like food parks, there is a need to review the eligibility criteria required to avail the benefits from food parks.

(Action - Ministry of Food Processing Industries

Time frame-Medium term and ongoing)

12) Data Dissemination

The Committee is of the view that there should be a sound institutional mechanism to collect, collate and disseminate the data of spot market transactions both primary and secondary markets on a regular basis.

Many commodities suffer from year-to-year fluctuations in acreage, production and thus, gluts and shortages resulting in violent price variations. Development of advisories based on price and demand forecast will go a long way in bringing stability in production and prices, and hence, farm incomes. The recent announcement in the Union Budget speech (2018-19) by the Hon'ble FM to create an institutional mechanism with participation of all concerned ministries to develop appropriate policies and practices for price and demand forecast, use of future & options markets, expansion of warehouse depository system etc. should be put in place at the earliest.

(Action: Ministry of Agriculture, Ministry of Statistics, Ministry of Commerce, State Governments

Time frame: Medium Term)

13) Updated Study on Implementation of Agricultural Reforms

Periodic study may be conducted on the implementation of agricultural markets reforms undertaken so far by the states in the country. This would not only help in understanding the ease of doing business in agricultural commodities but also suggest necessary steering required to policy. NITI Aayog should periodically prepare ranking of states in terms of marketing and ease of doing agri-business

(Action: NITI Aayog, Ministry of agriculture and state governments

Time frame: Medium Term)

B. Non- Agricultural Spot markets

14) Regulated warehouse and ancillary infrastructure

- a) India does not have a regulated warehouse infrastructure for non-agricultural commodities and they are left to the producers and suppliers who have their own warehousing/delivery points. Such private warehouses may not follow any prescribed standards relating to storage. The vaults providing services for storing precious metals

such as Gold or silver are also not regulated by any agency despite the fact that they have huge amounts of valuable deposit with them. WDRA should actively pursue developing rules for registration of warehouses storing non-agricultural commodities.

(Action: WDRA)

Time frame -Medium term and ongoing)

b) There should be a special focus on developing ancillary infrastructure such as transports (which is suitable for transport of such commodities), regulated assaying and refining and testing facilities etc., across the country to facilitate overall growth of these sectors.

(Action: Ministry of Transport, Ministry of Railways, WDRA, Bureau of Indian Standards and all Stakeholders)

Time frame: Long term and ongoing)

c) A few commodities in the non-agricultural commodities complex require specialized facilities for transporting, as movement of such commodities like coal and lead could have adverse impact on the environment. India requires better and more environment friendly transportation of such commodities.

(Action: Ministry of Coal, Ministry of Steel, Ministry of Petroleum and Natural Gas, Ministry of Environment, and all other stakeholders)

Time frame: Short term)

d) In the sectors such as base metals, precious metals, gems and stones, there is a perception of opaqueness, particularly due to the fragmented nature of the industry. Steps may be taken to improve the transparency by increased registration of enterprises, higher discipline in quality testing / assaying, financial reporting and tax payments as well as increase the share of organized sector in markets of such commodities

(Action: Proposed Administrative Ministry, and relevant stakeholders)

Time Frame: Medium term and ongoing)

15) Developing India delivery standards and aligning with global standards

Indian market does not have any domestic standards for delivery in any of the base metals or precious metals and relies upon global standards. In order to compete with global markets, India needs to first

develop India specific good delivery standards which can easily be aligned with the global standards. This will encourage manufacture of quality product from Indian manufacturers, both for domestic as well as international markets. Even in the case of Gold, where India is second largest consumer, the country has not yet developed any domestic delivery standards and follows the LBMA standards much to the disadvantage of domestic refineries and jewelry industry.

(Action: Bureau of Indian Standards and all Stakeholders

Time frame: Medium term and ongoing)

16) Dedicated Ministry / Department for Precious metals, Gems and Non-ferrous Metals

Unlike steel, coal or oil & natural gas which are regulated by separate ministry/departments in the Central Government, there is no dedicated ministry/agency at central government level to regulate precious metals, gems and other Non-ferrous Metals. As a result, industries engaged in precious metals, gems and non-ferrous metals business fall under the ambit of various government ministries like Ministry of Commerce, Ministry of Mines etc., and may have to comply with regulations of different agencies.

The Committee feels that there should be a dedicated controlling ministry for base metals. In this regard, Ministry of Steel may be entrusted the task of overseeing the markets for all ferrous and non-ferrous base metals. This will facilitate ease of doing business in base metals industry and contribute to overall growth of these sectors.

(Action: Union Cabinet- Government of India

Time Frame: Short term)

17) Recycling of non-agricultural commodities

In view of domestic shortage, rising prices, oligopolistic nature of supply, low access to primary markets for raw materials especially by the Micro, Small & Medium Enterprises (MSME) and environmental issues, there is a strong case for more reliance on recycling of the non-agricultural commodities, especially for the base metals and precious metals. Besides, recycling of base material saves energy and carbon-dioxide emissions and also has the potential to generate new employment. The Committee recommends that:

- a) The country should develop recycling industry with application of the latest technology and better standards of manufacturing.
- b) A clear policy is needed for recycling of local and imported scrap in the country.

(Action: Ministry of Commerce and Industry, Ministry of MSME, Ministry of Environment and all other Stakeholders)

Time frame: Medium term and ongoing)

C. Miscellaneous Issues in Spot Markets

18) Trade policies

Government of India may review Free Trade Agreements (FTA) signed with a host of neighboring countries as some of these FTAs are reportedly having adverse impact on the growth of the domestic sector.

(Action: Ministry of Commerce and Industry)

Time Frame: Long term and ongoing)

19) Spot Exchanges

Both the agricultural and non-agricultural commodities markets/ sectors are lacking a formal and regulated structure of spot exchanges. Due to which markets continues to be fragmented and dispersed. Therefore, it is recommended that for the development of the spot markets of these two segments, regulated market structure such as electronic commodity spot exchange or electronic market platforms like eNAM (in case of agricultural markets) are developed for better price discovery and realization. Development of commodity spot exchange is discussed in detail in the recommendation on integration.

(Action: DEA, Ministry of Agriculture, Proposed controlling Ministry)

Time Frame: Medium term)

D. Derivatives markets

20) Increasing Participation

Participation of institutions in the commodity derivatives market could help in many ways including:

- Leveraging the geographical reach and research expertise of banks, mutual funds, insurance companies for distribution of commodity derivatives products.
 - Better credit mobilization at MSME level, farmers or farmer collectives
 - Building liquidity in far-month contracts which could in-turn help in increased hedgers' participation.
- a) Enabling participation by institutions listed below would deepen the commodity derivatives markets.
- banks,
 - mutual funds,
 - foreign entities,
 - insurance companies,
 - pension funds,
 - agricultural marketing institutions and such like institutions
- b) Further, increased participation by the following entities needs to be encouraged:-
- Farmer Producers' Organisations (FPOs),
 - aggregators,
 - listed corporates,
 - agricultural marketing institutions and civil supplies institutions

Action: SEBI, RBI, PFRDA, IRDA, Ministry of Agriculture and all relevant stake holders

Time Frame: Medium Term)

21) Introduction of New products

There should be thrust on developing new products which cater to the needs of the stakeholders. Such products could be-

- options in more number of commodities (currently, options with underlying as Gold and Guar Seed futures are permitted)
- commodity based exchange traded funds (ETFs)
- commodity index derivatives
- weather derivatives
- freight derivatives

(Action: SEBI and Stock Exchanges

Time Frame: Medium Term)

22) Expanding the basket of commodities for launch of commodity derivatives products

Exchanges should carry out detailed study and explore the need of derivatives contracts in new commodities. For example, exchanges could initiate steps on developing derivatives contracts (subject to the requirements of the industry) on metal scraps, ferrous metals, dairy products and animal husbandry etc., which are presently missing in the domestic markets. Such contracts could bring in those entities which are now keeping themselves out of the derivatives market due to non-availability of such exchange traded products.

(Action: Ministry of Finance, SEBI, Exchanges and stake holders

Time Frame: Medium Term and ongoing)

23) Rationalization of cost of trading

At present, cost of trading in commodity derivatives is very high which includes trading/brokerage charge, statutory levies including taxes and stamp duty, warehousing/vault charges etc. This has led to migration of trading from the Indian commodity derivatives exchanges to the global markets and has also deterred many from making efficient use of the derivatives platform.

- a) A comparative study may be carried out for costs associated with the trading of commodity derivatives in India vis-à-vis the global exchanges and based on the outcome of the study; necessary efforts could be made in order to reduce/rationalize cost of trading.
- b) In order to promote farmers and FPOs participation in the commodity derivatives markets, SEBI and/or exchanges should take measures to reduce the transaction charges for such participants.

(Action: Ministry of Finance, SEBI, and recognized stock exchanges

Time frame: Short term)

24) Linkages with the Global commodities market

In the context of globalization of the commodities markets, steps should be taken to link Indian derivatives market with their global peers. This may include:

- a) Designing of contracts in such a manner that it improves hedging effectiveness of globally linked commodities.

- b) In order to improve international competitiveness in respect of some of the commodities that are unique to the domestic market, steps may be taken to align trading hours of Indian exchanges with the trading hours of Asian, Latin American and Australia markets.

(Action: SEBI and Exchanges)

Time frame: Medium Term and ongoing)

25) Measure to increase participation of hedgers' and farmers'

- a) Hedgers would like to hedge their underlying holdings; hence the exchanges should design the contracts in such a manner and with such specifications that they are consistent with the actual trade practices in the underlying physical markets.
- b) In order to attract more participants in the commodity derivatives, awareness programs for various stakeholders may be carried out with special focus on the efficient use and benefits of commodity derivatives market for risk management and price discovery.
- c) The strategy for the awareness programs could be multi-fold like creating awareness at the level of ultimate users like farmers, MSMEs and traders etc., and creating awareness at level of institutions such as banks, FPOs/farmers' collectives, agricultural marketing institutions and government organizations dealing in policy making etc.

(Action: SEBI and Exchanges)

Time frame: Medium Term and ongoing)

26) Specific issues pertaining to the agricultural commodity derivatives contracts

There are certain issues which are unique to the agricultural commodity derivatives contracts, which can cause adverse impact on agricultural commodities (either in spot or derivatives market) and also can affect the performance of the commodity derivatives markets. These are as under:

- a) There should not be sudden discontinuation or disruption in derivatives trading in agricultural commodities due to reasons such as production shortage/glut, volatility in spot prices, and imposition of stock control limits etc., which are beyond the control of the derivatives market. These issues need to be addressed separately to take necessary policy decision.

- b) The stocks deposited within exchange accredited warehouses for the purpose of trading on exchange platform should be considered for exemption from imposition of stock control limits under ECA as information regarding such stocks is transparently disclosed on exchange website to public/Government.
- c) The central and state agricultural marketing institutions can consider derivatives markets (especially option trading) as one of the source for price and supply stabilization for of the agricultural commodities.

(Action: State Governments, Ministry of Agriculture, Ministry of Consumer Affairs, SEBI, Exchanges and stakeholders)
Time Frame: Long term and ongoing)

E. Integration of commodity Spot and Derivatives

27) Creation of an electronic platform and developing a robust electronic spot platform or exchange under a Regulatory Body

Derivatives market can achieve better convergence with the spot markets when transparent and reliable spot prices would be available on a pan-India electronic trading platforms in the same products that would be concurrently traded on both the platforms during same/similar trading hours. However such pan-India electronic spot exchanges need to be well regulated under appropriate regulations as is being done in case of commodity derivatives exchanges. Suggestions for domestic spot market could be either of the following or the combination of these:

- A single Pan-India electronic platform/exchange for all commodities
- Pan-India separate electronic platforms/exchanges for different categories of commodities
- Separate platforms/exchanges for spot and derivatives market
- Integrated platform/exchange for spot and derivatives market

The Committee is aware that SEBI does not have the statutory mandate to regulate commodity spot transactions. During deliberations, SEBI submitted that commodity spot markets does not fall within its regulatory purview and it does not have adequate skill set and resources to deal with the spot market of the commodities. Therefore, dissenting from the opinion of Committee members to vest it with the

powers to regulate the spot exchanges SEBI suggested that regulation of commodity spot exchanges should be vested with a separate sectoral regulator. However, the Committee members are of the view that regulation of such pan-India electronic spot exchanges, which involves attendant risk management, clearing and settlement etc., may be entrusted to a single regulator like SEBI. Further the existing institutional infrastructure of commodity exchanges may also be utilized, to the extent possible, to create a spot exchange for commodities.

(Action: DEA, SEBI

Time frame: Medium term)

28) Quality and standards

There should be product standardization and uniform standards for assaying and warehousing in respect of the contracts/commodities which are traded in spot market and derivatives market. This will lead to better integration of spot and derivatives.

As the Indian markets cannot be left in isolation, the objective should be alignment of domestic spot and derivatives market with proper international markets wherever feasible.

(Action: BIS, FSSAI, APEDA, AGMARK and all stakeholders,

Timeframe: Medium term and ongoing)

29) Collection and dissemination of data with regard to spot and derivative market

While the data of primary agricultural spot market transactions at APMCs mandis are available to policy makers, there is no adequate mechanism to collect and disseminate the data for the secondary market transactions (trader to trader) that occur throughout the year and are also dispersed across the country. The Committee is of the view that there should be a sound institutional mechanism to collect, collate and disseminate the data of spot market transactions both primary and secondary markets on a regular basis.

(Action: Ministry of Statistics, Exchanges

Timeframe: Medium term and ongoing)

30) Increasing awareness amongst the players

Market players participating in the physical market needs to be made more aware about the benefits of participating in the electronic spot market platform/ exchange and derivatives exchange platform.

(Action: Proposed spot exchange/ platform regulator, SEBI, Exchanges, all relevant stakeholders)

Time frame: Medium term and ongoing)

31) Warehousing and development of storage infrastructure

Registering of warehouses with the centralized authority WDRA and issuance of negotiable warehouse receipts would generate a host of benefits to the ecosystem of both agricultural and non-agricultural commodities. Development of a warrant/ warehouse receipt based delivery system to facilitate seamless transfer between spot and futures markets thereby reducing arbitrage between the two markets. The Government should encourage the negotiability and tradability of warehouse receipts

(Action: WDRA and all stakeholders)

Time Frame: Medium term and ongoing)

32) Certification requirements for skilled workforce

There could be requirement of certification programs for the spot market, derivatives' market, warehousing sector, and quality assaying etc. This could help in creating a certified and qualified professional workforce for overall development of the commodity markets.

Action: BIS, WDRA, Proposed Spot Exchanges Regulator)

Time Frame: Short term)

33) Robust Dispute Resolution Mechanism

With development and integration of the spot markets with derivatives markets, there is a likelihood of increase of disputes/litigations amongst various stakeholders. Thus, it is necessary to have in place, a common and clear mechanism for resolution of disputes arising out of trading on the spot and derivative exchanges.

(Action: Proposed spot exchange/ platform regulator, SEBI, stock exchanges and all relevant stakeholders)

Time Frame: Medium term)

2. As there exists no regulated spot exchange in the commodities, it may be desirable to have Pan India multi-commodities electronic spot platforms or exchanges which could help in ushering best practices in commodity trading. Such platforms/ exchanges are certainly suited for all non-perishable commodities but would also be useful for semi-perishable commodities which can be stored easily. To begin with, the following commodities can be considered suitable for such platforms/ exchanges which could help in integrating trading of such commodities across spot and derivatives market.

Table 3: Initial list of commodities that could be considered for Pan India electronic commodities spot platforms or exchanges

Commodity	Sector	Rationale	International experiences
Gold	Precious metals, gems	India is second largest consumer of Gold in the world after China. Further, it is Globally linked commodity traded widely across globe and have a well-developed futures market across the globe.	Turkey, China, Iran, Japan, Dubai, Brazil
Silver	Precious metals, gems	India is fourth largest consumer of Silver in the world. Further, it is Globally linked commodity traded widely across globe and have a well-developed futures market across the globe.	Turkey, China, Iran
Diamond	Precious metals, gems	India is the Largest hub for manufacturing polished diamonds and third largest diamond consumer	Turkey, Singapore
Sugar	Agricultural Product	India is the largest consumer of Sugar and second largest producer of the sugar. Further, it is traded widely across globe and have a well-developed futures market across the globe.	Iran, China
Castor Seed	Agricultural Product	India is the largest producer of castor seed	NA

Commodity	Sector	Rationale	International experiences
Guar Seed	Agricultural Product	India is the largest producer of Guar Seed	NA
Iron and Steel	Base Metals	As the thrust of the Government is on the infrastructure development, the basic material would be iron and steel for such development. Further, India is the third largest producer of iron and steel in the world.	Iran
Cotton	Fibres	India is second largest producer of Cotton in the world after China and second largest exporter of cotton besides USA.	China
Tea	Plantation	India is the second largest producer of tea besides China.	Indonesia
Jute	Plantation	India is the largest producer of Jute	NA
Pepper	Spices	India is the third largest producer of Pepper	NA
Cardamom	Spices	India is the second largest producer of Cardamom after Guatemala	NA

3. The afore-stated list of suggested commodities is only illustrative based on certain prima-facie observations given as rationale. More number of agricultural and non-agricultural commodities can be added depending upon their availability, production, demand and supply scenario.

4. The Committee would further like to suggest that the recommendations which are applicable to single agency without involvement of other governmental agency, the implementation of such recommendations could be fast-tracked after analyzing the pros and cons of such recommendations.

ABBREVIATIONS

APMC	Agricultural Produce Market Committee
BIS	Bureau of Indian Standards
CERC	Central Electricity Regulatory Commission
CWC	Central Warehousing Corporation
ECA	Essential Commodities Act, 1955
eNAM	Electronic National Agricultural Markets
FPO	Farmer Producer Organisations
FSSAI	Food Safety and Standards Authority of India
FTA	Free Trade Agreements
GoI	Government of India
GST	Goods and Services Tax
IGIDR	Indira Gandhi Institute of Development Research
KYC	Know Your Customer
LBMA	London Bullion Metal Association
MSME	Micro, Small & Medium Enterprises
NABARD	National Bank for Agriculture and Rural Development
NWR	Negotiable Warehouse Receipts
PNGRB	Petroleum and Natural Gas Regulatory Board
RBI	Reserve Bank of India
ReMS	Rashtriya eMarket Services Private Ltd
SCRA	Securities Contracts Regulation Act, 1956
SEBI	Securities and Exchange Board of India
SRO	Self-Regulated Organization
SWC	State Warehousing Corporation
SWF	Sovereign Wealth Funds
ToR	Terms of Reference
UMP	Unified Market Platform
WDRA	Warehousing Development and Regulatory Authority

Report of the Group on Agricultural Commodities

Background

1. In the budget speech, while presenting the Union Budget for Financial year 2017-18, the Hon'ble Finance minister made following announcement:

“The Commodities markets require further reforms for the benefits of farmers. An expert committee will be constituted to study and promote creation of an operational and legal framework to integrate spot market and derivatives market for commodities trading. e-NAM would be an integral part of such framework.”

2. In pursuance thereof, the Government of India (GoI) set up an Expert Committee under the Chairmanship of Prof. Ramesh Chand, Member, Niti Aayog with the following terms of reference (ToR):

- Better price realization for farmers by creating liquid and transparent spot as well as derivatives markets.
- Better access for farmers and businesses to agricultural goods and services across India.
- Empowerment of farmers with knowledge, information and capability to undertake market-driven production.
- Improved efficiency, competitiveness, supporting infrastructure and strong Institutional mechanism by integrating spot with commodity derivatives markets.
- Recommend measures to achieve operationally seamless interconnectedness between fragmented physical commodity markets / commodity exchanges / electronic platforms, the supporting infrastructure, institutions and the various participants.
- Development of regulated electronic spot exchanges both for agricultural and non-agricultural commodities like gold, silver, base metals, energy products for better price discovery and disseminating reference prices for derivatives markets,
- Ease of doing business in the commodities market and related areas in the country.
- Any other matter that government may specify or the Committee considers relevant in this regard.

3. To sum up the above ToR, the Expert Committee would examine the legal, technical and operational aspects of the two markets with a view to eliminate the gaps and overlaps and suggest roadmap and requisite measures for achieving

the expected integration between the commodity spot and derivatives markets in India.

4. The Expert Committee includes two external experts and representatives from cross section of the following organisations to study various aspects referred to in ToR of the committee:

- Department of Economic Affairs (DEA)
- Department of legal Affairs (DLA)
- Department of Food and Public distribution
- Department of Commerce
- Department of Agriculture Cooperation and Farmers' Welfare
- Securities and Exchange Board of India (SEBI)
- Reserve Bank of India (RBI)
- National Bank for Agriculture and Rural Development (NABARD)
- Warehousing Development and Regulatory Authority (WDRA)
- Government of Gujarat , Karnataka, Madhya Pradesh, Maharashtra, Odisha and Punjab

Group on Agricultural Commodities

1. In the first meeting held on August 02, 2017, the members of the Expert Committee suggested that two separate groups may be created comprising different members of the Committee i.e., one group to look into issues relating to the agricultural commodities and the other group to focus on issues relating to the non-agricultural (metals, bullion and energy) commodities. The Committee felt that the issues and challenges concerning agricultural commodities and non-agricultural commodities being different, they need to be separately examined for better appreciation of these commodities which would help the Committee to understand the respective markets with better clarity. NABARD was made the coordinator for the group constituted for agricultural commodities while SEBI was made the coordinator for the group constituted for non-agricultural commodities.

2. The Expert Committee nominated the following representatives as the members of the group on agricultural commodities:

- i. Dr. Alka Bhargava, Joint Secretary (Marketing) (Initially) , Shri P K Swain, Joint Secretary (Marketing) (Presently)-Department of Agriculture & Farmers' Welfare
- ii. Dr. B. B. Pattanaik, Member-WDRA
- iii. Dr. Kirit N. Shelat, IAS (Retd.)
- iv. Dr. R.J.R. Kasibhatla, Deputy Legal Adviser-Department of Legal Affairs
- v. Dr. Rajiv Ranjan, Advisor, Department of Economic Policy and Research (DEPR) - RBI
- vi. Dr. Shashank Saksena, Adviser(Capital Markets) - Department of Economic Affairs
- vii. Dr. Susan Thomas, Head, Finance Research Group - IGIDR
- viii. Shri A. K. Choudhary, Economic Adviser - Department of Consumer Affairs
- ix. Shri Bijay Kumar, Principal Secretary (Agriculture & Marketing),- Maharashtra
- x. Shri Chandrashekhar Vashistha, Addl. Director, State Agricultural Marketing Board - Madhya Pradesh
- xi. Shri Manoj Ahuja, Principal Secretary, Agriculture and Farmers' Empowerment Department (Initially), Dr. Saurabh Garg, Principal

Secretary, Agriculture and Farmers' Empowerment Department
(Presently) - Odisha

- xii. Shri Nilambuj Sharan, Economic Adviser - Department of Food
- xiii. Shri R. Manoj, Additional Secretary (Market Reforms) - Karnataka
- xiv. Shri R. Amalorpavanathan, Deputy Managing Director - NABARD
- xv. Shri Rajat Agarwal, Special Secretary Expenditure - Punjab
- xvi. Shri S. Sivakumar - ITC
- xvii. Shri Sanjeev Kumar, Secretary (Economic Affairs) - Gujarat
- xviii. Shri Santosh Kumar Sarangi, Joint Secretary - Department of
Commerce
- xix. Shri Vikas Sukhwal, DGM - SEBI

3. The group on agricultural commodities had its first meeting at the head office of NABARD at Mumbai and subsequent meeting was held in Delhi on September 28, 2017 and November 18, 2017 respectively.

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Executive Summary

Agriculture and allied sectors account for only 16.1 per cent of the GDP; yet as much as 54.6 per cent of India's workforce relies on this sector for employment and incomes. Although agricultural households earn incomes from several sources, a major portion is still from agriculture and allied activities. Despite significant progress made in the agricultural sector and the opportunities opened up by new market players, growth in demand for high value commodities and increased world commodity prices in recent years, sustained growth in farm incomes continues to present a formidable challenge. The situation of farmers and, more generally, agriculture needs to be addressed therefore with a renewed sense of urgency. This is expressed in the current goal of Doubling Farmers' income and reflected in the steps that have been taken to achieve this. While there are many potential pathways to achieving increases in farmer incomes – for example by investing in yield-increasing technologies, enhancing input use efficiency and changing the cropping pattern, there exist substantial scope to improve the price realizations of the farmer.

In order to ensure that farmers receive higher and more stable prices, one requires the creation of liquid and transparent spot as well as derivative markets, providing farmers with knowledge, information and capability to undertake market driven production and seamless interconnectedness between fragmented physical commodity markets and commodity exchanges electronic platforms the supporting infrastructure institutions and the various participants. The policy challenge is that these need to be accomplished keeping in mind consumer interests as well.

The commodity markets have two segments, viz., the spot market and the derivatives market. Although these two segments operate in same ecosystem but on different market principles and function differently from each other, they have a symbiotic relationship as derivatives market is strongly anchored on the spot market. The commodity derivatives markets provide a platform for discovery of future prices of a commodity and also offer the participants in the spot market an opportunity to hedge themselves against fluctuations in future prices of the underlying commodities. Since the derivatives market ensures that the future and spot price of a commodity converges on the day the derivative contract expires for settlement, the discovery of real-time spot prices of a commodity on a pan-India electronic spot exchange will certainly strengthen the convergence of spot and future prices of a commodity thereby enhancing efficiency of both spot and derivatives market. Thus, efficient functioning of these two markets could enhance the effectiveness of the overall functioning of the commodity ecosystem and in-turn benefit all the stakeholders.

Stakeholders of a commodity, whether producers, farmers, trader or consumer would like to use commodity market for various reasons such as price discovery and predictable pricing, hedging, product quality, meeting export needs, inventory management, transparency in dealings, dispute resolution, timely delivery/sale of quality goods along with guaranteed payments and protection against inflation etc. In order to deliver these benefits in a seamless manner, it is necessary that the commodity spot and derivatives market function in an integrated manner so that the physical market participants in the commodity market, derive full benefit from both the markets and fulfill their marketing and hedging needs in an efficient way. 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.

In order to achieve the integration of spot and derivative markets in commodities, there is a need to overcome the following challenges:

a) **Legal challenges:** There is no specific central law in the country for setting-up of or regulation of pan-India electronic spot market platform, spot exchanges in agricultural or non-agricultural commodities. The central law is for the Stock exchanges and futures markets under entry 48 of the union list. Thus, in absence of any central law for the regulation of the spot exchanges in commodities market (whether agricultural commodities or non-agricultural commodities), the commodity spot exchanges/platforms are required to be incorporated as normal companies under the provisions of the Companies Act.

b) **Multiple regulators and regulations:** The commodities markets have numerous regulators as compared to its counterpart capital markets.

- SEBI is regulator for the commodity derivatives markets for agricultural as well as non-agricultural commodities.
- The spot markets for the agricultural commodities are within the purview of the respective state governments.
- The warehousing for the agricultural commodities falls under the ambit of WDRA, state and central governments.
- There are various governmental agencies which are entrusted in regulation of trading/quality/movement of commodities.

c) **Storage:** Storage infrastructure is integral to the functioning of a smooth spot and derivatives market in commodities. The regulation of warehouses and adequate scientific storage facilities enhances the trustworthiness, standardized procedures, transparency in commodities

handling and trading. For agricultural commodities there are various authorities for warehousing in India viz., Central warehousing corporation (CWC), State warehousing corporation (SWCs) and the WDR. Further, the capacity of the available warehousing infrastructure is inadequate and the industry is localized, unorganized, and fragmented.

d) **Ancillary infrastructure:** Lack of ancillary infrastructure such as adequate transport system (which is suitable for transport of specific commodities), regulated assaying and refining and testing facilities, trained and certified human resources, uniform quality standards etc., across the country do pose a challenge to the growth of these sectors.

4. Integration of spot and derivative markets can be achieved by overcoming above challenges and undertaking various steps as suggested below:

- Reforms in the underlying physical markets
- Development of a regulated Pan-India electronic spot platform and/or regulated commodity spot exchanges
- Reforms in derivative markets
- Warehousing and development of storage infrastructure
- Continuous collection and dissemination of data with regard to spot and derivative market
- Reforms in the Quality standards
- Ancillary Infrastructure development
- Certification requirements
- Developing robust dispute resolution mechanism

The integration of commodity spot and derivatives markets could be highly beneficial to the value chain participants, if the same is effectively implemented and efforts are made to deliver results within a timeframe.

A roadmap for the implementation of suggestions/recommendations with the requisite action plan is provided as under:

1) Promoting farmers' collectives/cooperatives

- In India, the average size of land holding by framers is very small giving a very low output of farm produce. Further each farmer makes individual bid to sell his produce at the market yard and most of times fetches low prices due to weak bargaining power.
- In view of above, there is a need to place more reliance upon developing farmers' cooperatives so that the farmers get better price realisation due to collective bargaining power.

- Time tested success has been observed in the dairy sector where the cooperatives are working in the interest of the farmers and such cooperatives have provided better price realisation to farmers over the years. Similar models may be replicated (by modifying suitably keeping in mind the characteristics of the commodity/sector) in other agricultural products or sectors like animal husbandry.
- The cooperatives could also carry out processing of commodities, selling such agri-processed commodities and sharing additional income generated from such sales with the farmer members thereby helping in enhanced price realisation to them.

Action: Ministry of Agriculture, Ministry of Rural Development, SFAC, NABARD

Time frame: Long term and ongoing

2) Providing multiple modes to sale the produce

- Multiple modes of selling of farm produce should be provided so that farmers can sell their produce at the best prevailing price.
- Restriction on farmer to sell his produce only through recognized APMCs may be waived.
- Under the existing APMC regulations, in case the facilities of APMCs are not used i.e. if sale is done outside the APMC premises, such as sale on a regulated electronic platform, or regulated private markets etc., APMCs can still levy and collect applicable market fee on sale of such products. Such levy of fees on goods sold outside facilities of APMCs should be removed.

Action: GoI, Ministry of Agriculture, State Governments

Time frame: Long term and ongoing

3) Treating Electronic platforms as markets

Regulated electronic platforms such as electronic spot markets, spot exchanges or even commodity derivatives exchanges may be deemed as market yards under present system or even after adoption of model APLM 2017 by the states so as to enable direct selling by producers/farmers through multiple modes or on spot exchanges without having to pay any fees to APMCs.

Action: GoI, Ministry of Agriculture, State Governments

Time frame: Long term and ongoing

4) Review of essential commodities under ECA

There is a need to revisit the definition of the essential commodities and the list of essential commodities under ECA. In view the changing market dynamics, the food security and linkages of Indian agricultural produce with global markets, such review may help in the long run. Further, it needs to be understood that all commodities that are covered under the ECA cannot be equally essential at same time. For example, commodity which is essential for food security cannot be equated with industrial raw materials.

Action: GoI, Ministry of Agriculture, Ministry of Consumer Affairs and State Governments

Time frame: Long term and ongoing

5) Stock limits

Whenever stock limits under ECA are made applicable, the stocks held by framers collectives like Farmer Producer Organisations (FPOs) in a warehouse should be exempted from such limits.

Action: GoI, Ministry of Agriculture, Ministry of Consumer Affairs and State Governments

Time frame: Medium term and ongoing

6) Developing and promoting scientific storage of commodities across country under unified authority

a) Besides Central Warehousing Corporation (CWC) and State Warehousing Corporation (SWCs), there is a nodal agency viz., Warehousing Development and Regulatory Authority (WDRA) which primarily regulates negotiability of warehouse receipts.

- There is a need of streamlining governance for warehousing under a single authority.
- All the warehouses shall be required to be registered with the unified authority which would create a robust warehousing infrastructure.
- The unified authority could prescribe detailed SOPs for the scientific storage practices for the individual commodities and should take measures to enforce quantity and quality of the underlying goods stored in the registered warehouses.

b) There is a need for development of diverse network of warehouses across the country which service a wide range of commodities. Such network of warehouses should be closer to the farmers' farms.

- c) There is a need to develop professional warehousing / storage facilities and warehousing / storage industry could be accorded infrastructure industry status with necessary incentives to set up warehouses in the nooks & corners of the country.
- d) Easy access to transport the agricultural produce to warehouse and cheap warehousing services will help farmers to store their produce and avoid distress sale.

Action: GoI, Ministry of Agriculture, Ministry of Consumer Affairs, WDRA, SWCs, CWC, warehouse operators, and all stakeholders

Time frame: Medium term and ongoing

7) Procurement Schedule and programs

- The institutions supporting the procurement on behalf of the governments may restructure their programs by drawing up advance schedules and disseminating the same only to the farmers.
- Such institutions could use the electronic communications in reaching out to the farmers like making provision for online registration well in advance with specific date and time and also payment should be made at the same time, and procurement centres should be conveniently located for easy transportation the commodity etc.
- Such institutions may also explore the electronic spot market platform / exchanges, derivatives markets or contract farming as source for procurement of the agricultural commodities

Action: GoI, Ministry of Consumer Affairs, Agricultural marketing institutions, state governments

Time frame: Short term

8) Harmonize grades and standards

- Primarily there are two major standards, viz: AGMARK and FSSAI. In addition to these 2 standards there are various other standards for specific purposes like FCI standards, CODEX standards and APDEA standards.
- It may be explored if a unified organization could prescribe standards across all agricultural commodities. The unified agency could prepare a common set of standards that is easy to implement, ensure uniformity of standards across various segment of the market depending upon end use.

Action: Directorate of Marketing and Inspection, Ministry of Health & Family welfare, FSSAI, FCI, APEDA

Time frame: Medium term and ongoing

9) Development of Assaying facilities

- There is a need for the development of network of assaying facilities across the country to cater to all types of commodities. It is a fact that the assayed goods would fetch better prices if the quality is good.
- As and when electronic spot exchanges are developed, there should be a mandatory requirement of assaying of goods before trading them on the exchange.
- Electronic spot platforms should adopt new technologies to enable quick and accurate assaying at low costs. This may help farmers in getting their goods assayed and fetch better prices for the goods.
- Assaying facilities may be moved closer to farmers and such facilities may be provided at a reasonable fees.

Action: GoI, FSSAI, AGMARK

Time frame: Medium to Long term and ongoing

10) Creation of skilled human resources

- There should be efforts in creating and investing in a skilled workforce with respect to the agricultural sector including pre-sowing to post harvest activities like storage, assaying and grading.
- The need of the hour is to constantly improve the education standards with respect to agrarian economy and constantly upgrade the agricultural practices.

Action: Ministry of Agriculture, Agricultural institutes / universities, Ministry of Skill Development

Time frame: Medium to Long term and ongoing

11) Data dissemination

- Efforts should be made for creation of an integrated database and its dissemination on periodical basis with respect to the production, arrivals in APMCs/yards, imports, consumption, exports, and carryover stocks for any given commodity. This could aid in

formulating policies and also help the farmers in taking informed decisions.

Action: Ministry of Agriculture, Ministry of Statistics, Ministry of Commerce

Time frame: Medium term

12) Negotiable Warehouse Receipt

- There is a need for institutional development to promote the market for eNWR, since for issuance of NWR, WDRA registration is mandatory, WDRA may carry out an assessment on poor number of registration of warehouses and take measures accordingly.
- Mentioning quality and grade in Repository receipts should be mandated, so that trading of goods stored in accredited warehouses through e-NAM can be easier to be implemented.

Action: WDRA, warehouses, eNAM

Time frame: Medium term

13) Development of food and agro-processing units

The food and agro-processing units can serve as one of the important modes for the farmer to sell his produce at an attractive price.

Action: Ministry of Food Processing, Ministry of Agriculture

Time frame: Medium term and ongoing

14) Reforms in derivatives markets- Increasing Participation

a) Participation by institutions listed below would deepen the commodity derivatives markets.

- banks,
- mutual funds,
- foreign entities,
- insurance companies,
- pension funds,

- farmer collectives,
 - aggregators,
 - listed corporates
 - agricultural marketing institutions
- b) Participation of such institutions in the commodity derivatives market could help in many ways including:
- Leveraging the geographical reach and research expertise of banks, mutual funds, insurance companies for distribution of commodity derivatives products.
 - Better credit mobilization at MSME level, farmers or farmer collectives
 - Building liquidity in far-month contracts which could in-turn help in increased hedgers' participation.

Action: GoI, SEBI, RBI, PFRDA, IRDA and all relevant stake holders
 Time frame: Medium term

15) Introduction of New products

Thrust should be on developing new products which caters to the needs of the stakeholders. Such products could be-

- options in more number of commodities (currently, options with underlying as Gold and Guar Seed are permitted)
- commodity based exchange traded funds (ETFs)
- commodity index derivatives
- weather derivatives
- freight derivatives

Action: SEBI and Stock Exchanges
 Time frame: Medium term

16) Rationalisation of cost of trading

- At present cost of trading in commodity derivatives is very high which includes transaction costs, brokerage, statutory levies including taxes and stamp duty, warehousing/vault charges etc. This has led to migration of trading from the Indian commodity derivatives exchanges

to the global markets and has also deterred many from making efficient use of the derivatives platform.

- A comparative study may be carried out for costs associated with the trading of commodity derivatives in India vis-à-vis the global exchanges and based on the outcome of the study; necessary efforts could be made in order to reduce/rationalise cost of trading.
- In order to promote farmers and FPOs participation in the commodity derivatives markets, SEBI and/or exchanges could reduce the transaction charges for such participants.

Action: Ministry of Finance, SEBI, and recognized stock exchanges

Time frame: Short term

17) Linkages with the Global commodities market

In the context of globalisation of markets, steps should be taken to link Indian derivatives market with their global peers. This may include:

- Designing of contracts in such a manner that it improves hedging effectiveness of globally linked commodities.
- In order to improve international competitiveness in respect of some of the commodities that are unique to the domestic market, steps may be taken to align trading hours of Indian exchanges with the trading hours of Asian, Latin American and Australia markets.

Action: SEBI and recognized stock exchanges

Time frame: Medium Term and ongoing

18) Measure to increase hedger's and farmer's participation

Hedgers would like to hedge their underlying holdings; hence the exchanges should design the contracts in such a manner and with such specifications that they have close linkages with the actual trade practices in the underlying physical markets.

Action: SEBI and recognized stock exchanges

Time frame: Short Term and ongoing

19) Expanding the basket of commodities for launch of commodity derivatives products

Exchanges could carry out detailed study on the need of derivatives contracts on new commodities. For example, exchanges could initiate steps on

developing derivatives contracts (subject to the requirements of the industry) on metal scraps, ferrous metals, dairy products and animal husbandry etc., which are presently missing in the domestic markets. Such contracts could bring in those entities which are now keeping themselves out of the derivatives market due to non-availability of such exchange traded products.

Action: Ministry of Finance, SEBI, Exchanges and stake holders

Time frame: Medium Term and ongoing

20) Stakeholder's awareness programs

- In order to attract more and more participants in the commodity derivatives, awareness programs for various stakeholders may be carried out with special focus on the efficient use and benefits of commodity derivatives market for risk management and price discovery.
- The strategy for the awareness programs could be multi-fold like creating awareness at the level of ultimate users like farmers, MSMEs and traders etc., and creating awareness at level of institutions such as banks, farmers collectives, agricultural marketing institutions and government organisations dealing in policy making etc.

Action: SEBI, Exchanges and stake holders

Time frame: Medium Term and ongoing

21) Specific issues pertaining to the agricultural commodity derivatives contracts

There are certain issues which are unique to the agricultural commodity derivatives contracts, which can cause adverse impact on agricultural commodities (either in spot or derivatives market) and also can affect the performance of the commodity derivatives markets. Some of the issues specific to the agricultural commodity derivatives contracts that need to be addressed are as under:

- There should not be sudden discontinuation or disruption in derivatives trading in agricultural commodities due to reasons (such as production shortage/glut, volatility in spot prices, imposition of stock control limits etc...) which are beyond the control of the derivatives market. These issues need to be addressed separately to take necessary policy decision.

- The stocks deposited within exchange accredited warehouses for the purpose of trading on exchange platform should be considered for exemption from imposition of stock control limits under Essential Commodities Act, 1955 (ECA) as information regarding such stocks are transparently disclosed on exchange website to public/Govt.
- As the exchange contracts are standardized they are required to meet various quality standards issued by multiple agencies. However, the underlying markets of such commodities may not be following these quality standards at primary sales or even at secondary sales but are followed only when ultimately used at consumption level. Such quality prescriptions act as an obstacle for large no. of physical participants to deposit their goods for sale on exchange platform. There appears a need to harmonize these standards as well as point in the value chain needs to be appropriately prescribed at which these standards should be applied.

The central and state agricultural marketing institutions can consider derivatives markets (especially option trading) as one of the source for procurement of the agricultural commodities and use this market as one of the tools for creating adequate buffer stocks of the essential commodities.

Action: GoI, state governments, Ministry of Agriculture, Ministry of Consumer Affairs, SEBI, exchanges, Agriculture marketing institutions and stakeholders

Time frame: Long Term and ongoing

22) Creation of an electronic platform and developing a robust electronic spot platform or exchange under a Regulatory Body

Derivatives market can achieve better convergence with the spot markets in view of the transparent and reliable spot prices which could be available on the electronic platform in the same products that would be concurrently traded on both the platforms during same/similar trading hours.

Thus, development of online electronic Pan-India spot trading platform/exchange for commodities under a regulatory body would facilitate transparency of the physical markets as well as discovery of reliable spot prices and its integration with the derivatives markets.

Action: GOI

Time frame: Short Term

23) Quality and standards

- There should be product standardization and uniform standards for assaying and warehousing in respect of the contracts/commodities which are traded in spot market and derivatives market. This will lead to better integration of spot and derivatives.
- As the Indian markets cannot be left in isolation, the objective should be alignment of domestic spot and derivatives market with proper international markets wherever feasible.

Action: GoI, BIS, FSSAI, APEDA, AGMARK and all stakeholders

Time frame: Medium Term and ongoing

24) Certification requirements

There could be requirement of certification programs for the spot market, derivatives' market, warehousing sector, and quality assaying etc. This could help in creating a certified and qualified professional workforce for overall development of the commodity markets.

Action: GoI, BIS, Proposed Spot Exchanges Regulator

Time frame: Short Term

25) Developing robust dispute resolution mechanism

With development and integration of the spot markets with derivatives markets, there is a likelihood of increase of disputes/litigations amongst various stakeholders. Thus, it is necessary to have in place, a common and clear mechanism for resolution of disputes arising out of trading on the spot and derivative exchanges.

Action: GoI, proposed spot exchange/ platform regulator, SEBI, stock exchanges and all relevant stakeholders

Time frame: Medium Term

26) Common KYC

In order to enable ease of doing business, a common KYC and uniform set of documents along with a unique identification code for seamless transaction across the various markets may be considered.

Action: GoI, proposed spot exchange/ platform regulator, SEBI, stock exchanges and all relevant stakeholders

Time frame: Short Term

The Report

This report is structured in seven parts. Section 1 establishes the background and context of the report and establishes the need for convergence in India. It contains a detailed theoretical and empirical analysis to establish the need for convergence, along with a summary of recommendations by select previous committees.

The main sections of the report, Sections 2, 3 and 4, present an analysis of the constraints to integration studying in turn, spot, spot exchange and derivatives markets. Section 5 then focuses on the idea of integration, highlighting key aspects of integration. We then examine the issues that affect convergence of markets. For this, we address two questions. First, what are the present issues that hamper convergence of the spot and derivatives market of agricultural commodities in India? Second, how should these issues be resolved? This section also highlights the role of supporting or enabling policies for such integration. Section 6 summarizes the recommendations and outlines a strategy for reform. Section 7 outlines the need for further research.

1 Background and Context

1.1 The imperative of improving farmers' incomes

Agriculture and allied sectors¹ account for only 16.1 per cent of the GDP; yet as much as 54.6 per cent of India's workforce relies on this sector for employment and incomes.^{2,3} Although agricultural households earn incomes from several sources, a major portion is still from agriculture and allied activities. As per the 2013 Situation Assessment Survey of Agricultural Households (henceforth SAS), agricultural households earn 48 per cent of their income from crop cultivation and animal husbandry accounts for 12 per cent of income respectively, with around 32 per cent of income derived from wages.

These incomes have remained low relative to their expenses as well as relative to their debts. As per the SAS, the average household debt (outstanding) was INR 47,000 at current prices in 2012-13, ranging from INR 3400 to INR 2,13,600. The average net income from cultivation was INR 3081 per month per household, translating to INR 36,972 per year. Household expenditure on the other hand was INR 6223 per household per month (INR 74,676 per year). Income from all sources stood on average at INR 6426 per month. It is easy to see how cultivation alone remained inadequate for farmers to make ends meet and even additional sources barely got farmers to cover their expenses. Furthermore, the SAS, 2013 also found that income measures up to only 78.67 per cent of outstanding debt, suggesting the pressure farmers face to service their debts. This finding on farm incomes is broadly echoed in other earlier estimates (Sen and Bhatia, 2004; Chand 2011; Chand, 2015). Chand et al. (2011) found that the income earned by 62% of farmers in India who own less than 0.80 hectares of cultivable land was lower than the poverty line during 2007-09. A later estimate establishes that a farmer having landholding below 0.63 hectares will not earn enough income from agriculture even to keep his family out of poverty. In other words, about 53% of farm households in India will be living in poverty if they do not have earnings from non-farm sources (Chand, et al, 2015).

¹ Officially, agriculture includes crops, livestock and allied sectors include forestry and fishery. The data presented here are for agriculture and allied activities. For the purpose of this paper we focus only on farming activities including crops, livestock and fishery.

² The figures are for the share of agriculture and allied sector in total employment as per the Census of India, 2011 (GoI 2016, 35). The National Sample Survey estimates that in 2011-12, 48.9 per cent of total workforce was employed in agriculture.

³ Data are for the year 2014-15 at 2011-12 constant prices (GoI 2016, page).

This is despite the significant progress made in the agricultural sector, new opportunities opened up by new market players, increased prospects of participating high value commodity supply chains and increased world commodity prices in recent years. For example, the period 2004-05 to 2010-11⁴ the terms of trade improved in favour of agriculture, increasing from 87.82 in 2004-05 to 102.95 in 2010-11. For a brief period, food price inflation, high world prices implied that prices of agricultural produce were higher relative to non-agricultural produce. The terms of trade stagnated thereafter from 2010-11 through until 2013-14 (See Dev and Rao 2015; Dholakia and Sapre, 2013). Chand et al (2015) find that income of farmer per rupee cost, including hired labour, in fact, showed a surge after 1999–2000. The problem rather has been that the pace of growth in farmers' income that began around 2004–05 could not be sustained after 2011–12, when growth in farm income plummeted to 1%. This may be an important reason for the sudden rise in agrarian distress in recent years.

The situation of farmers and more generally agriculture needs to be addressed therefore with a renewed sense of urgency. This is expressed in the current goal of Doubling Farmers' income and reflected in the steps that have been taken to achieve this. While there are many potential pathways to achieving increases in farmer incomes - for example by investing in yield-increasing technologies, enhancing input use efficiency and changing the cropping pattern, farming systems, there exist substantial scope to improve the price realizations of the farmer.

In order to ensure that farmers realized higher and more stable prices, one requires the creation of liquid and transparent spot as well as derivative markets, providing farmers with knowledge, information and capability to undertake market driven production and seamless interconnectedness between fragmented physical commodity markets and commodity exchanges electronic platforms the supporting infrastructure institutions and the various participants. The policy challenge is that these need to be accomplished keeping in mind consumer interests as well.

⁴ *Terms of trade measure how much the agriculture sector prices change relative to those of the non-agricultural sector. The terms of trade index with a value less than 100 suggests that agricultural is at a relative disadvantage in the very broad sense that the prices that farmers earn for their produce is less than what they would spend on non-agricultural commodities.*

Figure 1 : Expenses and receipts of agricultural households

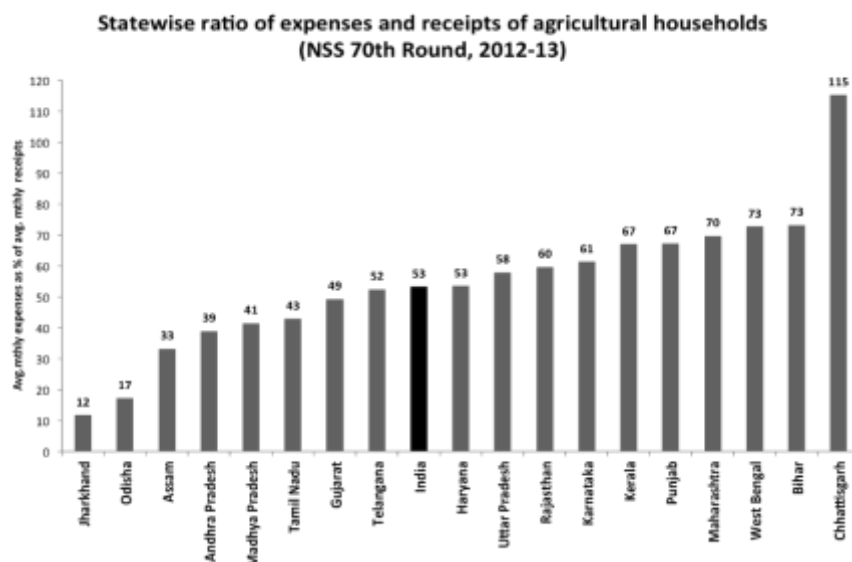
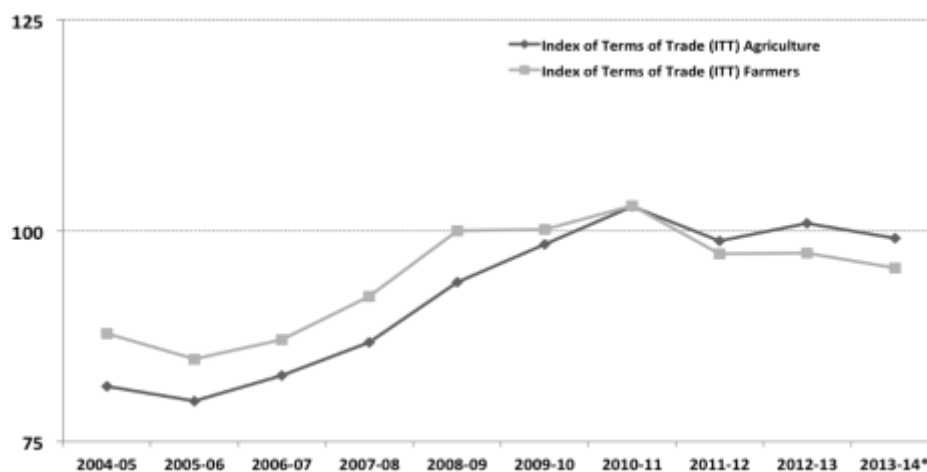


Figure 2 Terms of trade in Indian agriculture



Source: Dev and Rao (2015); GoI (2016)

1.2 The need for integration: theoretical rationale and empirical evidence

Markets are mechanisms to facilitate transactions, where an intention to buy (or sell) translates into a purchase (or sale). Commodities markets, globally and in India comprise two segments: (1) the market for spot transactions, where purchase (or sale) of commodities and the settlement of the transaction happens almost simultaneously, and (2) the market for derivatives transactions, where settlement of trade takes place a future date, but with certainty. Both these markets, while distinct from each other in their form and function, are inter-linked.

A sound derivatives markets delivers two important social benefits of futures markets – for participants and the overall public commodity ecosystem: (i) Future prices tend to discover prices in a well-functioning market; and (ii) Farmers, commodity traders and market participants can manage risks of commodity price volatility through hedging using these futures or commodity options. Similarly, a well-functioning spot market and a robust warehousing infrastructure provides a system of checks on the size of positions in the derivatives market by creating a credible *threat of delivery*. While the functioning of each of these markets is not contingent on each other, their efficient functioning in themselves and relative to the other, has the capacity to enhance the effectiveness of the overall functioning of the commodity ecosystem. Literature on this abounds and is reviewed below.

1.2.1 Price discovery

Price discovery is the ability of the market to discover true equilibrium prices and refers to the use of futures prices for pricing spot market transactions (Working, 1948; Lake, 1978). Price discovery rests on whether new information is incorporated first in futures prices or in spot prices. The role of information in enhancing farmer welfare cannot be underestimated. The absence of market infrastructure and institutions especially information exacerbates spot market price risk for most producers (Barrett, 2008). Theoretical literature in economics suggests that the absence of information could lead to spatial dispersion of prices and costly search lowers competition creating inefficient allocation of goods (Stigler 1961, Rothschild 1973, Salop & Stiglitz 1977, Pratt, Wise & Zeckhauser 1979). In principle, knowledge of market information tends to reduce the risks and lowers the transaction costs for farmers of participating in the market (Giovannucci and Shephard, 2001). These efficiency gains can contribute to larger markets (by expanding participation and volumes), wherein prices begin to reflect/signal demand and supply conditions. This would then result in supply responsiveness and greater stability in prices and supply. Information helps farmers negotiate favorably with traders, assisting in equitable distribution of gains from market participation across actors (Giovannucci and Shephard, 2001). On a longer term basis, improved information enables farmers to plan their production, harvesting, and selling according to market demand and in some cases to choose the optimal marketing channel (i.e. selling at one or a combination of: the farm gate, local market, wholesaler, processor, retailer). Market information has the potential for improving efficiency along the entire chain. Just as it helps producers participate in markets, traders, especially smaller ones benefit from better information in making efficient allocation decisions to hold products in storage or ship them to the most lucrative

markets, conditional on the availability of such infrastructure. To the extent that these efficiency gains are transferred to consumers through lower prices (or more stable and reliable supplies) consumers too are indirect beneficiaries.

These benefits are delivered when the futures markets are able to incorporate new information first. The significance of price discovery depends on the secular relationship between spot and futures prices (Garbade and Silver 1983). Garbade and Silver (1983) examined four agricultural and three non-agricultural commodities from the Chicago Board of Trade (CBOT) and the Commodity Exchange (Comex) and found that futures discover prices more than spot markets on average. In general the effectiveness of futures markets in discovering prices first is enhanced for commodities where there is less government intervention (Brockman and Tes, 1995 for Canada) and the market structure and liquidity of the respective spot and futures markets (Figuerola-Feretti and Gonzalo, 2010 for agricultural derivatives).

1.2.2 Hedging and risk management

There are fewer papers testing the risk management function of commodity derivatives markets. Hedging in the derivatives market is particularly useful in case of any long term requirement for which the prices have to be confirmed to quote a sale price but to avoid buying the physical commodity immediately to prevent blocking of funds and incurring large holding stock (Tomek and Peterson, 2001). Sarris, Conforti and Prakash (2011) find that using futures or options in agricultural commodity markets can spread import costs over time.

1.2.3 Evidence from India

Early work on commodity futures markets in India (Naik and Jain 2002) suggest that low levels of liquidity prevented Indian agricultural futures markets from being efficient and fulfilling its role of price discovery and hedging. They point out that barring a few commodities, the market was still not congenial for hedgers and were deficient in several aspects such as infrastructure, logistics, management, linkages with financial institutions, reliability and integrity, dominance of speculators and inefficient information system which discouraged market players. Non-convergence in domestic markets is most likely a consequence of the way the market was set up in the first place, hindered at least in part by fragmentation of spot markets domestically.

More recent work suggests that the performance of agricultural futures markets in India may have improved significantly since then. Research on the long term integration of futures and spot markets in India suggest that they are cointegrated for most agricultural commodities, except rice and wheat (see Ali and Gupta (2011), Mukherjee (2011) Ali and Gupta (2011) find that futures markets have stronger ability to predict subsequent spot prices for chickpea, castor seed, soybean and sugar as compared to maize, black lentil and pepper, where bi-directional relationships exist in the short run. Kumar and Pandey (2013) find that near month futures prices of most of the commodities are cointegrated with the spot prices but is not found for the next to near months futures contracts, where futures trading volume is low. The authors find support for the hypothesis that thinly traded contracts fail to forecast future spot prices and are inefficient. Aggarwal, Jain and Thomas (2014) analyzed price discovery and risk management for five agricultural commodities - cumin, coriander, turmeric, gram and soya bean for the period 2012-2015. Except for cointegrated futures of the other commodities led the spot price, albeit with high variation. They find that across five commodities studied unhedged portfolios have higher variability in payoffs compared with the hedged portfolio, indicating the potential for hedging using futures to serve as an effective risk management tool (Aggarwal, Jain and Thomas, 2014). With fewer trade barriers, Indian agricultural commodity markets are now more linked to world markets than before, especially for some cash crops. Yet, levers for farmers to protect themselves against price volatility, specifically price shocks have been limited. In this context, there exists a large potential role for well-developed futures markets to enable producers to manage risks.

Some anecdotal evidence exists on the potential welfare gains for farmers and is reported in the 2008 Abhijit Sen Committee Report. Although farmer participation in futures markets has been low historically, at the same time, participants are no longer based exclusively in large metropolitan areas and increasingly come from small towns. The 2008 Committee reports that farmers of guar seed and menthol were able to get a higher proportion of the final price due to incremental bargaining power brought by transparency of futures prices on exchange platforms. The Report also noted that some farmers in Punjab held back their produce of wheat during harvest season in April-May 2006 on the basis of signals of higher futures prices on NCDEX platform and sold at higher prices during October / November 2006.

Academic scholarship in India has thus far found ambivalent evidence to suggest that futures markets exacerbate volatility in prices. Mukherjee (2011), for example, studies 9 major agricultural commodities for a period of 7 years (2004 - 2010) finds that even though the introduction of futures

contracts coincide with an increase in spot market prices, the destabilizing effect of futures markets is 'casual' and varies over time. Many Committees formed in the past two decades to look specifically into the issue of the impact of futures markets on commodity markets have either explicitly supported the development of futures markets or have declared that there is not adequate evidence to suggest that futures markets are inimical to farmer interest. For example, 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. A 2008 committee that was mandated to look specifically at the impact of the futures markets on commodity spot markets declared that the evidence was not clear that the futures market had any role to play in aggravating inflation or volatility. Recent concerns about commodity price volatility in futures markets that might impact consumers and farmers adversely only point to the need for a large market of players and robust regulatory oversight.

1.2.4 The challenges of integration.

Despite the desirability of integration of spot and derivatives markets for agricultural markets, several challenges exist. Commodity spot markets, by the very nature of physical trade, are often non-standard and fragmented. This is especially true in the context of agri-commodities where there are significant regional variations in the grades and quality of the production and production is by millions of small farmers. This is made more complex by the political economy of state intervention in the agri-commodities. On the other extreme are the exchange traded commodity futures markets, which offer a highly standardized platform for trading financial instruments which derive their value from underlying physical commodities.

The challenge of integration in this two-market set-up requires a multi-pronged approach. The first step is to create a diverse and liquid market in both the spot and the derivatives segments. This requires: (1) enabling a wide variety of participants to effectively access the market, (2) for the market to readily provide products and services required by such participants along with related infrastructure, and (3) for the market to exist within a robust and consistent legal and regulatory framework. The second step is to create a seamless linkage between the two markets, both in terms of information about prices, as well in terms of the deliveries of the underlying commodity. Finally, there is a need to create a governance framework which spans the two

markets and seeks to resolve any contradictions that may adversely affect this linkage.

1.3 Review of recommendations of prior committees

There have been several committees in the past who have grappled with the issues of constraints in spot markets and derivatives markets and on whether futures markets impact spot markets adversely (Table 1). We present a review of the work of the earlier Committees that have studied the agri-commodities market to provide a summary of the recommendations they have made in Appendix 1. This Committee has a fresh mandate to examine these issues with a view to achieving better spot and derivative markets in a way that the benefits of such integration flow to the farmers. As such, this mandate comes in a context where significant attempts at reforms of both spot and derivative markets are already underway and in that sense aims to push this process further down the road. The challenge of balancing farmer and consumer interests remain.

1.4 Framework of the report

We lay down a framework for analysis, which helps us in thinking through the various aspects of agri-commodity markets in India in a structured manner. Given the complexity of this task, we organise this report using a three dimensional framework for analysis. The first dimension is the based on market segments, that is primary spot markets, spot exchanges/platforms and derivatives market segments. The second is based on the nature of factors that is legal factors and operational and technical factors. The third is based on the manner in which these factors impact the different market segments, that is whether these are overarching factors or those that impact only specific commodities. For the purpose of clarity, we define the manner in which each of these dimensions have been used in this report.

1.4.1 Primary and secondary spot markets, spot exchange and derivatives markets

There are two market basic market segments in the agri-commodities market, the spot market and the derivatives market. The spot market is where physical trades in the commodities take place and the derivatives markets are where the financial instruments that derive their value from agri-commodity underlying's trade.

However, for the purpose of greater clarity of analysis in this report, we further segment the spot market into two parts. The first is the market

where bi-lateral trading of agri-commodities takes place, either in a physical marketplace or on an electronic platform. This we refer to as the primary market for spot trading in agri-commodities where the original seller is a farmer. The second segment is a market place where physical commodities are traded on a commodity exchange or an electronic platform for spot transactions, or a spot exchange. For clarity, these retrades take place on a spot or derivative exchange, where the exchange acts as an intermediary providing order matching, trading, clearing and settlement services to buyers and sellers of commodities. It would exclude trade between traders and other forms of bilateral downstream transactions that occur after the first trade between farmer and buyer and would however include the trade by an FPO who has aggregated for all farmers. This type of trade can be called secondary spot markets. The spot or a physical segment in the derivative exchange can act as a kind of secondary market and can play an important role in bridging the structural differences between the primary and derivatives markets.

Table 1 Select Committees on agri-commodities markets

S. No.	Name of Committee	Year	Objectives
1.	Expert Committee on Strengthening and Developing of Agricultural Marketing (Guru Committee)	2001	<ul style="list-style-type: none"> - To develop output marketing. - To strengthen agricultural marketing. - To promote agricultural commodity marketing via organised regulated markets.
2.	Inter-Ministerial Task Force on Agricultural Marketing Reforms	2002	<ul style="list-style-type: none"> - To identify priority areas to work out a road map for strengthening the agricultural marketing system in the country.
3.	The Expert Committee to study the impact of Futures Trading on Agricultural Commodity Prices (Abhijeet Sen Committee)	2008	<ul style="list-style-type: none"> - To study the impact of futures trading on the wholesale and retail prices of agricultural commodities. - To suggest ways to minimize such impact. - To make recommendations to increase farmers participations in futures trading.
4.	Committee of State Ministers, In-charge of Agriculture Marketing to Promote Reforms	2013	To facilitate development of efficient and competitive markets, rationalization of market fee, promotion of grading, standardization, packaging and

S. No.	Name of Committee	Year	Objectives
			quality certification and dissemination of market information and market intelligence.
5.	Committee to suggest steps for fulfilling the objectives of Price Discovery and Risk management of Commodity derivatives market (Kolamkar Committee)	2014	To examine commodity futures markets are delivering price discovery and hedging.
6.	Report of the Standing Council on International Competitiveness of the Indian Financial System: Volume I	2015	To examine the factors that affect the international competitiveness of Indian commodity derivatives markets and to suggest steps to improving international competitiveness.

1.4.2 Legal aspects, operational and technical aspects

The factors that impact integration can broadly be divided into two categories. The first are legal factors. These arise due to provisions in a primary law or a delegated legislation and any proposal for reform with regard to these factors would require an amendment to such legislations. The second are operational and technical factors. These are factors that arise due to procedural aspects of commodity market transactions, incentive structures of market participants, and other factors such as changes in technology. Any proposals for reforms with regard to these factors, while not requiring legal amendments, will require a careful evaluation of the costs and benefits of the proposed changes.

1.4.3 Overarching versus commodity specific factors

The factors that impact spot and derivative market integration may also be classified into those that impact the entire market, versus those that have an impact on a commodity or a specific group of commodities. This is relevant from the perspective of the possible impact of any reforms undertaken with regard to these factors. It is also relevant in terms of the comprehensiveness of the reform action, in terms capturing both the broad and the specific issues with regard to a factor.

1.5 Structure of the report

In line with the discussion, this report is organised in the manner shown in Table 2. The next chapter discusses Primary Spot markets, followed by Section 3 that focuses on Spot exchange. Section 4 highlights issues facing the derivatives markets while Section 5 focuses on the salient issues for integration. Section 6 summarizes the recommendations.

Table 2 Framework for analysis

	Legal	Operational and Technical
Overarching factors		
Primary spot markets		
Spot exchange		
Derivatives market		

2 Spot markets in India: overarching issues

2.1 Current scenario of spot markets in India

There is widespread recognition that the current state of spot markets for agricultural commodities in India demands serious policy attention and recent initiatives such as the e-NAM and the new The Agricultural Produce and Livestock Marketing (Promotional and Facilitation) Act (2017), henceforth APLM, are efforts in this direction.

Ever since Independence, transactions in farm commodities have been regulated heavily, notably through the Essential Commodities Act (ECA) and the Agricultural Produce Market Committees Act (APMC Act). The ECA imposes restrictions on storage and movement of certain 'essential' commodities by private parties, mainly to protect consumers. The APMC Act, on the other hand, mandated that purchases of certain agricultural commodities be through government-regulated markets (mandis) with the payment of designated commissions and marketing fees. Though the APMC Act was designed to protect farmers' interests, it perversely rendered farmers dependent on middlemen—who were financiers, information brokers, and traders, all rolled into one. This dependency often turned exploitative; farmers received but a fraction of the price paid by the final consumer, with middlemen cornering a large part of the rest (World Bank, 2007; Acharya, 2004; Gulati, 2012; Narayanan, 2012). Because the ECA and APMC allows states to exert influence and control over the procurement, storage and movement of commodities, the absence of uniformity has led to fragmented markets.

Many of these laws and regulations were put in place to protect the interests of farmers and of the consumers of agri-commodities. However, their outcome has often been adverse, creating a lack of uniformity and fragmentation in the agri-commodities market. Further, factors such as: (1) poor infrastructure in these regulated market places, (2) non-transparent price discovery process in them, often through collusive trader behavior (Banerji and Meenakshi, 2004), (3) poor price dissemination mechanisms, (4) restrictive regulations, and (5) non-transparent levies and charges on the sale of farm produce, that could be as high as 12.5% (in the Punjab for instance (GOI, 2013), manifest themselves in the form of high transaction costs, and a wide disconnect between the prices received by producers and the prices paid by consumers (GOI, 2013). In fact, recent research on agricultural markets in India concludes that they are inefficient (Mattoo et al., 2007); Umali-Deininger and Deininger, 2001), and are characterized by a high level of wastage (Mattoo et al., 2007).

It was in this context that the Model Agricultural Produce Market Committee (APMC) Act, 2003, was formulated. The Model Act sought to remove some of the limitations of the old APMC Act by opening up the markets to private sector and cooperatives and by allowing direct farm sales and contract farming. The Act also envisaged use of technological infrastructure for marketing and online trading of agricultural produce. The objective was to bring transparency, efficiency and to provide freedom to farmers to sell their produce to the agent of their choice - whether a contract-sponsor, a public or a private mandi. However, even after twelve years of its formulation, the extent of adoption of the Model Act by states remains variable at best (Purohit, 2016; Chand,2016). While several states reportedly adopted key areas of reforms, in reality, most of the states have diluted the Model Act provisions and have only partly implemented them (Chand, 2016). Bihar, on the other hand, went so far as to abolish the APMC Act entirely (in 2006), which spawned makeshift marketplaces across the state devoid of any infrastructure (Singh2015a, Singh2015b).

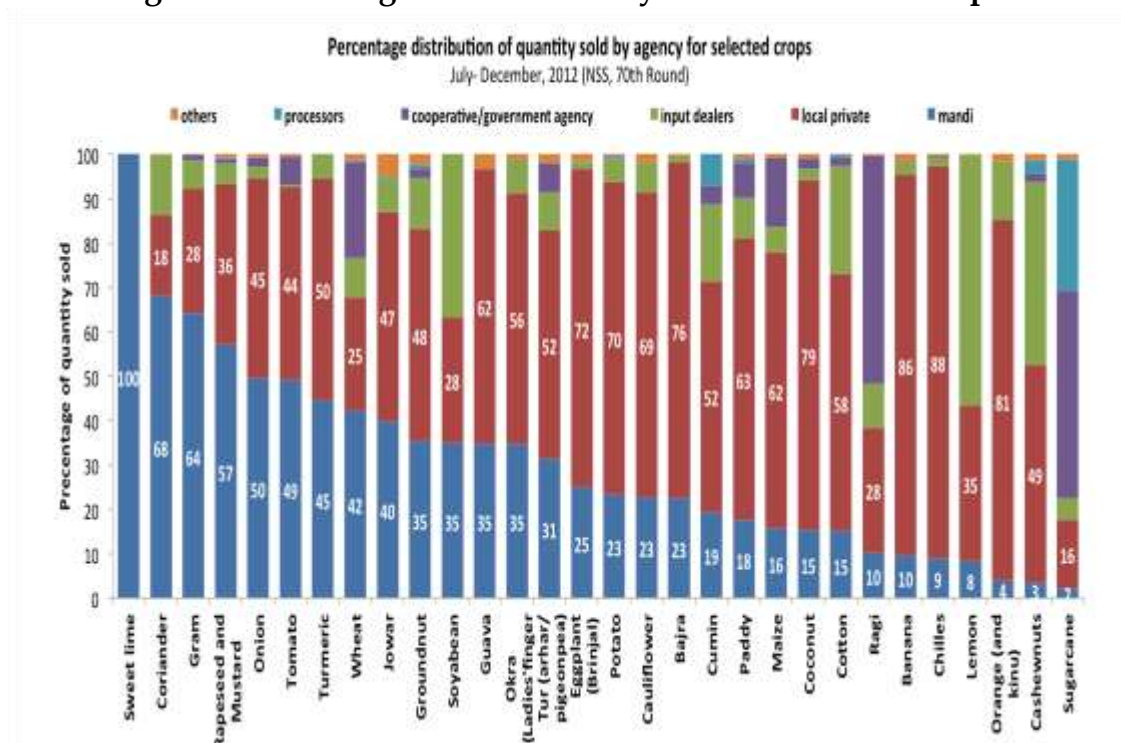
More recent initiatives include the e-NAM (e-National Agriculture Market), which represents a renewed attempt to redress these persistent issues. Discussions on a national unified market date back to the mid-term appraisal for the 11th Five Year Plan, which expressed a need to bring down the barriers in agricultural markets across states. In the 12th Five Year Plan, a task group explicitly articulated the need to have a National Agricultural Market (NAM). The Union Budget 2016-17 announcement to establish such a platform therefore marks the culmination of years of discussion and represented a significant first step towards implementing this idea (GoI, 2016). Despite the progress with e-NAM roll out, state legislative frameworks seem to continue to hinder the development of a unified framework or “rules of the game”. In reality, the complex relationship shared by commission agents in mandis and farmers who sell to them - where credit and output sale are linked - have been hard to dislodge. Infrastructural constraints for assaying and a basic mistrust by traders and farmers of scientific quality assessments are other challenges for the uptake of electronic trading (Aggarwal, et al, 2017). The APLM (2017) builds on these efforts and attempts to provide a framework to overcome the current constraints and both transform and transcend the mandi.

A key challenge in the agricultural marketing ecosystem in India has been the inability of private players to participate on a large scale, barring a few exceptions - these problems are especially true of contract farming arrangements and direct purchases by retailers and processors from farmers through private mandis. The 2003 Model Act (The State Agricultural Produce Marketing Development & Regulation Act) outlined a framework for contract farming operations that would safeguard the interests of both firms and farmers equitably. It also paved the way for private market yards, direct

buying and selling, among other things. This was later complemented by the creation of Agri- Export Zones (AEZ) across the country, where firms involved in agri-processing for exports would benefit from tax-breaks and specific infrastructural facilities. In general, contract farming has succeeded in niche commodities for exports or for sectors such as poultry but has largely failed to gain traction where domestic spot markets offer competition mainly on account of difficulties in contract enforcement (Narayanan, 2012). The small scale of holdings implies that firms have to negotiate with a large number of farmers, increasing the transactions and monitoring costs. Commodity exchanges in India too have faced severe challenges (Sahadevan, 2002). Institutional innovations like cooperatives and Producers' Companies appear to be one way to address the constraints of small scale of farm operations but here too success has been variable at best (Singh and Singh, 2014).

As of 2012-13, the SAS, the only nationally representative data available for marketing channel of farmers, suggests that the mandi and local private traders dominate the landscape of market actors (Figure 3). Sales directly to processors or to governments are fairly limited, excepting for a few crops. Even processors who contract often end up transacting with farmers through intermediaries or agents. Consequently, spot markets have non-transparent price discovery mechanism rendering the farmer vulnerable to price manipulation by the more powerful traders. There is also significant diversity in the channels used so that any attempt at building a unified market needs to bring these very diverse set of markets under one umbrella.

Figure 3 Marketing channels used by farmers for select crops



The current architecture of primary spot markets for agricultural commodities involve two levels of such market interventions with respect to agricultural commodities. First, interventions by the Central Government and second, interventions by the State Governments. These interventions maybe legislative interventions in the form of laws or policy interventions by Government orders. For instance, with respect to pricing, interventions have been embodied in the Essential Commodities Act, 1955 (ECA) and Minimum Support Prices (MSP) policies at the Central level. Similarly, agricultural commodities marketing in local mandis is plagued with interventions and restrictions imposed by a body of State enacted laws known as the APMC laws. These are unique to each State. The federal structure adopted by the Constitution of India in 1950 divided the power to legislate on various subjects between the Center and State under three lists, List I (Union List), List II (State List) and List III (Concurrent List).⁵ Since agriculture is an item in List II, State legislatures are empowered to legislate matters in this regard and agricultural spot markets like mandis and auction platforms are governed by the respective state Agricultural Produce Marketing Legislations.

Again the warehousing market is regulated by various regulations and guidelines imposed by the Central Warehousing Corporation (CWC), State Warehousing Corporation (SWC) and the Warehousing Development and Regulatory Authority (WDRA).

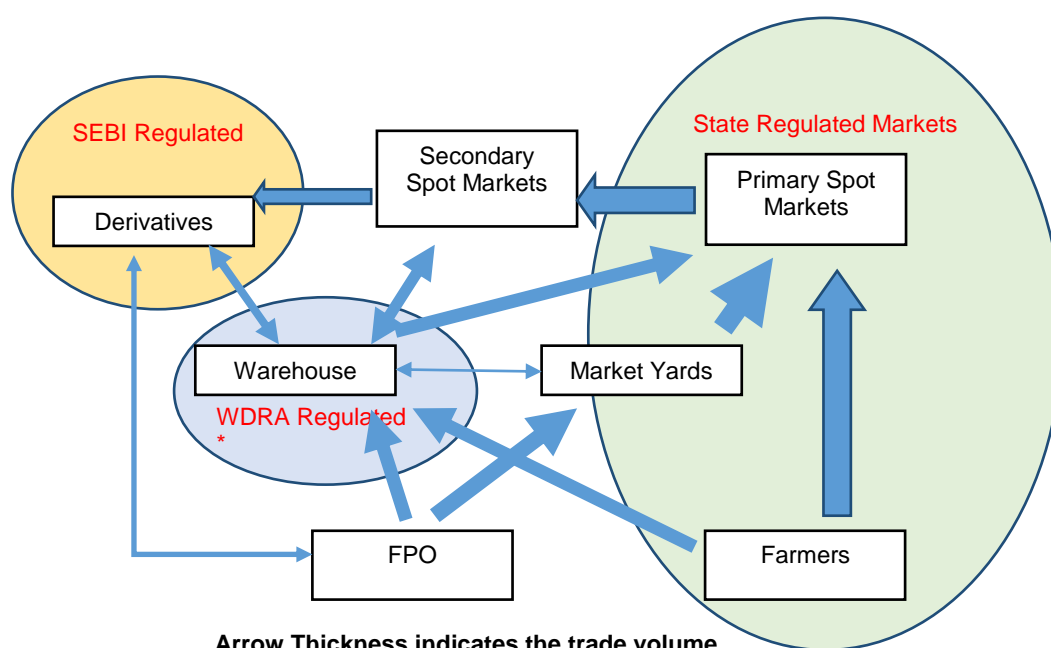
For the purpose of this report, we have interpreted primary markets as markets where bilateral contracting for agricultural commodities govern the rights and obligations between the seller and buyer. In this type of market, there may or may not be intermediaries. Even where intermediaries exist, their role is restricted to facilitating these bilateral transactions. Market participants in this segment include farmers, buyers, commission agents, aggregators and processors.

As per the State of Indian Agriculture, 2015-16, the density of regulated markets in different parts of the country varies widely - from 119 sq. km. in Punjab to 11,215 sq. km. in Meghalaya - while the all-India average area served by a regulated market is 449 sq. km. The National Farmers Commission (2004) had recommended that a regulated market should be available to farmers within a radius of 5 km. (corresponding market area of about 80 sq. km.).

A diagrammatic flowchart of the transaction process flow of commodities has been depicted in Figure 4.

5 *Article 246, Constitution of India*

Figure 4 Transaction flow of the primary agricultural commodities market



Arrow Thickness indicates the trade volume

Source: NCDEX

In this section, we divide the components and aspects of the primary commodities markets under the following main themes:

- (i) Warehousing and Storage;
- (ii) Pricing;
- (iii) Assaying;
- (iv) Transport; and
- (v) Mandi marketing.

In each of these sub-sections, we highlight the legal, operational and technical issues that affect each of these aspects of primary agricultural commodities markets.

2.2 Warehousing and Storage

2.2.1 Overview

Storage infrastructure is integral to the functioning of a smooth spot and derivatives market in commodities. This is done through warehouses. Warehousing facilities can provide a solution to guard against price volatility for a short period as it protects from distress sales in case of a bumper crop. Based on the ownership and utility, warehouses in India, maybe classified under five heads set out below:

Public warehouses: These warehouses are set up transportation points of highways, railways and waterways. They are used to store goods of the general public and are generally licensed by the government to private entities and co-operative societies.

Private warehouses: Private warehouses are owned by private entities for storage of goods of the licensee.

Bonded warehouses: Bonded warehouses, as a concept were introduced to facilitate deferred payment of customs duty by the importers and exporters. These warehouses are used to store imported goods under an undertaking or 'bond', which does not allow the release of goods until the custom duties are paid. Government and private parties together manage bonded warehouses. Currently, the Central Warehousing Corporation operates 75 custom-bonded warehouses with a total capacity of nearly 0.5 million MTs located at Ahmedabad, Bangalore, Bhopal, Chandigarh, Chennai, Delhi, Hyderabad, Jaipur, J N Port, Kolkata, Kochi, Lucknow and Mumbai (*PwC, 2011*).

Government owned warehouses: These warehouses are owned, managed and controlled by central or state governments, public corporations or local authorities.

Co-operative warehouses: These warehouses are owned, managed and controlled by co-operative societies. Members of the co-operative societies, are generally offered warehousing facilities at lower costs than non-members.

A diagrammatic representation of the structure of warehouse market in India is depicted in Figure 5. The various authorities for warehousing in India are: Central warehousing corporation and the Central Railside Warehousing Company (Under CWC); State warehousing corporation and the WDA. The current storage capacity of warehousing sector in India is 126.96 million tonnes (WDA Annual Report, 2015-16). Table 3 details the division of this total storage capacity across sectors in India.

Figure 5: Structure of Warehousing in India

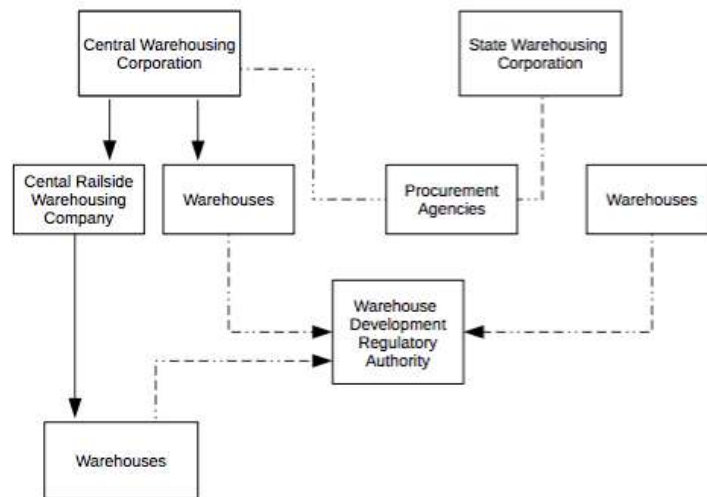


Table 3 Status of warehousing capacity

Organisation/sector	Storage capacity(MT)
FCI	35.92
CWC	11.72
SWC	45.28
Co-operative sector	15.07
Private sector	18.97
Total	126.96

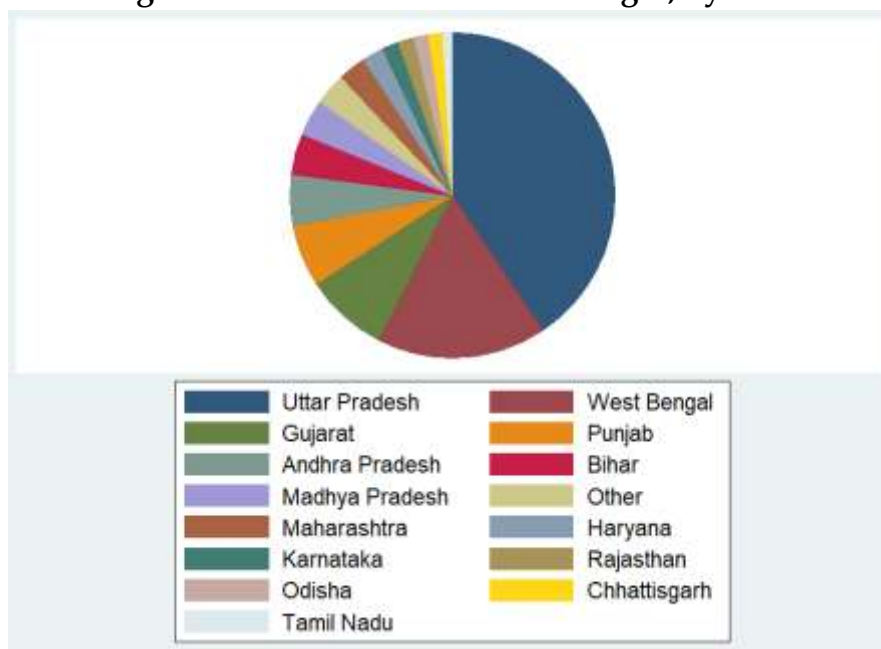
Source: WDA Annual Report, 2015-16

Warehousing in agriculture is part of the larger agricultural ecosystem and like agriculture, the warehousing market is local, unorganised, and fragmented (NIPFP, 2015). National standards have not yet been uniformly adopted or mandated, and the quality of warehousing and the contractual obligations that Warehouse Service Providers (WSPs) enter into, vary widely across regions. There has been at least one major effort in the recent past to assess the status of warehousing for agricultural commodities in India, published in a dedicated report (NIPFP, 2015). The summary of recommendations made in this report is reproduced in Appendix 1 for reference.

Cold storage involves control of temperature, humidity, air composition such that agricultural produce maintains full integrity. There are two key functions of cold storage. First, is to preserve the quality of the product being

stored. Second, enhancing the shelf life of perishables. Some of the problems of the cold storage sector are high capital investment, high tax burden and long processing time for clearances and permissions. Cold storages in India are used mainly for potatoes, chillies and increasingly for a range of spices.

Figure 6 : Distribution of cold storages, by state



A study on potato cold storage in Bihar reports that the number cold storages at the state level in Bihar increased between 2000 and 2009 from 195 to 320, an increase of 64% over the whole period (Minten, et al, 2014). Interestingly, unlike warehouses where it has been reported by NIPFP (2015) that a bulk of the users are traders, in the case of cold storages, Minten, et al (2014) find that 91% of the users of cold storages are farmers, including smallholders. Because of better storage conditions of their seeds, they benefit directly from the existence of these cold storages and from the existence of this extra market channel. Even those who do not directly participate can benefit because prices are smoothed due to the availability of an extra marketing channel (the storage option), it can be expected that prices increase, on average, during the harvest. For those smaller farmers that sell relatively more directly after the harvest, they therefore benefit from these higher prices. Based on this study, Minten,et al (2014) point out that more competition in the cold storage sector is desirable so as to drive down the cost of storage. While the subsidies that were given out by the government have helped to stimulate the setting up of cold storages it has however not (yet) led to lower storage costs that one would expect and advocate the promotion of a more competitive environment for cold storages.

2.2.2 Technical and operational issues

2.2.2.1 Infrastructure and operations

The main constraints identified with warehousing and storage are:

- (a) *Lack of private sector participation and competitiveness:* A majority of the organised warehousing sector are currently controlled by the government owned public sector undertakings. One of the biggest issues facing the warehousing sector is the lack of incentivisation to the private sector to enter the warehousing business. Quality and efficiency of services provided by the warehouses can be improved if the market is competitive. This is true of cold storages as well. For example, as Table 4 shows, cold storage capacity has increased by 43% between 2009 and 2017, and has varied widely across states. This trend augurs well in terms of clearing a critical supply bottle neck. At the same time, there are several issues that constrain the translation of this infrastructure into something that supports better functioning and integration of spot and derivatives markets.
- (b) *Storage capacity deficit:* The storage capacity available with Central Warehousing Corporation (CWC) and State Warehousing Corporation (SWC) is largely occupied by the Food Corporation of India (FCI) for storage of Central Pool stocks (NIPFP, 2015) locking in capacity that in the absence of procurement would be available to farmers.
- (c) *Storage losses:* Stock damage is a major problem in the agricultural sector. It is estimated that about 20% of the food grains are destroyed annually because of poor storage facilities (PwC, 2011)
- (d) *High storage costs:* The storage costs of cold storages are still very high on account of a large number of overheads such are investments in generators due to poor power supply. For instance, cold storages require a constant supply of electricity. Poor electricity supply in areas demand that operators maintain back-up generators. These are costly and increase the cost of warehousing. Inadequate competition is also cited as another reason for high storage costs especially in cold storages (Minten, et al, 2014).

(e) *Access to modern warehousing*: Smaller outputs and distances from warehouses, have deprived small farmers access to modern storage facilities for perishable items (India Rural Development Report 2012-13). The government's focus has been on encouraging farmers to use warehouses in order to access post-harvest credit. Lending against agricultural commodities stored in warehouses is generally considered safe as the commodity is good collateral. However, at this time the main users of warehouses and the main beneficiaries of pledge financing are traders who use pledge financing to hedge manage liquidity constraints (NIPFP, 2015)

Table 4 : State-wise growth rate in cold storages

States	2009	2017	Percentage change
Himachal Pradesh	19858	131017	560
Andaman and Nicobar Islands	210	810	286
Jammu and Kashmir	42869	112516	162
Meghalaya	3200	8200	156
Uttrakhand	68499	160419	134
Gujarat	1267304	2901807	129
Andhra Pradesh (includes Telangana)	900606	1782561	98
Haryana	393121	749830	91
Odisha	291039	540141	86
Assam	88068	157906	79
Maharashtra	546748	978392	79
Rajasthan	324226	555278	71
Punjab	1345193	2155704	60
Madhya Pradesh	808052	1263665	56
Tripura	29450	45477	54
India	24450652	34956991	43
Chhattisgarh	341885	484087	42
Tamil Nadu	238536	337625	42
Uttar Pradesh	10118000	14176062	40
Jharkhand	170148	236680	39
Kerala	58105	80405	38
Karnataka	407165	560178	38
Bihar	1147041	1415595	23
Arunachal Pradesh	5000	6000	20

States	2009	2017	Percentage change
Nagaland	6150	7350	20
Sikkim	2000	2100	5
West Bengal	5682000	5947561	5
Delhi	126158	129857	3
Chandigarh	12216	12462	2
Goa	7705	7705	0
Puducherry	85	85	0
Lakshadweep	15	15	0
Manipur	0	5500	-
Mizoram	0	4001	-

Notes: Cold Storage: State-wise Number and Capacity of Cold Storage in India, As on 31.03.2017, in Metric Tonne (MT). Retrieved from: <https://www.indiastat.com/>, Accessed on November 13, 2017.

2.2.2.2 Negotiable Warehouse Receipts

A negotiable warehouse receipt (NWR) is a document issued by a warehouse to a depositor of goods. It is essentially proof of deposit of the commodities. The receipts can be used by the depositor to obtain finance from lending institutions as a pledge. The depositor or the lender (holder in due course) can claim the stored commodities. In addition to this, these receipts maybe sold, traded and swapped. While there is a system of NWRs in the India, impetus must be given to use such facilities. Improving information asymmetry for banks by including higher reporting standards would encourage lending in this manner. Further, for a system of electronic trading of NWR, a unified database with information in relation these receipts is necessary. At this time, there is still not much confidence in the system that supports this instrument. Only when the financial community has a high degree of confidence in the system will it lend against warehouse receipts, and interest rates will be reduced (FAO, Food Grain Forum, 2009).

- (a) *Form of NWR*: The WDRA prescribes certain mandatory details required to be included in warehouse receipts. In many cases the State requirements of these receipts are not in tandem with the WDRA standards. For instance, there is variation under the M.P Agricultural Warehouse Rules, 1961 and the WDRA⁶ and the Bombay Warehouses

⁶<http://cgswc.cg.gov.in/pdf/The%20CG%20Agricultural%20Warehousing%20Rules%201961.pdf>

Act, 1959⁷ and the WDRA. State requirements for warehouse receipts must be the same as the requirements under the WDRA.

- (b) *Poor enforcement structure*: The lack of a uniform enforcement mechanism and poses as a barrier for cross border trading of NWRs.
- (c) *Fragmentation of the warehousing structure*: Currently, there is lack of a single consolidated national standard for warehousing in India. Standards and regulations are fragmented and varied.
- (d) *GST Storage and warehousing of agricultural produce* have been exempt from GST.⁸ However, the creation of warehouses and provision of service of warehousing is liable for tax. This means that while outputs have been exempted from GST while input services have been included in GST. This deprives these service providers to claim input tax credits. For instance, one such input is the GST for renting commercial property is 18% of the rent paid.

2.2.3 Legal issues for warehousing

There are two main legislations that establish warehousing authorities in India. The first is the Warehousing Corporations Act, 1962, which established the CWC and SWCs. The second is the Warehousing (Development and Regulation) Act, 2007, which established the WDRA. Warehousing is thus regulated by state governments and most states have warehousing laws under which they license warehouses. In 2007, the Parliament passed the Warehousing (Development and Regulation) Act, 2007, which came into force on October 25, 2010. This created the Warehousing Development and Regulatory Authority, a central regulator for Negotiable Warehouse Receipts (NWRs). A summary analysis of both these legislations have been set out below.

2.2.3.1 The Warehousing Corporations Act, 1962

This Act was enacted to establish and regulate corporations for the purpose of warehousing of agricultural produce and certain other specified commodities. It created two levels of authorities for warehousing. First at the Central level (by establishing the CWC) and second at the State level (by establishing the SWC).

The CWC has been empowered to acquire and build godowns and warehouses at such suitable places in India as it thinks fit. It can also run

⁷ <https://www.legalcrystal.com/act/136074/the-bombay-warehouses-act-1959-complete-act>

⁸ This is continuation of the exemption in respect of service taxes of these activities.

warehouses for the storage of agricultural produce, seeds, manures, fertilizers, agricultural implements and notified commodities offered by individuals, co-operative societies and other institutions. The SWC may do so within the State with the previous approval of the SWC.

In addition to this, the CWC and SWC may arrange facilities for the transport of agricultural produce, seeds, manures, fertilizers, agricultural implements and notified commodities to and from warehouses. The CWC may also act as agent of the Government for the purposes of the purchase, sale, storage and distribution of agricultural produce, seeds, manures, fertilizers, agricultural implements and notified commodities. The SWC may act as an agent of the CWC for these purposes. In addition to these, both the SWC and CWC have been granted to power to make regulations at the State and Central level, respectively.

2.2.3.2 Warehousing (Development and Regulation) Act, 2007

The Warehousing (Development and Regulation) Act, 2007 (WDRA), was primarily enacted to promote warehouse receipt financing in India.

"...to make provisions for the development and regulation of warehouses, negotiability of warehouse receipts, establishment of a Warehousing Development and Regulatory Authority and for matters connected therewith or incidental thereto."

Warehouse receipt financing is a proven instrument for allowing farmers, traders, processors and exporters to obtain finance secured by goods deposited in a warehouse. The warehouse operator issues a receipt for the stored goods, which can be used as a form of portable collateral to request a loan from a financial institution. Warehouse receipt financing is especially interesting for rural small and medium enterprises, which are often unable to secure their borrowing requirements owing to lack of sufficient conventional loan collateral (FAO, *Food Grain Forum*, 2009).

The WDRA also established the Warehouse Development Authority (WDA), an independent regulator functioning under the overall superintendence of the Central Government. The two main aims of the WDRA are first, to help the farmers seek loans from banks against the NWRs to avoid distress sales of agricultural produce during the peak marketing season and second, to avoid the post-harvest storage losses. Some of the functions of the WDA include to register all warehouses that issue NWRs, monitor and supervise them, regulate the NWRs, decide the charges that warehouses can apply for commodity, define the process to approve agencies for grading commodities, regulate rates of warehousing contracts and develop and use an electronic database of goods deposited in the warehouses. The salient features of the WDRA include the following:

- Regulation of warehousing activities;
- Liabilities of warehousemen;
- Format of warehouse receipts;
- A framework for settlement of disputes and appeals; and
- Offences and penalties.

From the perspective of the mandate of this Committee, there needs to be a serious assessment on why warehouses do not register with the WDRA and the constraints in doing so. Accreditation with the WDRA has its own costs, both direct and indirect. Unless the advantages of accreditation generate revenue in excess of the cost of regulation, market participants would not voluntarily submit to such accreditation. Reducing such fees, tying up bank credit with electronic NWRs, providing for a robust delivery mechanism, etc., may expedite the process. However, this involves a behavioural change and so can only be a gradual process. Intensive stakeholder education is a critical requirement. Easing these barriers if any would facilitate in bringing all warehouses towards a single line of regulation and facilitate the growth of NWRs.

2.2.4 Recommendations

Based on the above analysis of constraints, the following recommendations may be considered:

1. A single authority for warehousing operations in a context where there are currently multiple institutions.
2. Standardization of warehousing requirements such that minimum standards are established (MP, NWRs). A transition roadmap for bringing unregistered warehouses to registered warehouses under WDRA be developed.
3. Ideally one would want all warehouses to be permitted to issue NWRs once the standardization of warehousing requirements is achieved, and there should be no separate registration requirements for the same. For example, at this time, those permitted to issue NWRs under the APML 2017 are not recognised under the WDRA without separately registering. There is no provision in the WDRA to do so. Doing so would however lead to a fragmented and ad hoc system of NWRs regulation in the country. There needs to be a serious assessment on why warehouses do not register with the WDRA and the constraints in doing so. Easing these barriers if any would facilitate in bringing all warehouses towards a single line of regulation and facilitate the growth of NWRs.

4. Assaying of the goods is necessary for proper trading of the goods as it provides the grade designation which determines the market value. Reflection of correct grade in the NWRs is important for the purpose of integrity, transferability and trading of the NWRs. A reflection of correct quantity and grade in the NWRs is crucial when the system is moving towards the integration of eNWRs with the National Agricultural Market platform or even for export purposes.
5. There is a need for a common database for warehouse storage and warehouse receipts. The aim is to facilitate cross border trading of NWRs. There are already repositories designated and the role of maintaining an integrated database can devolve on these.
6. Mandatory reporting of warehousing receipts would be essential to reduce information asymmetry.
7. There is a need for regulatory and mechanism for collateral managers with a redressal mechanism for those undertaking NWR based transactions. There is a need to have a mechanism (like Clearing Corporation of India (CCIL) for equity market) to guarantee settlement of NWR based transactions. Regulated Clearing Corporations should be allowed to do clearing and settlement of all types of warehouse receipts that are used for delivery in any of the markets to provide for settlement guarantee of trades. This is essential so that for example, if banks lend on the basis of NWR and later it is found that the physical stock is either not available, or short in quantity, or of poor quality. A reflection of correct quantity and grade in the NWRs is crucial when the system is moving towards the integration of e-NWRs with the National Agricultural Market platform or even for export purposes. Further, SEBI may consider electronic warehouse receipts as good delivery on derivatives contracts to bring greater integration between physical and derivatives market.
8. Currently under GST inputs are taxed but not output and in the case of warehouses, the tax on renting land cannot be claimed.
9. There is also a need to expand the scope of insurance beyond damages to flood, theft and so on, and create these insurance markets. These would be facilitated in turn by the standardization recommended before.

2.3 Assaying

2.3.1 Overview

Grading of agricultural commodities has four main purposes (a) to ensure prices are linked to quality and that the producers get their due based on scientific processes and not subjective assessments and negotiation; (2) to promote, as the State of Indian Agriculture 2015-16 report says, “a common trade language and avoid the need for physical checking and handling at multiple points”; (3) to signal quality to buyers and ultimately protect consumers by ensuring quality; in the context of foodstuffs the issue of food safety and traceability is addressed. Until date, the grade standards of 213 agricultural commodities have been notified in 105 Commodity Grading and Marking Rules. The grade standards notified under the provisions of the Agricultural Produce (Grading and Marking) Act, 1937 are popularly called ‘AGMARK Standards’. Grading and marking under AGMARK is voluntary as per the provisions of the Act. However, certification of blended edible vegetable oils and fat spreads is mandatory under AGMARK as per the “Regulations” notified under the Food Safety and Standards Act, 2006. The quantity and value of agricultural commodities certified under AGMARK for domestic trade was 18.08 lakh MT during the year 2013-14, valued at Rs. 14,412.91 crores, and 19.12 lakh MT during the year 2014-15, valued at Rs.12,589.40 crores (GoI, 2016).

Figures on assaying from the Directorate of Marketing and Inspection, Government of India suggest that grading by producers has been increasing, this increase has not been consistent. Some commodities are more likely to be graded than others. Figure 7 and Figure 8 capture these aspects.

Figure 7: Trend in absolute quantity of produce graded in India , 2001-15

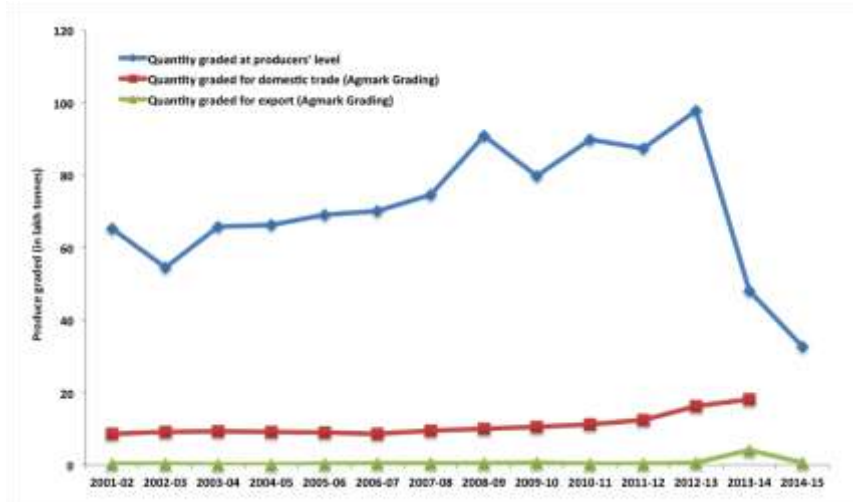
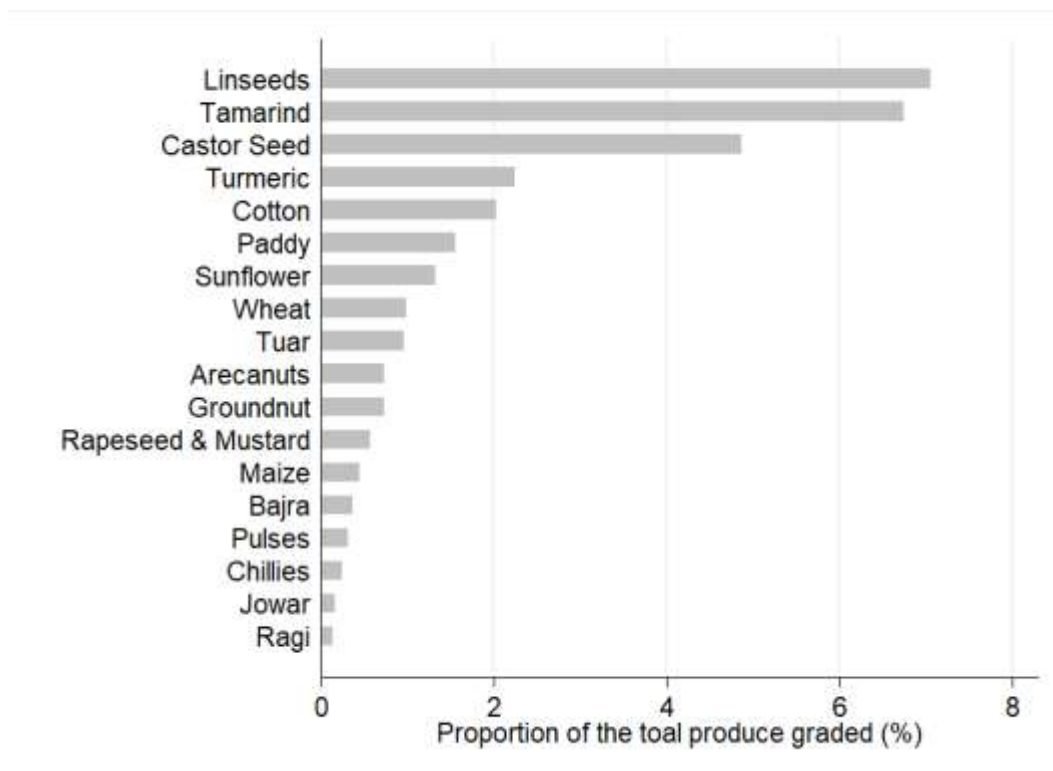


Figure 8 : Commodities typically graded (by proportion of production) in 2015



Notes: Actual quantity of the commodity graded was taken from statistics bulletins (2014-15) retrieved from the: <http://dmi.gov.in/Statistics.aspx>. Whereas, actual amount of the commodity produced in the nation was taken from Agricultural Statistics at a Glance 2016, GOI.

2.3.2 Technical and operational issues

Assaying in spot markets today is not mandatory and is done almost entirely in a subjective manner by the trader or commission agent. Farmers typically

don't grade or sort on farm and it is done, if at all, ex-post after the sale. The limited extent to which produce is assayed or graded represent missed opportunities for farmers to capture a premium with limited investment in grading and sorting. In general, there is a serious need for upgrading infrastructure to grade, sort and assay, but also to bring down the costs of assaying and increase the awareness among farmers regarding the benefits of assaying.

2.3.3 Legal issues for around assaying and grading

There are two main quality standards that are required to be followed in India. These are AGMARK and FSSAI standards.

2.3.3.1 AGMARK

AGMARK is a certification mark on agricultural products in India, assuring that they conform to a set of standards approved by the Directorate of Marketing and Inspection, an agency of the Government of India. The AGMARK is legally enforced in India by the Agricultural Produce (Grading and Marking) Act, 1937. The present AGMARK standards cover quality guidelines for 205 different commodities spanning a variety of Pulses, Cereals, Essential Oils, Vegetable Oils, Fruits and Vegetables, and semi-processed products. The Directorate of the Marketing & Inspection, Government of India acts as a Certifying Agency in order to certify the product conformity.

The Agricultural Produce (Grading and Marking) Act, 1937 was the first legislation enacted by the Central Government to formulate standards and carry out grading and marking of agricultural and allied commodities. The articles included in the Schedule are fruits and vegetables, dairy and poultry products, food grains and allied products, pulses, oilseeds, oils and cakes, essential oils, fibres, spices and condiments, forest produce, edible nuts, tobacco, tea, coffee, honey, wheat, atta, besan, suji and maida, raw meat etc. The Act also empowers the Central Government to include additional commodities/products in the schedule for enforcement of grade standards and implementing grading and quality control.

The Act specifically empowers the Government to: (i) fix grade designations indicating the quality of the produce; (ii) define the quality indicated by each grade designation; (iii) specify the grade designation mark to represent particular grade designation; (iv) specify the manner in which the article could be packed, sealed and marked; (v) authorize a person or a body to use the grade designation marks under prescribed conditions.

So far Agmark standards have been framed and notified in respect of 163 commodities which include food-grains, pulses, fruits and vegetables, spices, edible nuts, oil seeds, vegetable oils and fats, fibres, forest products, livestock, dairy and poultry products. Tradable parameters have been established for 90 commodities as per the Ministry of Agriculture. At present, 22 Regional AGMARK Laboratories are operating under the Apex Central Agmark Laboratories, Nagpur. These laboratories also provide training to chemists of the laboratories the States/UTs.

2.3.3.2 FSSAI

FSSAI is an agency or a division of the Ministry of Health & Family welfare. FSSAI helps to regulate and it also supervises the functioning of the food businesses in India, and in order to monitor and to promote public health. It is thus mandatory for all the food business operators, distributors, retailers and the storage houses to get an FSSAI license. FSSAI was established under the Food Safety and Standard Act, 2006. FSSAI oversees the conditions of manufacturing, storing and for warehousing, distribution, developing of sanitary standards and also for promoting awareness among the consumers.

2.3.3.3 Other standards

Several other standards coexist. For example, Food Corporation of India (FCI) standards are those imposed during procurement of notified commodities. The CODEX standards are international standards applied to agricultural produce being exported from India and APEDA standards are set for exports. Efforts are on to harmonize these standards.

2.3.4 Recommendations

1. *Unified governance:* At present there are various authorities that set quality standards for different segments of the agricultural markets. For instance, AGMARK, FSSAI, FCI etc. A unified organization that prescribes standards and oversees all agricultural commodity assaying is necessary. But these standards must be determined in consultation with the states and accommodate the ranges, which might be preferred by different states and also including distinction being made for bulk and retail trade. Ideally standards are best built at the state level – which would identify appropriate grades and standards for commercially important varieties, but in the interests of a seamless market, a national body may be necessary. This structure may operate

through a single state level organisation for each state whose recommendations are aggregated and harmonised.

2. *Differential standards*: Perhaps the most basic of all issues in relation to assaying is the existence of differential standards of assaying for a single commodity. A common set of standards will be easy to implement and will ensure uniformity of commodity standards across every segment of the commodities market. Harmonisation of standards must not be interpreted as homogenisation of standards.
3. *Varieties of commodities and differing end-use*: The assaying standards must take into account the difference in varieties of a single agricultural produce, and based on different end uses.
4. *Export quality issues*: Bringing domestic standards of food grade quality in-line with export quality standards will also boost the potential for exports of agricultural commodities.

2.4 Transport

2.4.1 Technical and operational issues

2.4.1.1 Taxation of movement of goods

Inter-state trading and movement of agricultural produce has historically been restricted by taxation policies. The taxation for inter-state movement of goods, is two tiered. The first tier consists of taxes imposed at the State level. The second consists of taxes at the Central level.

Previously, at the State level taxes such as VAT / Sales tax, State Cesses and Surcharges, Octroi, Entry Tax, Purchase Tax were imposed. At the Central level, taxes such as Central Excise Duties, Additional Duties of Excise (Goods of Special Importance), Additional Duties of Customs, Special Additional Duty of Customs (SAD), Service Tax and Central Surcharges and Cesses so far as they relate to supply of goods and services were imposed.

With the introduction of the GST system, these taxes were subsumed. The GST regime in India now involves following three levels of taxation:

- 1 Central Goods and Services Tax (CGST);
- 2 State Goods and Services Tax (SGST) or Union Territory Goods and Services Tax (UTGST); and
- 3 Integrated Goods and Services Tax (IGST).

The following are some agricultural goods that are exempt from CGST, SGST and IGST: ⁹

- Rice (other than those put in a unit container and bearing a registered brand name);
- Puffed rice, flattened rice, parched paddy
- Wheat (other than those put in a unit container and bearing a registered brand name);
- Cereal flours other than of wheat or meslin, maize (corn) flour, rye flour, etc. (other than those put up in unit container and bearing a registered brand name);
- Buckwheat, millet and canary seed; other cereals such as jawar, bajra, ragi (other than those put up in unit container and bearing a registered brand name);
- Hulled cereal grains;
- Sorghum grain (other than those put up in unit container and bearing a registered brand name);
- Cereal groats, meal and pellets (other than those put up in unit container and bearing a registered brand name);
- Soya beans, whether or not broken, of seed quality;
- Oil seeds and oleaginous fruits (i.e. palm nuts and kernels, cotton seeds, castor oil seeds, sesamum seeds, mustard seeds, safflower seeds, melon seeds, poppy seeds, ajams, mango kernel, niger seed, kokam) whether or not broken, of seed quality.

2.4.1.2 Physical impediments

Physical delivery of the commodity is an essential step in a spot commodities transaction. Physical delivery or threat of delivery is also critical for commodity derivatives contracts. Physical delivery involves the commodity being transported from one place to another. Roads constitute the most important mode of transport in the country, carrying 60% of the country's total freight traffic.¹⁰

There are two main problems associated with transport of commodities by road. First, there is a lack of good quality roads and national highways. Most of the road network in India comprise of roads in rural areas that are an impediment to the movement of large vehicles. National highways, constitute

⁹ <https://cbec-gst.gov.in/gst-goods-services-rates.html> last visited on 18 July, 2017.

¹⁰ Annual Report <http://morth.nic.in/showfile.asp?lid=2631> last visited on 15 July 2017

only 4 per cent of the total length of roads in India.¹¹ While district and rural roads constitute about 94% of the total roads in India.¹² Second, on account of this, there is a reduction in the speed of transport across states. The average transit time by road or train between cities in India is significantly higher than the time taken for similar distances in China.

Figure 9 Comparison of road transport efficiency

Efficiency indicators in road transportation	India	Global
Average truck speed (in km/ph)	20-40	60-80 (developed countries)
Average truck distance covered in a year (kms)	60,000-1,00,000	4,00,000-6,00,000
Average truck distance per day (kms)	250-400	500 (BRICS) 700-800 (US & Europe)
Total length of expressways (kms)	~1000	74,000 (China)

Other constraints include:

Technical issues in the framework of GST remain: For instance, at present, all goods listed under the head of agriculture, are exempt from the payment of GST. On the face of it, it appears that this will be beneficial to farmers. Inputs for farming such as seeds and fertilizers, however, are taxable under GST. On account of the exemption of agriculture, farmers cannot claim any Input Tax Credit (ITC). Further, customs duty on imports of goods, such as pulses, are not subsumed under GST.

Checkpoints: Checkpoint losses account for a large portion of the losses in the quantity of agricultural commodities. These losses are of two types. First losses on account of spillage while transporting and checking the goods. Second, losses on account of quality deterioration, during long waits at checkpoints. Some States such as Assam, Himachal Pradesh, Manipur, Meghalaya, Nagaland, Punjab, Mizoram and Tripura are in the process of removing checkpoints altogether, in order to facilitate free movement of goods in India.

11 *Report of the Working Group on Central Roads Sector*
http://planningcommission.nic.in/aboutus/committee/wrkgrp12/transport/report/wg_cen_roads.pdf
 last visited on 15 July,2017 and Annual Report <http://morth.nic.in/showfile.asp?lid=2631> last visited in 15 July 2017

12 <http://morth.nic.in/showfile.asp?lid=2631> last visited in 15 July 2017

2.4.2 Legal issues

Essential Commodities Act, 1955 Under the Essential Commodities Act (1955) and under administrative orders, states have been imposing restrictions on the cross-border movement of specific commodities for trade purposes, thus hindering the development of interstate trade. *ECA restrictions*: States have been imposing restrictions on the cross-border movement of specific commodities for trade purposes, thus hindering the development of interstate trade.

2.4.3 Recommendations

1. Issues arising out of ECA that impede cross border trade must be addressed.
2. Given the constraints of market coverage and distances that commodities travel, for a seamless market, commodities need to move unhindered physically as well, and the removal of various checkpoints within and between states need to be removed has been occurring already.

2.5 Domestic Trade

2.5.1 Legal framework for domestic agricultural trade

2.5.1.1 Overview of the State APMC Acts

The present structure of agricultural markets are determined by each State as 'markets' and "agriculture" are determined as State subjects by the Constitution of India. While the particulars of each State act vary, the basic structure of mandis are largely similar.

While each State law may differ, State APMC laws generally have the following features:

- (a) *Regulation*: The APMC laws generally empower the APMC to regulate the marketing of agricultural produce in areas to be notified by the state government.
- (b) *State Agricultural and Marketing Board (SAMB)*: The APMC laws constitute a board, which is responsible for supervision of mandis where agricultural produce may be sold by farmers to wholesalers.

- (c) *Establishment of market committees*: The APMC laws establish various market committees. The market committee, may appoint sub-committees to carry out the implementation of the APMC Act. Some of the key functions of these committees are: (i) grant, renewal, suspension or cancellation of licenses; (ii) regulation of entry of persons into the market; and (iii) levy and collection of charges, fees, rates and other sums of money.
- (d) *Creation of licensed mandis*: The APMC laws create designated market yards where trading takes place and which yards are subject to the regulation of the respective APMC. There are further sub-yards created with the intent of bringing the market to the farmer. A single state may have multiple market yards and sub-yards.
- (e) *Regulations and penalties*: The APMC laws also impose various penalties for contraventions of the provisions of the specified law.

2.5.1.2 *Model APMC Act*

(a) *APMC Acts as barriers to trades*

Since, “markets” are a state subject, various states have enacted APMC acts. The provisions of each state APMC Act vary. This has led to fragmentation of agricultural markets and also has bred a large amount of restrictive practices in local markets, which are not conducive for a national agricultural market. However, even though State legislatures have been empowered to legislate over matters concerning agriculture under Entry 14 of List II.¹³ Entry 26 of List II provides that the state legislature has the power to legislate with respect to trade and commerce within the state subject to the provisions of entry 33 of List III. Entry 33 of List III concerns trade, commerce, production, supply and distribution of inter alia, foodstuffs, including edible oilseeds and oils. It has been held that the provisions of Entry 33 of List III override the legislative powers of the State Legislature in connection with legislations dealing with trade and commerce in, and the production, supply and distribution of, goods enumerated...foodstuffs, including edible oilseeds and oils.¹⁴

Further, the language in this entry is inclusive and should be interpreted as having the widest import. Judicial interpretation of entries in the lists of the Seventh Schedule, have favoured the inclusion of ancillary

13 *Seventh Schedule, Constitution of India*

14 *Belsund Sugar Co. Ltd. v. State of Bihar and Others (1999)9 SCC 620 para 16.*

matter within one entry. In the case of *State of Rajasthan vs. G. Chawla*¹⁵, the Court held:

“It is well-settled that the power to legislate on a topic of legislation carries with it the power to legislate on an ancillary matter which can be said to be reasonably included in the power given.”

In line with this, while interpreting the scope of Entry 33 in List III, the Supreme Court in another case,¹⁶ has interpreted Entry 33 in particular, to be of wide import:

‘..Entry 33 mentions ‘foodstuffs’ as a class of commodity which includes edible oilseeds and oils. The main thing to be noticed in that the Entry deals with not merely trade and commerce in foodstuffs but also in relation thereof in production, supply and distribution as well. Once it is clear that Entry 33 deals with production, it is obvious that the seeds are a vital commodity having direct connection with the production of the foodstuffs to which it relates. Therefore, seeds of foodstuffs is an item which has direct bearing with the production of the foodstuffs and consequently it is competent for the Parliament as well as States to make laws in relation to seeds of foodstuffs. Surely seeds of food-crops and seeds of fruits and vegetables relate to foodstuffs.

Article 301 of the Constitution of India provides a fundamental principle for common markets in India that the provisions (of Part XIII), trade, commerce and intercourse throughout the territory of India “shall be free”. Judicial interpretations have also confirmed and enforced this requirement.¹⁷ This supports the concept of economic unity while interpreting this provision by extending its applicability to even state legislatures,¹⁸ and intra-state trade.¹⁹ Accordingly, all state acts, must be subject to the mandatory standard of free trade, commerce and intercourse through the territory of India.

However, as it standards today, there are a number of restrictive provisions on these Acts that directly affect the spot market and indirectly affect the derivatives market for agricultural commodities.

(b) Fees and charges

15 AIR 1959 SC 544

16 *Raghu Seeds and Farms And Others vs Union Of India And Others* (AIR 1994 SC 533) para 6

17 *Atiabari Tea Co. Ltd. v. The State of Assam and Others* (AIR 1961 SC 232) para 38

18 *Atiabari Tea Co. Ltd. v. The State of Assam and Others* (AIR 1961 SC 232) para 38

19 *Atiabari Tea Co. Ltd. v. The State of Assam and Others* (AIR 1961 SC 232) para 42

The APMC acts, empower the local APMC to impose fees and charges within each market jurisdiction. For instance, in some states, commodities that are brought to a processing unit from another market area are subject to the levy of market fees. This is despite the fact that there is no transaction that has been undertaken in the processing market area. Under Indian jurisprudence, a fee is levied for services rendered and as such there is an element of quid pro quo between the person who pays the fee and the public authority which imposes it.²⁰ A tax, on the other hand, is imposed for public purposes and need not be supported by any consideration of service rendered in return. Any charges made, that are in the nature of a tax, are then subject to the requirements of Articles 301 and 304 of the Constitution of India that require such taxes to not impede free trade.²¹

The Report of the Working Group on Agricultural Marketing Infrastructure, Secondary Agriculture and Policy required for Internal and External Trade suggests that these incidences of state and local taxes, collection of market fees by government agencies and existence of various laws have been prohibitive towards internal trade in India (*Planning Commission of India, 2011*). Available data of the taxes and levies on a staple product like wheat, indicate that these charges maybe as low as 0.81 per cent of the MSP in Gujarat and high as 14.5 per cent of the MSP in state of Punjab.

22

(c) Licensing

These legislations also require licenses for trading. Licensing requirements to trade are a major impediment to trade, for two main reasons. First, traders are licensed to carry on business only in the place for which a license is issued. This restricts the trader from carrying on business in any other place, even within the same market area.²³ Some states have recently taken corrective action and introduced the provision of a single license for an entire state or for multiple zones.²⁴ Second, licenses to trade also impose restrictions on other aspects of trading such as storage. For example, a licensed trader is restricted to operate storage only within the boundaries specified in the license. The restrictions on storage can include for how many days and the specific times at which such storage can be operated.

20 *Matthews v. Chicory Marketing Board* (1938) 60 C.L.R.263

21 *Atiabari Tea Company v. State of Assam* (AIR 1961 SC 232) paras 49 and 50

22 *Department of Agriculture and Co-operation, Ministry of Agriculture, Commission for Agriculture Costs and Price, Price Policy for Rabi Crops*

23 *Rule 7(e) of the West Bengal Agricultural Produce Marketing (Regulation) Rules, 1982*

24 For example see:

<http://www.enam.gov.in/NAM/home/download/Haryana%20Unified%20Licence.pdf>

Licensing requirements should be transparent, uniform and standardized across states, in order to encourage traders to engage in inter-state trade. This can be achieved by replacing the multiple level licensing requirements that exist within states for a single activity with unified licensing. This would mean that any license issued by any APMC within one state will be valid to carry on trade in all APMCs in that state.

2.5.1.3 The Model APLM 2017

For the purpose of our analysis we have relied on the Model APLM, 2017 available at http://agricoop.nic.in/sites/default/files/APLM_ACT_2017_0.pdf. We understand that a new version of the model law is in the process of being reviewed. We have not been able to access the latest version. The new model law when published, maybe analyzed for the issues specified in this section. The present policy inclination is to retain the APMC acts, with modification of their provisions. In this light the Model Agricultural Produce Marketing and Livestock Act, 2017 (Model APLM 2017) has been issued by the Central Government. There are two intentions with this. First to provide a framework which removes restrictive practices for States to adopt so as to amend their existing APMC laws, and second, to pave the way for a national agricultural market.

Agricultural produce and notified agricultural produce

The Act defines both these terms as agricultural produce on the schedule. However these terms have been used differently in different sections. For example a buyer is defined as someone who buys “agricultural produce”, whereas a processor is defined someone who processes “notified agricultural produce”. The power to notify agricultural produce has been granted to the State government. It is unclear if these are in addition to the commodities in the schedule.

Electronic trading and warehousing

While the concept of electronic trading has been introduced, the model law treats electronic trading as a separate kind of market place requiring separate licensing etc.²⁵ Electronic trading is not a separate market place, it is only a different mode of transacting in an existing market place. Similarly warehouses have also been given this treatment under the model law.²⁶

²⁵ Section 7, 55, 68, 111 APLM Act, 2017

²⁶ Section 2 (27), 12 APLM Act, 2017

Contract farming

The model law does not include contract farming provisions, which are now being considered as part of a separate new model law legislation. It is unclear whether or not contract farming will continue to be regulated by APMCs where state law provides so.

Private markets

The Model law requires that each private operator obtain a license for each market area in which they want to operate.²⁷ This is against competitive practices and will hamper access by private players. Even licensees are supposed to register with the private operator in addition to being registered with the APMC.

Bar of jurisdiction of civil courts

The model law does not lift the bar of jurisdiction in respect of disputes from the existing APMC laws.²⁸ The APMC will continue to be the final authority in adjudicating disputes.

Inter-state settlement of disputes:

At present, each APMC having the power to settle disputes between licensees, in case of inter-state trade under the e-NAM, this structure will prove to be problematic. In light of current endeavours to integrate markets and encourage national markets in India, there must be a single common authority to adjudicate inter-state disputes. At the moment, each APMC has jurisdiction to determine disputes within their market areas. In a situation where the buyer is from one state and the seller from another, it is unclear who the dispute settlement authority will be. The model APLM provides that in case of any dispute arising out of inter-State trade transaction on e-platform or any other such platform, "the Government/Administration can subscribe to become part of such Authority, which may be constituted by the Union Government or State Government/UT Administration." It is unclear whether a permanent or an ad hoc authority is contemplated under this section.

2.5.1.4 Auction platforms and e-NAM

The Ministry of Agriculture, approved a scheme for the implementation of the NAM, in the year 2016-17. The scheme envisaged the implementation of the

²⁷ Section 10, APLM Act, 2017

²⁸ Section 41(2)(vii), Section 61 APLM Act, 2017

NAM, but setting up a common e-market platform that would become a part of the wholesale markets in the states.

The effective implementation of e-NAM requires that all states make amendments to their existing APMC laws, by incorporating the provisions provided under the State UT Agricultural Produce and Livestock Marketing Promotion and Facilitation Act, 2017. The State UT Agricultural Produce and Livestock Marketing Promotion and Facilitation Act, 2017 containing the following provisions to promote unification of agricultural trading markets, within the state: (i) Unified licensing; (ii) Declaration of the whole state as a unified market; (iii) A single point of levy of market fee; and (iv) The provision for electronic auctions as a mode of price discovery.

While some states such as Maharashtra, Andhra Pradesh and Gujarat, have implemented changes to their APMC laws, other such as West Bengal, Arunachal Pradesh and Jammu and Kashmir, have not made any such amendments. Further, some states, such as Bihar have repealed their APMC laws.

e-NAM is being deployed in selected 585 regulated wholesale markets in States/UTs desirous of joining the e-platform. Small Farmers' Agribusiness Consortium is operating the NAM as the implementing agency with technical support from a strategic partner.

Issues in e-auctions

- (a) *Physical contracts*: At present State APMC acts, require the execution of written contracts for trades that take place within market places. Further, there are requirements of executing such contracts in triplicate etc. The Madhya Pradesh Krishi Upaj Mandi Adhiniyam, 1972 is one such example. This is a cumbersome requirement should be specifically removed for trades through the e-NAM platform. Instead, a standard uniform contract must be executed by traders with the e-NAM platform.
- (b) *Lack of online support*: Most mandis do not have facilities like online support. Neither do any of the APMC acts require that all data must be maintained by mandis in an electronic form.
- (c) *Lack of automated real time processes*: e-auctions require real time online support facilities of post auction processes like weighing, invoicing, market fee collection, accounting and payment of proceeds to farmers. Such information must automatically feed into the e-NAM website and database.

- (d) *Inter-state disputes and enforcement*: Presently, there is not dispute resolution mechanism set up for inter-state individual disputes that might arise out of cross-border trading through e-NAM. A robust and clear mechanism for speedy dispute redressal is necessary.
- (e) *Assaying*: To facilitate assaying of commodities for trading on NAM, common tradable parameters have been developed for 69 commodities. In general, the sample size for the process of assaying is quite high. Further, even though assaying standards have been set, assaying laboratories are yet to be fully developed and functional. This also requires qualified personnel operating these labs and conducting data entry work.

2.5.1.5 *Contract farming*

Contract farming is essentially a farming-marketing transaction conducted between farmers and agro-processors or exporters. There are four main elements of such a contract. First, a pre-determined price of the produce, second, a pre-determined quality requirement of such produce, third pre-determined quantity of the produce and fourth fixed time for delivery. The purchaser also provides support in the form of agricultural inputs to farmers.

Today, there is no specific legislative framework that governs contract farming transactions. In some states such as Maharashtra²⁹ and Rajasthan,³⁰ provisions to regulate contract farming have been included in the respective APMC laws while other States like Andhra Pradesh and Madhya Pradesh have not.

In States where there is no regulation, there is possibility of these transactions being carried out without recourse to law. In states that have regulations in some manner, they are often restrictive and all matters that arise out of this arrangement, are within the jurisdiction of the SAMBs including dispute settlement. For instance, in some states sponsors are meant to register with the local APMC. Further, the form of the agreement executed between the farmer and the sponsor is set out by the APMC laws.

The existing tasks with respect to regulating contract farming are two. First, where there is no regulation for contract farming, regulation should be introduced. Second, where existing regulation is restrictive, it should be loosened. The aim is to encourage private investment in contract farming and increase market access and access to capital for small farmers.

²⁹ Section 5E, *Maharashtra Agricultural Produce (Marketing Development and Regulation) Act, 1963*

³⁰ Section 22-N, *Rajasthan Agricultural Produce Markets Act, 1961*

A recent notification, the Ministry of Agriculture invited comments and inputs to a model contract farming law.³¹ A detailed review of this model law will have to be undertaken to ensure that it is not restrictive but yet well regulated, provides adequate recourse for dispute settlement and encourages participation in the sector.

2.5.1.6 Essential Commodities Act, 1955

The Essential Commodities Act, 1955 (ECA) was enacted to control the production, supply and distribution of, and trade and commerce in, certain goods considered as essential commodities. The Act itself does not lay out Rules and Regulations but allows the States to issue Control Orders. These orders typically impose dealer licensing, regulate stock limits, restrict movement of goods and require compulsory purchases under the system of levy. The key features of the ECA are summarized below:

Notification of essential commodities: The ECA prescribes a list of essential commodities. It also empowers the Central Government (CG) to notify additional commodities as essential commodities to which the provisions of the ECA apply. Currently, a list of some essential commodities prescribed under the ECA and notified by the CG, is produced below: i. cattle fodder and its seeds, including oil cakes and other concentrates; ii. Cotton and woolen textiles; iii. Fertilizers (organic, inorganic or mixed); iv. Foodstuffs including edible oilseeds and oil; v. hank yarn made wholly from cotton; vi. Raw cotton, cotton seeds, raw jute, jute seeds and jute textiles; and vii seeds of food crops and seeds of fruits and vegetables.

Regulation of essential commodities: The CG is empowered under the ECA to prohibit, regulate the production, supply, distribution of and trade and commerce in, essential commodities. Many of these powers are also exercisable by the State Governments. These powers are extremely widespread, and may include any of the following: i. the requirement to obtain a license or a permit for the manufacture or production of essential commodities; ii. price controls for buying or selling essential commodities; iii. the requirement to obtain a license or permit for the storage, transport, distribution, disposal, acquisition, use or consumption of, any essential commodity; iv. a prohibition on the withholding from sale, of any essential commodity ordinarily kept for sale; v. the requirement to compulsorily sell such commodities to the Central Government, a State Government or a

³¹Notification No. No. T-14018/23/2016 /MDRC-CF dated May 24, 2017. Available at http://agricoop.nic.in/sites/default/files/Formulation_Model_2017.pdf

corporation owned or controlled by any such government; vi. regulation or prohibition of any class of commercial or financial transactions relating to food stuff or cotton textiles.

Over-riding status: Restrictions imposed by the Central or State Governments under the ECA override any other law that is inconsistent with such restrictions. For instance, such restrictions will override the provisions of the SCRA as well as bye-laws of exchanges.

Consequences of contravention: Any contravention of any order or direction made under the ECA may entail confiscation of the commodity as well as penal consequences.

Issues with ECA

- (a) *Stock limits:* Stock limits imposed by the ECA do not distinguish between those maintained for the purpose of black-marketing and those maintained on account of the nature of the industry. For instance, the food processing sector, traditionally maintain large stocks of produce for around the year maintenance of their business.
- (b) *ECA unfavourable for expansion of marketing firms:* The ECA favours small traders. The stock limits imposed generally are so restrictive that they have no effect on small traders. Large agricultural marketing firms are most affected by stock restrictions. Further the informal set-ups of small traders allow them to escape the imposition of stock limits by illegal means.
- (c) *Statutory levies:* Presently, high rates of statutory levies by states have affected the actual cost of procurement which is higher than the MSP. For instance, these levies in major wheat procuring states like Punjab is 14.5 percent, in Haryana is 11.50 percent and in Madhya Pradesh is 9.20 percent.
- (d) *Restricting competition:* The excessive imposition of stock limits even in cases where businesses require the maintenance of large stocks of produce, de-incentivises participation of the private sector in such markets. This adversely affects competition in the sector.
- (e) *No definition of "essential":* The ECA fails to define the term 'essential'. Nor do the provisions give any essentiality norms, leaving it completely at the discretion of the executive. Ambiguities in the provisions lead to considerable misinterpretation and unnecessary harassment. At the same time, all commodities cannot be equally essential. That which is essential for life cannot be equated with

industrial raw materials. But the list of essential commodities has a large number of industrial intermediates.

- (f) *Essential Commodities (Special Provisions) Act, 1981*: The penal provisions of ECA were made more stringent through the Essential Commodities (Special Provisions) Act, which was introduced in 1981 for a period of five years, but extended again and again. All offences have been made non-bailable and appellate jurisdiction has been transferred from the judiciary to the executive, thus allowing the executive to adjudicate on its own decisions.

2.5.2 Recommendations

1. Electronic trading must be deemed a platform, not a separate type of market place.
2. Interoperability requires an electronic platform. Interoperability should be considered between spot and derivatives exchanges giving participants a seamless access to all markets. Mandating these and the specific nature of the platform needs to be examined – such that states have the freedom to select the platform without compromising the prerequisites of integration across the country. Further, to enable ease of doing business a common KYC and uniform set of documents along with a unique identification code for seamless transaction for ease of doing business across the various markets may be considered.
3. The license of establishing a private market yard should not be location specific and a single license should be adequate to set up multiple yards at different locations.
4. Permit declaration of any place as a market yard, that is operated by a market operating entity, public or private (including warehouses, cold storages, silos, etc.)
5. Separation of regulatory and market development functions may be examined.
6. Provide for recognition and regulation of secondary trading platform either in a spot exchange or a physical segment in the derivatives exchange.

2.6 Pricing and government market intervention

2.6.1 Minimum Support Prices (MSP) and Procurement

Price is a barometer reflecting the demand supply management of the commodity in the market. Agriculture is no exception to this. However to achieve price discovery, capturing the actual picture of the availability and demand of various crops, a well-developed and accessible market structure which provides fair and equal competition/opportunities to all participants is essential. In absence of this, to prevent the farmers from extreme downward fluctuations in prices of their crops, MSP as an instrument of price policy provides the lowest bar to the price volatility (*Commission for Agricultural Costs & Prices, Price Policy for Rabi Crops, 2017-18*).

The MSP is set with reference to the following determinants:³²

1. demand and supply;
2. cost of production;
3. price trends in the market, both domestic and international;
4. inter-crop price parity;
5. terms of trade between agriculture and non-agriculture; and
6. likely implications of MSP on consumers of that product.

The present factors or determinants taken into account for MSP do not include two factors. These are externalities and risk. This issue has also been highlighted in the Report on Incentivising Pulses Production Through Minimum Support Price (MSP) and Related Policies, 2016.

The procurement of notified commodities is done through the Food Corporation of India and State agencies on the MSP. The MSP is declared by the Government of India for a specified marketing season. The Government announces, Minimum Support Prices (MSP) for 25 major agricultural commodities each year in both the Crop seasons after taking into account the recommendations of the Commission for Agricultural Costs and Prices (CACP). The CACP recommends MSP for twenty two (crops and Fair & Remunerative Price (FRP) for sugarcane. Apart from Sugarcane for which FRP is declared by the Department of Food & Public Distribution, twenty two crops covered under MSP are Paddy, Jowar, Bajra, Maize, Ragi, Arhar, Moong, Urad, Groundnut-in-shell, Soya bean, Sunflower, Sesamum, Niger seed, Cotton, Wheat, Barley, Gram, Masur (lentil), Rapeseed/Mustard seed,

³² *Commission for Agricultural Costs and Prices, Terms of Reference, 2009. Available at :<http://cacp.dacnet.nic.in/content.aspx?pid=62>.*

Safflower, Jute and Copra. In addition, MSP for Toria and De-Husked coconut is fixed by the Department on the basis of MSPs of Rapeseed/Mustard seed and Copra respectively.³³

Prior to the commencement of the Kharif Marketing Season (KMS) and Rabi Marketing Season (RMS), uniform specifications selected crops are formulated for each crop. This is done by a notified committee constituted by the Department of Food and Public Distribution. These specifications are circulated in advance to all central and State procurement agencies throughout the country for compliance. Food stocks conforming with the specifications are procured on the MSP for a central pool.

The Scheme of Decentralised Procurement (DCP) of food grains was introduced by the Government in 1997-98 with a view to effecting savings in the form of reduction in the outgo of food subsidy, enhancing the efficacy of procurement and encouraging local procurement to the maximum extent thereby extending benefits of MSP to local farmers. At present the total number of DCP states is 15 (*Commission for Agricultural Costs & Prices, Price Policy for Rabi Crops, 2017-18*).

2.6.2 Market Intervention System (MIS)

MIS is a scheme implemented by the Department of Agriculture & Cooperation, Ministry of Agriculture.³⁴ It is for the procurement of agricultural and horticultural commodities which are perishable in nature. The basic objective of MIS is to provide remunerative prices to the farmers in case of glut in production and fall in prices. This is in respect of agricultural produce not covered by the MSP. It is implemented on the specific requests of the State Government/UT Administrations. The reason for this is twofold: First, to take into account regional variation and second for produce that does not require all year support as under the MSP. For instance, potato, tomato, chilli and cumin are frequently procured under the MIS. The losses are shared by the State Government and the Central Government on 50:50 basis (75:25 in case of North-Eastern States).

2.6.3 Price Support Scheme (PSS)

The PSS is done with respect to three categories of crops i.e. oilseeds, cotton and pulses. This scheme is also implemented at the behest of the State Government. All the State/UT Governments shall require to notify the

³³ <http://agricoop.gov.in/sites/default/files/pssguidelines.pdf>

³⁴ <http://pib.nic.in/newsite/PrintRelease.aspx?relid=112709>

expected production, sowing area, average yield, peak arrival/harvesting period for all those crops for which MSP is declared and the State Government is willing to implement the PPSS. The PSS operations shall be taken up in the respective State/UT Governments only after such notification is issued and copies of the same are sent to the DAC

The procured stock is to be stored in CWC or SWC godowns only. However, in case of non-availability of this godowns/space, the stock may be stored in other godowns as approved by the State Government/Central Procurement Agency.³⁵

2.6.4 Issues with government market intervention

It has been well documented that the current price support system does not have a wide reach – the benefits accrue predominantly to one or two states, to a certain class of farmers and to a limited number of commodities. Despite efforts to decentralize procurement, there is a concern that open-ended procurement is both inefficient and expensive, without necessarily benefitting the most vulnerable of the farmers.

2.6.5 Recommendations

1. No open ended procurement of produce
2. To meet food security obligations and goals, examine possibility of private buffer stocking combined with use of exchange based sourcing of stocks.

³⁵ Operational Guidelines for the Price Support Scheme, available at <http://agricoop.gov.in/sites/default/files/pssguidelines.pdf>

3 Spot Exchange

3.1 Development of a spot exchange

The spot exchange, as per our market segmentation methodology, is a sub-segment of the spot market for agri-commodities. We segment the market for trades in of agri-commodities where the buyer and the seller are known to each other and the trade is negotiated between them. This secondary spot exchange, on the other hand, is one that enables a trade to take place between participants who may not be known to each other. Here a platform, such as an exchange provides services of order matching, clearing of transactions and their settlement. This is similar to an exchange based market for securities, except that in this instance, the trade is in physical commodities. The exchange, depending on its risk management systems and the profile of participants, may even offer partial or full settlement guarantee for transactions. Such a market, is likely to be more standardized than the primary spot market, especially in terms of the lot sizes that get traded, the size of positions that can be held and the grades/quality parameters that are on offer. This market will be one that settles through delivery on a gross basis, thereby eliminating any risks that may arise due to netting.

Such a mechanism can enable prices for such commodities, and grades to be discovered more efficiently. Such price can be used by the derivatives market for settling futures transactions, and as a signal for prices at which trades in the primary market may take place. Effectively, such a market can act as a bridge between a diverse and fragmented primary market and a highly standardized derivatives market.

This market is likely to be used by traders, aggregators, processors and other players who have the capacity and the resources to participate in a relatively standardized marketplace. However, while there should be no explicit restrictions on farmer participation in this market, their doing so may depend on their ability to meet the market standards. This could mean that FPOs and farmers' groups will have a greater role in enabling farmer participation in this market. Further, farmers have recently started participating in derivatives, albeit in relatively smaller numbers by selling their produce on futures markets.

As of today, NCDEX operates an electronic exchange based platform for spot trading in certain commodities through its subsidiary, the NCDEX e-Markets Ltd. (NeML, earlier known as the NCDEX Spot Exchange).

There are three major challenges regarding the development of a secondary spot market for agri-commodities in India:

1. **Regulation of the spot exchange:** Currently this market operates in a regulatory vacuum. Given that it is a market for physical trades, it is presently not a part of the regulatory jurisdiction of the market regulator, namely, SEBI, under extant laws. In the equity segment, SEBI regulates both cash or spot market as well as derivatives, enabling it to have full view of the markets. Further, in the commodity spot market there is no special recognition for the fact that it offers a differentiated platform for national level standardized trading in these commodities. Effectively, it gets regulated as one more marketplace in the spot segment. This may not be the most optimal governance strategy for regulating and developing this market.
2. **Competition:** To enable this market model to grow, sufficient competition in this space is desirable. However, today given the lack of regulatory focus and uncertainty of rules, it is difficult for private participants to invest long term resources into this space. As mentioned earlier, today, only NCDEX offers a exchange based spot platform, and that too only for a limited set of commodities.
3. **Support infrastructure:** Given the nature of the spot exchange, factors such as storage, pricing and assaying assume great importance as the market place provider needs to build capability to ensure that the trading, clearing and settlements functions can be performed with consistency, in a seamless manner and without any failure. We discuss each of these three issues in some detail below.

3.2 Support infrastructure for the spot exchange

Many of the supporting infrastructure is shared across market segments.

3.2.1 Storage

The requirements of storage infrastructure for the spot is likely to lie somewhere in between the primary and the derivatives market. These will depend on the degree of standardization in the market place models in this space. For example, the exchange model may have fewer standard products, while an auction platform may be able to offer a wide range of products.

In the primary market, there is a need for a diverse network of warehouses all across the country which service a wide range of commodity types, lot sizes and quality standards. In the secondary market, given that there is a higher degree of standardization, there may be a need for warehouse capacity of a certain minimum standard, as in the case of derivative markets. It is important to note that the standards in the secondary and derivatives markets may or may be similar.

The lack of an explicit regulatory framework prevents the secondary spot market from developing in a uniform manner. This also creates disincentives for support service providers such as WSPs from building capacity that is aligned with this market's requirements. For instance, there a clear set of norms for warehouses that are accredited by derivatives exchanges, and this allows WSPs to develop warehouses suited for derivatives trading standards. However, till the secondary market develops to a certain threshold size, WSPs incentives in developing warehouses for this market may be low.

Currently, there are only 15 WSPs that are approved by NeML. This number can only expand when the market itself grows and the rules for this market become clear.

3.2.2 Assaying

Secondary market trading may require mandatory assaying. Assaying facilities of a minimum standard will be needed as support infrastructure. As in the case of storage infrastructure, for such assaying facilities to develop there is a need for clarity in the regulatory framework for this market, and for this market to develop to a threshold size.

3.2.3 State controls on stock limits and pricing

A secondary market in commodities trading cannot be created in the context of state controls on the extent of stocks that can be held (ECA limits), and state interventions in pricing (MSP).

For example, the likely participants in this market are aggregators and processors, for whom stock holding limits may become a binding constraint.

Similarly, state interventions on pricing, create barriers for effective market based price discovery. For commodities in which these interventions are frequent may not develop a secondary market at all.

3.3 Recommendations

For integrating spot and derivative markets, a liquid secondary market is critical. While individual to individual secondary trades should remain unregulated, any institution providing for secondary trades may be regulated. From this perspective, regulating secondary trades would fall under desirable regulation. While the gamut of secondary trades would constitute the secondary spot market, the institution providing for secondary trades would qualify to be called as a spot exchange and be regulated.

1. Develop a legislative and regulatory framework for secondary market spot trading in agri-commodities. Further, trading of electronic warehouse receipts should be encouraged both in spot and derivative exchanges to give farmers benefits of access to these markets.
2. This framework should encompass rules with regard to platform providers, participants in the market, as well as standards for support infrastructure.
3. While we do not dwell at length on secondary spot markets, where bilateral exchange takes place amongst traders (i.e., not involving the farmers), the issue of regulatory oversight needs to be examined.

4 The Derivatives Market in Agri-commodities in India³⁶

4.1 Overview

There are three major electronic exchanges today, which offer a single trading and clearing platform across the nation. These are: the National Multi-Commodities Exchange (NMCE) in Ahmedabad, Gujarat, Multi-Commodities exchange (MCX) in Bombay and National Commodities Derivatives Exchange (NCDEX) in Bombay. These exchanges managed professionally and owned by financial entities, rather than by the brokers, as used to be the case before the recent reforms. These can include foreign ownership as well. For example, Fidelity International is a shareholder in MCX and the Goldman Sachs Group has invested in NCDEX. These new exchanges trade multiple commodities. When a commodity trades on one of the new national exchanges, traded volumes tend to move away from the traditional local exchange that used to previously be the center of liquidity for that commodity, onto the new national exchange.³⁷ Of all the exchanges, MCX and NCDEX, account for the traded volume of the 10 most active contracts. NCDEX dominates in the traded volumes of the agricultural contracts. However, agricultural contracts accounted for only around 12% of total volume.

Although, contract specifications vary with the underlying commodity, exchange traded commodity derivatives have the following common features:

- (a) They only trade futures;
- (b) There are no commodity options traded in India, although permissions to start trading options have been given in June 2017.
- (c) Maturity of the contracts range from one to twelve months.
- (d) Expiry dates are either the 5th, 15th or the 20th on a contract by contract basis.
- (e) Most of the agricultural futures maturity falls on the 20th of the month.
- (f) Contracts are settled by physical delivery of the underlying commodity.

The grade of the underlying commodity for contract settlement is set by the exchange. These grades are matched to the most widely available grades in the local markets. There are a limited number of contracts on a commodity type, given that it is difficult to design contracts to meet the wide range of grades and quality standards that exist in the agricultural

³⁶ This section is based on the Report of Standing Council on Competitiveness of Indian Financial Sector (2015)

³⁷ For more details see Annexure 3

commodities. Sometimes, this means that the grade used for price settlement can differ across seasons. For example: there are two Maize contracts in NCDEX: Maize Kharif and Maize Rabi in the futures market. In contrast, in the spot market, there are three variants and six locations for this commodity.

Over time, the basis differences between the grades/variants in the spot market relative to the derivatives market get well established. Market participants are able to use this information to utilise even the limited set of derivatives contracts available to them, for hedging their price risk more effectively. For basis differential related trends to develop in a consistent manner, both the spot and the derivatives markets need to be function in a predictable manner. This can only happen when there is policy certainty.

In the case of commodities, that are globally traded, and where prices have parity with global markets, it may be optimal for the exchange to set the grade/standards in a manner similar to the international commodity futures contract. However, this may not be suitable for the Indian context, as the size of farm-holdings, the types of participants, and the grades and varieties in India vary significantly from the international markets. Hence, derivatives contracts, even for these commodities, require customization in favor of local conditions. In India, contract size in agricultural commodity futures markets tend to be small, so that these are accessible to a retail audience. Generally, commodity contracts in India are about a fifth the size of commodity contracts traded in the U.S.

In India, agricultural underlying form a relatively small part of the overall commodity derivatives market size. In 2008-09, agri-commodity derivatives formed only 12.5% of the overall commodity derivatives market size. By 2015-16, this share has only increased marginally, to 17.4%. The most liquid agricultural commodity contracts are Guar Seed, Guar Gum, Soy Oil, soya bean, Castor seed, and Cotton. Together these contribute less than 5% of the overall volume of commodity derivatives trades.

One of the factors that has probably contributed to this lack of growth in volumes is the fact that this market has seen several trading bans, which have contributed to the degree of uncertainty under which participants have to operate (See Table 1). Some of the key factors that inhibit the growth and development of the agri-commodity derivatives markets are discussed in Section 4.2.

Table 5 Bans on Futures Trading: Some examples until 2013

Commodity	Trading suspended on	Trading revoked
Tur, Urad	23rd Jan, 2007	Ongoing
Rice	27th Feb, 2007	Ongoing
Wheat	27th Feb, 2007	14th May, 2009
Chana, Soya Oil	7th May, 2008	30th Nov, 2008
Rubber, Sugar	26th May, 2009	30th Sept, 2010
Guar seed, guar gum	27th Mar, 2012	10th May, 2013

4.2 Legal, Operational and Technical Constraints

4.2.1 Barriers to market participation

Only firms and individuals are permitted to take positions in commodity derivatives markets onshore. Domestic financial institutions are not permitted, either because of explicit regulation or because there is a lack of regulatory clarity on whether they can use these derivatives. For examples, banks are explicitly not permitted by Section 8 in the Banking Regulation Act, 1949. Similar regulatory restrictions hold for mutual funds, insurance firms and pension funds.

Large public sector firms that have exposure to trade, such as Food Corporation of India, State Trading Corporation of India do not participate in this market. Large oil refining and marketing firms access the more liquid offshore markets for their needs. The Government of India has taken positions on global exchanges like CME due to lack of depth in the onshore exchanges (for example, during the high global food prices of 2005 and 2006).

Foreign participation in agri-commodity derivatives is not permitted. This restriction applies not just to the FPIs, but also to foreign commodity trading firms such as ADM, Cargill and Glencore, which may have an interest in using the Indian markets for taking positions against their underlying exposures.

4.2.2 Product offerings and contract design

Position limits on commodity derivatives at the Indian exchanges are defined at both the client and trading member levels. Across commodities, trading member limits are typically three to five times the limits for clients. This sets a limit on how large a client base the trading member can create. Offshore

exchanges define position limits for near-month and all-month positions, which is a way of managing the concentration limits without constraining the business development of the trading member. Position limits on Indian exchanges are smaller than those offshore in terms of number of contracts. This is compounded by onshore contract sizes being smaller than contract sizes offshore. For example, the size of a wheat contract on CME is 136 metric tonnes, while that on NCDEX is 10 metric tonnes.

For agri-commodities that trade on multiple global exchanges, Indian derivatives markets need to compete with these global markets, while also aligning themselves to the requirements of the Indian spot market. For example: traders such as Glencore or ADM or even the FCI require large lot sizes and position limits, whereas farmers may require a smaller contract design. To reconcile these differences, exchanges need to have greater flexibility in designing and modifying their product offering depending on the state of the market, in terms of size and nature of participants.

For instance, exchanges may offer standard contracts to the larger players, and have MINIs for the smaller participants. This may lead to fragmentation in market liquidity, but exchanges may still find it optimal to provide such a product offering.

Regulatory risk

There are three main sources of regulatory risk in the Indian commodity derivatives market: (1) frequent bans on futures trading, (2) restrictions on trade in underlying commodities, and (3) the multiplicity of regulatory jurisdiction and protection of regulatory turf.

Banning of commodity futures contracts is a large source of regulatory uncertainty. Examples of bans on trading of commodity derivatives are presented in Table 10. Bans on trading arise out of concerns that manipulation in futures market leads to increases in the spot prices of commodities. However, the evidence establishing this is weak. Studies in India (Abhijeet Sen Committee Report, 2008) and elsewhere (Report of the IOSCO Task Force on Commodity Futures Markets, 2009) find that unexpected increases in prices and volatility in the spot market often have their source in local demand and supply factors and cannot be attributed to derivatives trading in them. There is also no evidence of whether an outright ban prevents future manipulation or helps in improving market quality. In other contexts, studies show that outright bans on financial services and products have an adverse effect on the welfare, both for direct users as well as for the overall economy. Market manipulation is often an outcome of a mismatch between the size of futures positions and the deliverable supply of the underlying, and the *threat of delivery* keeps it in check. This suggests that the policy should deliver the following:

- Active surveillance by the commodity derivatives market regulator and effective enforcement (as opposed to bans)
- A coherent legal framework and physical infrastructure to ensure effective delivery for settlement of contracts.

As with warehousing and spot markets there are frictions in the system since there are multiple authorities with jurisdiction over multiple segments. Coordination between SEBI and WDRA to develop the physical infrastructure for delivery and with the RBI to link bank-based finance to this system also requires regulatory coordination. Frictions in this market arise in the form of elements that hamper effective delivery for the settlement of derivatives contracts and state interventions that hamper the functioning of the market.

The following are the examples of factors that affect timely delivery of the underlying goods for settlement, which arise due to unanticipated shocks to the quantity available for delivery:

- (a) The government intervenes to dictate the market price of a commodity. This changes the economic viability of traders in the commodity and changes how they will store and warehouse the commodity. Pervasive government intervention in wheat, rice and sugar, which then adversely affected the viability of derivatives on these commodities.
- (b) State governments exercise controls on storage and stock limits without warning and with short notice. Such actions in the middle of a delivery cycle on products can cause gluts or shortfalls for the settlement of a specific commodity.
- (c) Regulatory changes on the grade or quality to be permitted for delivery. One such example was when FMC stipulated that all agri-commodities' grades for delivery against contracts needed to be FSSAI compliant. This caused shortfalls in the available quantity for delivery due to a mismatch between the quality required by regulation and the quality available in the market.
- (d) Large variations in the quality of warehouse and logistics infrastructure, which either impact the deliverable quantity and quality or the cost of delivery. All these are negative factors with respect to the trade in the underlying, which also has an indirect but adverse effect on the derivatives. The extent and persistence of such frictions is much higher in the onshore markets, especially in comparison to offshore OECD competitor markets.

4.2.3 Participation costs

For exchange-based commodity derivatives, participation costs include: (1) costs associated with market access, such as exchange membership fees and net worth requirements for members and brokerage fees for clients, (2) regulatory fees, (3) trading costs in the form of margins, and (4) exchange fees and clearing costs.

In general, margins defined in the contract specifications in India are comparable with margins internationally. However, in the Indian markets, regulator and exchanges are allowed to impose special margins on an *ad hoc* basis from time to time. These increase the cost of transactions for participants, and also add to the uncertainty under which they have to operate.

Further, participation of farmers and Farmer Producer Organizations (FPOs) is rendered difficult since many of them cannot afford to bear the participation and trading costs required by the derivatives exchanges.

4.2.4 Tax policy

In addition to taxes on transactions and taxes on participants, commodity derivatives market are also impacted by a third element of taxation: indirect taxes on movement of goods.

4.2.4.1 Transaction taxes

Commodities Transactions Tax (CTT) was announced in the 2013 budget, as applicable to non-farm commodities such as gold, silver and base metals and processed farm commodities such as sugar, guar gum and mentha oil. All pure agricultural commodities are exempt from CTT. CTT is calculated at 0.01% of the transaction value or Rs.10 per lakh of the business for sellers. Ray and Malik (2013) find that after imposition of CTT, open interest and traded volumes in commodity derivatives fell, whereas the cost of transaction increased.

Stamp duty is applicable on commodity derivatives transactions, with different stamp duty rates across states. The states can change the magnitude of the stamp duties at will. This not only adds to transaction costs but also creates operational problems of compliance. The Indian Stamp (Amendment) Bill, 2014, proposes a uniform stamp duty at 0.03% of transaction value to be paid by seller through exchanges. This will serve to reduce the uncertainty of this element of transactions cost on Indian commodity derivatives. However, this Bill has not been passed as on now.

4.2.4.2 Indirect taxes

There are indirect taxes that need to be paid for movement of goods, which includes mandi charges and fees (APMC Act at the state level), sales tax (intra-state) and VAT (inter-state). These add to the cost of delivery against contracts and increase the cost of trading. The Goods and Services Tax (GST) Act addresses many of these issues associated with indirect taxes to a large extent. However, a detailed assessment needs to be undertaken to reconcile the net impact of the GST tax and input credit structure on agri-commodities.

For instance, while most agricultural produce is exempt from GST, inputs for producers such as fertilizers and tractors are not. This means that producers will end up bearing the impact of tax on inputs but not be able to claim any input credit by virtue of their produce being GST exempt.

4.2.4.3 Tax on participants

From the perspective of direct taxation of participants, commodity derivatives trading on specified exchanges was declared to be non-speculative in the 2013 budget: this allowed participants to set off gains and losses on commodity derivatives transactions with gains and losses from their business. However, in the 2014 budget, the non-speculative status was permitted only for transactions for which CTT was paid.

This implies that transactions on pure farm commodities (exempt from CTT) will be deemed speculative, while those on non-farm commodities and processed farm commodities will be deemed non speculative. This guideline appears to be an unreasoned duplication of the guideline in the securities markets where transactions with STT are deemed non-speculative. It is an example of the lack of coherent policy on the commodity derivatives markets.

An additional element of tax policy reform that is currently not applicable to these markets, but will need to be addressed, is the question of source-based taxation for foreign participants when they are allowed in these markets. Reforms policy also needs to reduce the costs arising due to tax policy issues in order to improve the competitiveness of Indian commodities derivatives.

Recommendations

Legal

1. Reduce or eliminate regulatory constraints on domestic financial institutions such as banks and MFs to participate in commodity derivatives.
2. Allow foreign participants in agri-commodity derivatives. Such participation may be enabled in two stages. In Stage 1 for the agri-commodity market players, and in Stage 2 for FPIs.
3. Create a regulatory oversight framework within which such flexibility can be devolved to exchanges.
4. Remove CTT on commodity derivatives, or reduce it to a nominal level so that its impact in trading costs is minimized.
5. If CTT continues, extend the non-speculative status on direct taxes for all exchange traded commodity derivatives contracts. Currently pure farm commodities are exempt from CTT and hence may be treated as speculative transactions. Further, CTT on processed agri commodities should be repealed. It is necessary to notify the rates of CTT that would be applicable on Taxable Commodity Transaction when it is relating to option in commodity derivative contracts separately as in case of option in Securities.
6. Rationalize stamp duty through the enactment of the India Stamp (Amendment) Bill, 2014.

Legal/Operational/Technical

7. Allow exchanges the flexibility to introduce and withdraw contracts, define contract specifications, set position limits and margins and define trading time. Currently all these are defined by SEBI
8. Focus on creating robust warehousing system to strengthen delivery against contracts.
9. Creation of a well-functioning market for warehouse receipt finance.
10. Allow agri-index derivatives trading including freight and weather index and permit cash-settlement of such products.
11. There should be no bans on commodity derivative contracts. SEBI and the commodity exchanges need to build surveillance and enforcement capacity to deal with market abuse without resorting to outright bans.
12. Set up an expert committee to evaluate the creation of full-fledged OTC market including risk management and clearing and settlement for agri-commodity derivatives and secondary spot trading.

Table 6: History of evolution of derivatives markets in India

Year	Action
1875	First recorded commodity derivatives trading - forward contracts on a cotton exchange.
1947	Government ban on cash settlement and options trading (?)
1952	Forward Contracts (Regulation) Act, 1952 (FCRA) to govern commodity derivatives contracts.
1965-1970	Government banned trading of futures contracts after a period of prolonged drought leading to crop failure and farmers defaulting on their obligations.
1970s	Futures trading on commodities permitted again.
2000 - 2003	Ban on futures trading in many commodities lifted. Exchanges gained economies of scale. Reform period for commodity markets.
2002	National Multi-Commodity Exchange of Ahmadabad (NMCE) established, followed by MCX and NCDEX.
2015	Market consisting of 16 regional commodity exchanges and 3 national commodity exchanges. Finance Act, 2015 (Finance Act, 2015) repealed the FCRA and abolished the FMC. Amendment to SCRA, to include commodity derivatives in the definition of securities. Regulatory jurisdiction vested in SEBI.
2017	Exchanges permitted by SEBI to launch options contracts on commodity derivatives.

5 Integration of Spot and Commodity Markets

5.1 Key Aspects of Integration

A review of the literature on integration between spot and derivatives markets suggests that the focal point of this integration is price. In the late 70's, Black analyzed the commodity futures market and to find that futures prices informed decision-making on production, storage and processing. However, in the context of commodities, the fact that the underlying asset being traded is a physical good adds to the complexity of price integration.

As discussed earlier, commodity derivatives markets, provide the participants in the spot market the ability to hedge themselves against fluctuations in future prices of the underlying commodities. It also provides them with the flexibility of purchasing or selling the underlying commodity at a later date. For sellers of commodities, this can result in better price realization, even after taking into account the costs associated with storage and carry. For buyers of commodities, it enables just in time purchase of the underlying at a pre-determined price, reducing their holding costs. To this extent integration between the spot and the derivatives markets also depends on factors that impact the delivery of the underlying commodity for the purpose of settlement.

Further, since the underlying asset being delivered at settlement is an agri-commodity, a variety of issues, which are generally seen as spot market issues also begin to matter. For example: there exists a wide variation in the grades and quality of agri-commodities in the spot market whereas the derivatives markets' contracts are written on a small set of highly standardized commodity grades and quality parameters. This brings focus on a number of factors that are traditionally understood as "spot market issues", such as the alignment between the infrastructure for quality assessment, transport and storage.

In the reverse, the flow of price information from the spot to the derivatives markets is important for the purpose of creating an efficient trading and settlement system. Also, the "threat of delivery" of the underlying commodity has the ability to keep the size of positions and trading in the derivatives market aligned with the supply of the commodity in the spot market.

Given this, from the perspective of this report, we emphasize the following aspects of that impact the integration of the spot and derivatives markets in agri-commodities:

1. *An effective price discovery mechanism* in the spot and in the derivatives market. This would require the presence of a diverse set of

participants to take positions on the buy and the sell side in both the market segments.

2. The *alignment of derivatives contracts with the spot market* in terms of availability of derivatives instruments, and specifications of the derivatives contract in terms of size of positions, as well as available grade and quality standards.
3. *Assured Delivery (storage and warehouse)* A high degree of certainty in the delivery of the underlying commodity, for settlement of the derivative contracts. This includes certainty regarding quantity to be delivered, as well as the quality.
4. *Access to spot and derivatives markets:* Access to both markets and costs associated with such access. Constraints on access, or high costs of access reduce the efficiency of price discovery and create the possibility of market manipulation by players. Costs associated with undertaking transactions in both markets. High transaction costs in one or both markets may create barriers to access, and reduce the incentives of participants to use these markets effectively.
5. *The challenge of governance* finally, any discussion on integration cannot be complete without an analysis of the governance structure within each market, and across the two market set-up. Both the derivative and spot markets have their own governance mechanisms which are, to a large extent, de-linked from the other market segments. To a large extent, this is a natural outcome of the fundamental difference between derivatives, which are financial instruments, and spot, which is all about the trade in goods. However, an integration effort requires that there is some available mechanism for resolving at least the fundamental anomalies that may arise due to interaction of these twin, completely discrete, governance mechanisms.

In order to achieve these – the preconditions, which will enable price to be the focal point of integration, we analyze the key elements of the reform effort. While many other recommendations have been made in previous sections, in this section we want to focus on the essential aspects of integration.

Table 7: The structural and functional differences between spot and derivatives markets

S.No.	Parameter	Derivative Market	Spot Market
1.	Nature of market	Financial	Physical
2.	Market Form	Electronic	Mix of physical and electronic

S.No.	Parameter	Derivative Market	Spot Market
3.	Geographical spread	National and Regional commodity exchanges	Dispersed Mandi structure
4.	Market participants	Relatively sophisticated participants. Largely traders, intermediaries and companies.	Farmers, commission agents, traders, companies etc.
5.	Products	A few grades on which contracts are written. Only futures contracts, options yet to be launched. A defined set of expiries for each futures contract.	A large variety of grades and quality specifications within each commodity.
6.	Quality assessment	Mandatory assaying requirement.	Assaying optional. Not being done for a large proportion of the spot trade.
7.	Trading lot sizes and position limits	Well defined trading lots sizes for each derivative contract. We defined position limits for members and clients on exchange.	A wide variation in trading lot sizes, depending on the market participants. Lot sizes also influenced by stock limits under the ECA.
8.	Access and cost of access	Access to exchange through membership of the exchange or as clients of the exchange members. Many types of participants, specially financial institutions and foreign investors, not permitted to participate. Exchange criteria for becoming member includes membership fees, net-worth and liquid net-worth criteria.	APMC membership criteria. Fees and other costs associated with APMC membership
10.	Transaction costs	Margins, exchange costs and clearing costs.	Mandi fees , commission charges
11.	Regulatory framework	Unified regulatory framework. Securities Contract Regulation Act.	Various State APMC Acts. Central Laws such as Essential Commodities Act (ECA) and Warehouse Development and

S.No.	Parameter	Derivative Market	Spot Market
12.	Regulatory authority	SEBI	Regulatory Authority (WDRA) Act. Central/State Governments departments, Marketing Boards.
13.	International competition	Several global jurisdictions trade in agri derivatives (which trade in India) in the exchange and OTC markets. The specific grade of the commodity may differ across jurisdictions	Through export and import of commodities and controls on such trade, subject to commitments under WTO, for example.

5.2 Legal, technical operational aspects of integration

5.2.1 Governance

Integration of spot and derivatives markets poses big challenge on account of the very different systems in place for the two. A new body would be required that is vested with the oversight and coordination across the three markets – spot, secondary and derivatives. While the derivative markets for agricultural commodities falls under SEBI, commodity spot markets in agriculture fall under state governments, warehousing falls under the WDRA, state and central governments. Apart from the fact that each of these three parts of the system have a different regulatory, there is the additional issue that for both warehousing and spot markets there are multiple regulators – for warehousing depending on the type of warehouse and for the spot markets depending on location of the market. An integration of spot and derivative markets would require a common body that can address regulatory and operational coordination issues. There also needs to be a recognition of secondary markets

Recommendations

1. An institutional mechanism that will function as a coordinating body for SEBI, the warehousing authority and state government.
2. Streamlining governance for warehousing under a single authority
3. A regulated spot exchange.
4. Separation of operations and regulatory functions in spot markets.

5.2.2 Grades and standards and assaying

As with regulation, there is a diversity of systems of grades and standards and different assaying requirements. In spot markets, assaying is informal at best and most goods are exchanged without scientific assaying. In tertiary and secondary markets, assaying is mandatory and there is clarity of quality and type. To create a seamless market, this is a critical bottleneck. The key issues here would be whether or not to mandate assaying across the segments of markets and the setting of appropriate grades and standards that will reflect the heterogeneity of produce across India, while ensuring that the price discovery is associated with quality of produce.

At this time there is a multiplicity of systems with respect to grades and standards governing each of these different market segments – Agmark, FSSAI, SEBI and so on. This multiplicity of systems hinders integration of spot and derivatives markets. For example, until 2013, the pepper futures contract was very active. In 2013, the FSSAI conducted some surveys on the samples stored in NCDEX accredited warehouses, and concluded that 65% of what was stored in the warehouses was adulterated.³⁸ The FMC then temporarily suspended new contracts on pepper.³⁹ It was after a gap of three years that NCDEX re-launched the pepper contract on July 27, 2017. The issue of whether or not to mandate assaying and the harmonizing of grades and standards are critical issues.

Assaying is desirable to be able to better link price discovery with quality and to bring in transparency in pricing. Prices cannot be dissociated with quality and that prices must be linked to quality and convey information about quality. Further, negotiable instruments require quality standards, and unless there are grades and standards, it would be impossible to have a unified market. Assaying of goods are key to trading and good delivery of commodities. Assaying cannot be dispensed with or made voluntary in case NWR is to be issued since quality/ grade is compulsorily to be mentioned in the NWR as per the provisions of the Act. At the moment, it seems that mandatory assaying in the spot market is not feasible, more feasible in secondary markets and it is in any case compulsory in derivatives markets – deliveries in these latter markets is as per assaying parameters.

At the same time, in India today, there is a large market for non-standard produce. Buyers have diverse needs and not all of them look for produce that pass specified standards. A significant proportion of marketable

³⁸ See <http://economictimes.indiatimes.com/fssai-claims-65-of-ncdex-black-pepper-tested-is-adulterated/articleshow/20917731.cms>

³⁹ See http://www.business-standard.com/article/markets/re-launch-of-pepper-futures-likely-113042500928_1.html.

surplus won't pass FSSAI but there might still be buyers for these standards. In order to while establishing legislation around grades and standards, it should provide for and encourage a wide variety of standards and lot sizes. Standards should not be homogenous and must allow for variety depending on end-use and local contexts. The existing APLM already provides for ranges and for 90 commodities, these have been established. E-NAM and WDRA already follow Agmark standards exists.

A second issue is whether assaying should be mandated. While assaying is crucial, it continues to be expensive for farmers, especially the smallholders. Further, given the infrastructural constraints, especially the time that would be required to assay during peak arrivals, making assaying mandatory would be problematic (Aggarwal, et al, 2017). There is also the challenge of objective versus subjective assaying that would need some resolution. The basic principle adopted by the Subgroup is that trade should not be impeded on account of assaying. Rather than making it mandatory, we need a calibrated approach such that mandatory assaying will be implemented in a progressive manner. Even though at this time there are rapid changes in technology (like 3D-testing, etc.) it may be premature to mandate assaying until such time that these technologies are widely available.

A third issue was who should develop these grades and standards? One option is to have it at the Centre, another opinion is that it should be left to the states, which would be in a better position to decide locally relevant grades and standards. There was some discussion on the APML, that allows for ranges and that these would be able to incorporate these differences and variations across contexts.

Recommendations

- 1 Assaying should be mandatory in secondary and derivatives markets, but we need to have a calibrated approach to assaying mandates in spot markets, where the current infrastructure levels might impose constraints.
 - a) In spot markets, generally, lots that are smaller than a certain quantity can be excluded from assaying. This is to reckon the fact that smaller lots, unless aggregated, do not lend themselves to be bid from remote locations.
 - b) Based on the market, the commodity and its natural value chain, such limits can be drawn. And these may have to be different from market to market and commodity to commodity and may also vary from time to time.
- 2 Harmonise grades and standards via Agmark, but such that there is consistency between FSSAI, codex Alimentarius and Agmark.
- 3 A national body to establish a library of grades and standards that is based on recommendations of the states. States shall have their own body

for identifying appropriate grades and standards and recommending these for inclusion in the library of standards. These standards may reflect the diversity of varieties and end-uses for commodities.

- 4 Identify new technologies to enable quick and accurate assaying at low costs.
- 5 Efforts creating farmer awareness and to invest in building a skilled workforce for assaying and grading.

5.2.3 Expanding market participation and reducing barriers to entry

5.2.3.1 Expanding actors

The current structure of markets is such that a large number of farmers use commodity spot markets to trade and although many FPOs have begun to use commodity exchanges, it is difficult to conceive of farmers participating directly in derivatives markets. In general, there is a perception that hedger participation in Indian derivatives markets is limited, in part due to regulatory restrictions, which appear to limit hedger participation – the prohibition on options trading until recently, and bank participation (UNCTAD, 2009).⁴⁰ Currently, financial institutions such as banks, portfolio investors such as mutual funds, insurance companies, etc. are prohibited from participating in the commodity derivatives markets. This not only hinders market development but also prevents such institutions from effectively hedging the risks of their own portfolio. Further, there is no regulatory clarity on whether such institutions are allowed to participate in the market, without taking proprietary positions. For instance, by a circular issued in 2015, the RBI sought to resolve the above problem rather indirectly by nudging banks to create awareness amongst agri-borrowers regarding the utility and benefits of hedging through agri-commodity derivatives. The circular advised banks to encourage large agri-borrowers to hedge their commodity price risk using domestic commodity exchanges. However, the circular was lacking in clarity on whether the banks could themselves distribute such products or take positions on behalf of their borrower clients in the market. Hedger exemptions on tight position limits have been cited by several corporate commodity purchasers as bottlenecks that hinder their participation. Until such time farmers are able to directly take advantage of the derivatives markets, secondary market participants, institutions such as farmer producers companies that perform an important role of aggregation,

⁴⁰ For example, the Government of India's Working Group on Risk Management in Agriculture, in its paper for the Eleventh Five-Year Plan (2007b: vii) argued that "the Government should permit options trading. Hedging through options is considered to be more convenient to farmers, as compared to futures."

downstream players, who provide farmers indirect links to derivatives markets would be key to interlinkage of spot and commodity derivatives markets.

As mentioned already in the context of licensing there is no provision under WDR Act, 2007 to recognize NWRs issued by Licensees under Section 12 of Model APLM Act of 2017. In fact, under WDR Act, 2007 NWRs can be issued only by the warehouses registered with WDRA. If any Licensee under APLM Act, 2017 operates a warehouse and intends to issue NWR, it has to register its warehouse with the WDRA.(1.4.20) The WDRA has no power under WDR Act, 2007 to grant exemption from the requirement of registration with WDRA for the purpose of issuance of NWR.(11.2)

5.2.3.2 Portability of licenses

Licensing should not become an impediment and the need to bring in a wide range of buyers into the market. A license issued for one purpose must be recognized as valid for trade in another (for example, license issued for the derivatives markets must be recognized as valid for spot markets).

Likewise a state that issues a unified market license should be recognized in other states as well, the model should be of Model APLM Act, 2017/Karnataka APMC Act. The APLM 2017, has this provision as a via media. Private operators (revolving fund at the market level) – APLM now recommends that APMC won't issue licenses – Directorate will issue licenses. The APLM also already provides for a number of options for the expansion of buyers: farmers' markets in Maharashtra, for example. No notified area anymore but the states need to adopt this.

5.2.3.3 Expanding market spaces

Rather than geographic specificity on where a sale can be made, the goal would be to expand the class of "market yards". Warehouse is the most likely, and efficient location for aggregation of agricultural produce. WSPs are providing value added services that regulated markets currently provide (for example, assaying of commodities, checking quantity, services with regard to buying and selling of commodities, etc.). In addition, the legal obligation to preserve the commodity as per the information provided in the Warehouse Receipts (WRs) issued by them creates the foundations for a national market in agriculture, based on the credibility of the warehouse receipts issued by WSPs. Likewise, freedom for private players to have multiple market yards under one license, in locations of their choice, is important to ensure markets develop in response to need.

Recommendations

- 1 Portability of licences across states and interoperability across markets requires that a single licence issued by one state or one segment must be deemed valid for operations in other states/segments. States should issue a unified licence valid for the entire state and the model should be of Model APLM Act, 2017/Karnataka APMC Act.
- 2 Allowing /permitting diverse set of players in derivatives and spot markets (banks, financial institutions, foreign participants, etc.),
- 3 Explicit recognition of spot exchange and secondary spot markets and a regulatory framework for the same in ways to prevent actors from taking advantage of the regulatory vacuum.

5.2.4 Data Systems

For the integration of spot and derivatives markets, in a context where there is so much heterogeneity and plural regulatory systems, a fundamental prerequisite is an integrated data management system for the different components.

Recommendations

The recommendation is to design and establish an integrated database that hosts data on the different aspect of spot and commodity markets.

- 1 Warehouse and storage data
- 2 Warehouse Receipts Data registry
- 3 Standards and grades library
- 4 E-NAM trades
- 5 Derivatives trades

5.2.5 Reduction in policy uncertainty

A key constraint to enlarging participation in derivatives markets, that is fundamental to transparent price discovery and efficiency, is policy uncertainty. In the context of agriculture this comes from three key sources: the invoking of the Essential Commodities Act to manage inflation and price volatility, bans of futures trading and external trade policy.

The Essential Commodities Act the ECA allows state governments to place stock limits on essential commodities without notice to the market participants. This causes disruptions in existing trader positions and raises uncertainty about the cost of doing business in the derivatives markets since

positions in derivatives are typically linked to exposures in the spot. An example is the gram contract. Until September 2015, stocks of edible oil and pulses stored in the WDRA registered warehouses were exempt from the ECA. However on September 23, 2015, the central government withdrew this exemption (amid rising pulses prices). The circular said: "The exemption given to stocks pulses and edible oil in warehouses registered with WDRA has been withdrawn. It has come to the notice of the Government that huge stocks of pulses have been stored in several godowns by private entities. In view of the tight supply situation of pulses, it was considered necessary to withdraw the exemption to stocks held in warehouses registered with WDRA also. By this decision of the Government, stocks stored in all godowns, including those registered with WDRA would be on a level-playing field and subjected to the same stock limits imposed by State Governments. This would increase the availability of pulses in the market and is likely to cool down prices further."

Bans on futures contracts Likewise, sudden banning of commodity futures contracts is a large source of regulatory uncertainty. Bans on trading arise out of concerns that manipulation in futures market leads to increases in the spot prices of commodities. However, the evidence establishing this is weak. Studies in India (Sen, 2008) and elsewhere (ISOCO, 2010) find that unexpected increases in prices and volatility in the spot market have their source in local demand and supply factors. There is also no evidence of whether an outright ban prevents future manipulation or helps in improving market quality. In other contexts, studies show that outright bans on financial services and products have an adverse effect on the welfare, both for direct users as well as for the overall economy (Sane and Thomas, 2013).

Trade Policy Trade policy uncertainty (including export/import bans and restrictions such as minimum export price) that come without warning is not conducive to building markets for agricultural commodities domestically. Cotton for example, sees frequent bans on exports and their revoking in order to ensure supply of raw cotton for domestic mills. This often translates into huge welfare losses for farmers.

While all three types of policies have worthy goals, revisiting the forms these policies take is essential - moving to predictable rule-based triggers for implementation would as opposed to arbitrary decisions based on short term exigencies and replacing outright bans with ex ante interventions.

Recommendations

1. Exchanges may be considered for exemption from ECA i.e., stocks backed by derivatives may be exempt, but the implications of this for consumers needs to be looked into.
2. Stocking limits for Farmer Producer Organisations (FPOs) in respect of stock in warehouses for future trade need to be relaxed to enable FPOs to participate in futures/derivatives markets.
3. Rule based triggers for ECA -related interventions, e.g. the use domestic price bands, in ways that are not susceptible to manipulation by vested interests.
4. Commitments to not ban futures contracts, instead focusing on better enforcement and oversight.
5. Begin integration efforts for commodities with minimal government intervention.
6. Commitments to use tariff based measures of trade policy, designed around observable and transparent triggers to ensure predictability and transparency. Export import bans must be avoided since it disrupts trade and undermines long term contractual commitments.

5.2.6 Reforms of APMC

The proposed APML Act 2017 goes a long way in addressing many of the features of current-day spot markets that hinder integration. At the same time there are several areas where improvements are desired.

The design of the Constitution of India, dictates that agricultural produce markets, be regulated at the State level. At the very core, it has also left the issue of deciding whether or not these markets are to be regulated under a single legislation at the discretion of the States. Most States have enacted a body of legislation commonly known as the APMC laws to regulate this market. Over time, these APMC laws have proven to be impediments for agricultural markets.

The first set of issues concerns the restrictive provision in the current APMC laws. These may be categorized into three broad categories:

First, the imposition of restrictive multiple licensing requirements, multipoint levy of market fees and charges, levy of vehicle entry charges even where the infrastructure of the APMC is not used. Some states such as Rajasthan require two kinds of licenses, first, licenses for direct purchase from agriculturalists.

Under this category licenses are required for processing of agricultural produce, export of agricultural produce, trade of agricultural produce of a particular specification and grading, packing and transactions for value addition of agricultural produce.⁴¹ In addition to this licenses are required by for traders, brokers, weigh-men, measurers, processors, surveyors, warehousemen for activities within the mandi.⁴² Even contract farming sponsors are to register with the local APMC in some states like Maharashtra.⁴³

Second, the imposition of a framework for the manner in which transactions must be conducted. For instance, contracts are required to be executed in a physical form, in triplicate and consideration paid on the same day. A penalty is imposed where the amount is not paid on the same day. Examples include Rajasthan,⁴⁴ and Madhya Pradesh.⁴⁵ This is the case with even with contract farming arrangements where the agreement is required to be recorded with the APMC.⁴⁶ Requiring agreements in a physical form is not in line with the ongoing endeavour for electronic markets and a unified national market.

Third, the exclusion the jurisdiction of courts and judicial forums from deciding disputes on matters concerning and arising out of the contents of the APMC Act. These laws state that the APMC will have the jurisdiction to “arbitrate” and adjudicate even contractual disputes.⁴⁷ In addition to depriving parties of a hearing in a judicial forum, it might also deprive them of speedy remedies available under the law, such as summary proceedings etc. Additionally where goods are electronically traded across different mandis across state borders, the question of which APMC will be the dispute settlement authority might arise.

The second set of issues arises from the fact that some States such as Bihar and Kerala do not have an APMC law governing agricultural produce markets. The markets in these states are governed by local boards, municipal corporations and panchayats. This poses the question of whether or not APMC laws must be enacted in the first place.

⁴¹ Section 5-A, Rajasthan Agricultural Produce Markets Act, 1961

⁴² Section 14(2), Rajasthan Agricultural Produce Markets Act, 1961

⁴³ Section 5-E Maharashtra Agricultural Produce (Development and Regulation) Act, 1963

⁴⁴ Section 15-D, Rajasthan Agricultural Produce Markets Act, 1961

⁴⁵ Section 37, Madhya Pradesh Krishi Upaj Mandi Adhiniyam, 1972

⁴⁶Section 5-E Maharashtra Agricultural Produce (Development and Regulation) Act, 1963

⁴⁷Section 5-E (4) (5) Maharashtra Agricultural Produce (Development and Regulation) Act, 1963

The third set of issues arise out of questioning the constitutionality of the existing APMC laws.

It may be argued that some portions of these laws maybe struck down for being ultra-vires the Constitution of India. For instance, Entry 54 of the List II empowers the State Legislatures to legislate on matters of taxes on the sale and purchase of goods. However, this is subject to Entry 92A of List I. Entry 92A of List I concerns taxes on the sale or purchase of goods in the course of inter-state trade. A tax is imposed for public purposes and is not, and need not, be supported by any consideration of service rendered in return. A fee, on the other hand, is levied essentially for services rendered and as such there is an element of *quid pro quo* between the person who pays the fee and the public authority, which imposes it.⁴⁸ Any fees charged by an APMC for goods not even traded in the market, are charged even though there is no use of infrastructure of that market. Therefore these fees, are actually in the nature of taxes and are subject to the requirement of Article 301 of the Constitution,⁴⁹ to not impede free trade. Any such tax which is violative and does not have Presidential assent, can possibly be struck down for being *ultra vires* the Constitution of India.

Again, Article 304(a) of the Constitution of Indian read with the provisio to Article 304 of the Constitution of India, clearly indicates that the prior sanction of the President has to be mandatorily taken, for Bills and amendments that restrict free trade of goods. While it may not be appropriate to generally state that every APMC act is *ultra vires* the Constitution of India, specific discriminatory or restrictive features of those acts, such as multiple licensing and impositions of multiple levels of fees and taxes, would require Presidential assent. The Doctrine of Severability is a doctrine that provides that if an enactment cannot be saved by construing it as consistent with constitutionality, it may be seen whether it can be partly saved. The Doctrine of Severability was applied to statues in the case of RMD Chamarbaugwala v. Union of India AIR 1957 SC 628, where the Supreme Court held that:

"..when a statute is in part void, it will be enforced as against the rest, if that is severable from what is invalid."

⁴⁸ *Matthews v. Chicory Marketing Board* (1938) 60 C.L.R.263

⁴⁹ *Atiabari Tea Company v. State of Assam and* AIR 1961 SC 232) paras 49 and 50

Further in the recent case of *State of U.P. and Ors. v. Jaiprakash Associates Ltd.*,⁵⁰ the question of a notification being violative of Article 304 of the Constitution of India. The Supreme Court, held that the discriminatory portion of the notification was to be severed from the rest of the notification which could continue to operate independently without altering the purpose and the object of the notification.

Therefore, if the present APMC laws are tested for constitutional validity, while the discriminatory portions of these laws that can be independently severed from the rest of the legislation can be declared *ultra vires* the Constitution of India. The portions of the Acts that can meaningfully exist despite this, and continue to serve the intended purpose of the law, will continue to be in force.

There are two ways in which the above mentioned set of issues may be resolved. The first is by aggressively pursuing the constitutionality of these provisions and seeking to strike down parts of the APMC acts for being unconstitutional. This is a relatively less cautious way of proceeding. The second is to provide a model framework for such laws and encouraging states to adopt this framework.

The present policy inclination is to retain the APMC acts, with modification of their provisions. In this light the Model Agricultural Produce Marketing and Livestock Act, 2017 has been issued by the Central Government. There are two intentions with this. First to provide a framework which removes restrictive practices for States to adopt so as to amend their existing APMC laws, and second, to pave the way for a national agricultural market.

However, there are four large issues with the Model APML, 2017:

First, while the concept of electronic trading has been introduced, the model law treats electronic trading as a separate kind of market place requiring separate licensing etc.⁵¹ Electronic trading is not a separate market place, it is only a different mode of transacting in an existing market place. Similarly warehouses have also been given this treatment under the model law.⁵²

⁵⁰ 2014) 4 SCC 720

⁵¹ Section 7, 55, 68, 111 APLM Act, 2017

⁵² Section 2 (27), 12 APLM Act, 2017

Second, the model law does not lift the bar of jurisdiction in respect of contractual disputes from the existing APMC laws. The APMC will continue to be the final authority in adjudicating disputes. In light of current endeavours to integrate markets and encourage national markets in India, there must be a single common authority to adjudicate inter-state disputes. At the moment, each APMC has jurisdiction to determine disputes within their market areas. In a situation where the buyer is from one state and the seller from another, it is unclear who the dispute settlement authority will be.

Third, the model law does not exactly pave the way for private market operators. It still requires that each of these private operators obtain licenses for each market area in which they want to operate.⁵³ This is against competitive practices and will hamper access by private players. Even licensees are supposed to register with the private operator in addition to being registered with the APMC.

Fourth, the issue of directing the manner in which transactions are to be conducted such as the execution of a physical agreement in triplicate,⁵⁴ payment on the same day,⁵⁵ have not been dispensed with under the model law.

In addition to this, there are some patent errors in the model laws. For instance, the terms “agricultural produce” and “notified agricultural produce” have been used in different sections but both the terms are defined the same in the model law.

Before, States adopt the model law, there has to be revision of this law with the clear aim to promote a unified national market. Further, the processes associated with such a mechanism will have to clearly and succinctly be set out and provided for.

Recommendations

1. Electronic trading must be deemed a platform, not a separate type of market place.
2. Interoperability requires an electronic platform. Interoperability should be considered between spot and derivatives exchanges giving

⁵³ Section 10, APLM Act, 2017

⁵⁴ Section 65, APML Act, 2017

⁵⁵ Section 41(xix), 59, 65 (1), APLM Act, 2017

participants a seamless access to all markets. Mandating these and the specific nature of the platform needs to be examined – such that states have the freedom to select the platform without compromising the prerequisites of integration across the country. Further, to enable ease of doing business a common KYC and uniform set of documents along with a unique identification code for seamless transaction for ease of doing business across the various markets may be considered.

3. Eliminate the need to get multiple licenses for multiple formats or multiple locations. The license of establishing a private market yard should not be location specific and a single license should be adequate to set up multiple yards at different locations.
4. Permit declaration of any place as a market yard, that is operated by a market operating entity, public or private (including warehouses, cold storages, etc.)
5. Reduce the burden of execution of physical agreement in triplicate and payment on the same day.
6. Separation of regulatory and market development functions in spot markets.
7. Provide for recognition and regulation and oversight over secondary spot markets.

5.2.7 Government market intervention

Government intervention in procurement typically hinders spot-derivative market linkages for the commodity procured. This is especially the case when procurement is a large proportion of the production (for example, rice and wheat). But the imperative of food security and price stabilization is well recognized and it might be a better option for the government to use commodity exchanges and move to an alternate system of just-in-time delivery under mediated procurement, so as to create a more competitive market that would translate into higher prices for farmers and spread the benefits across a larger number of farmers while safeguarding consumer interests.

Recommendations

- 1 Actively explore alternative models for procurement that use the spot or derivatives exchanges.

5.3 Supportive or enabling policies

The analysis of constraints to the operation of spot and derivatives markets for agricultural commodities and their integration brought forth several issues that are not central to the issue of integration but are required to complement these initiatives.

Infrastructure A big push towards creation of infrastructure – warehouses, sorting and grading facilities, assaying and connectivity – being key, not just in and around mandis but close to farms / production centers.

Awareness campaigns and training In order to provide the foundations for a gradual transition to a system where farmers sort, grade and assay before sale, awareness campaigns for farmers would need to be rolled out in parallel. Rather than generic information, specific farmer experiences on the quality price premium and on the functioning of derivatives markets would be relevant here.

Institutional innovations As mentioned in the report, until such time farmers themselves are able to participate actively in these markets, institutions that represent farmer interests are key intermediaries who can aggregate farmer interests and deliver the benefits of derivatives markets. We already have a growing presence of FPOs participating in commodity exchanges. Policies that nurture these FPOs, cooperatives and producer and self-help groups, but also support their participation might be important.

Value chain and trade financing at the moment liquidity constraints pose barriers for small participants in the derivatives markets. It would be worth finding innovative solutions or financial products for farmer(s) and their organizations.

6 Recommendations and Strategies for Reform

6.1 Recommendations

In this section we compile a list of all the recommendations identified thus far. Our earlier chapters addressed several issues regarding spot and derivatives markets that are the prerequisites for integration. The integration of commodity spot and derivatives markets could be highly beneficial to the value chain participants, if the same is effectively implemented and efforts are made to deliver results within a timeframe.

A roadmap for the implementation of suggestions/recommendations with the requisite action plan is provided as under:

1) Promoting farmers' collectives/cooperatives

- In India, the average size of land holding by framers is very small giving a very low output of farm produce. Further each farmer makes individual bid to sell his produce at the market yard and most of times fetches low prices due to weak bargaining power.
- In view of above, there is a need to place more reliance upon developing farmers' cooperatives so that the farmers get better price realisation due to collective bargaining power.
- Time tested success has been observed in the dairy sector where the cooperatives are working in the interest of the farmers and such cooperatives have provided better price realisation to farmers over the years. Similar models may be replicated (by modifying suitably keeping in mind the characteristics of the commodity/sector) in other agricultural products or sectors like animal husbandry.
- The cooperatives could also carry out processing of commodities, selling such agri-processed commodities and sharing additional income generated from such sales with the farmer members thereby helping in enhanced price realisation to them.

Action: Ministry of Agriculture, Ministry of Rural Development, SFAC, NABARD

Time frame: Long term and ongoing

2) Providing multiple modes to sale the produce

- Multiple modes of selling of farm produce should be provided so that farmers can sell their produce at the best prevailing price.

- Restriction on farmer to sell his produce only through recognized APMCs may be waived.
- Under the existing APMC regulations, in case the facilities of APMCs are not used i.e. if sale is done outside the APMC premises, such as sale on a regulated electronic platform, or regulated private markets etc., APMCs can still levy and collect applicable market fee on sale of such products. Such levy of fees on goods sold outside facilities of APMCs should be removed.

Action: GoI, Ministry of Agriculture, State Governments

Time frame: Long term and ongoing

3) **Treating Electronic platforms as markets**

Regulated electronic platforms such as electronic spot markets, spot exchanges or even commodity derivatives exchanges may be deemed as market yards under present system or even after adoption of model APLM 2017 by the states so as to enable direct selling by producers/farmers through multiple modes or on spot exchanges without having to pay any fees to APMCs.

Action: GoI, Ministry of Agriculture, State Governments

Time frame: Long term and ongoing

4) **Review of essential commodities under ECA**

There is a need to revisit the definition of the essential commodities and the list of essential commodities under ECA. In view the changing market dynamics, the food security and linkages of Indian agricultural produce with global markets, such review may help in the long run. Further, it needs to be understood that all commodities that are covered under the ECA cannot be equally essential at same time. For example, commodity which is essential for food security cannot be equated with industrial raw materials.

Action: GoI, Ministry of Agriculture, Ministry of Consumer Affairs and State Governments

Time frame: Long term and ongoing

5) **Stock limits**

Whenever stock limits under ECA are made applicable, the stocks held by farmers collectives like Farmer Producer Organisations (FPOs) in a warehouse should be exempted from such limits.

Action: GoI, Ministry of Agriculture, Ministry of Consumer Affairs and State Governments

Time frame: Medium term and ongoing

6) Developing and promoting scientific storage of commodities across country under unified authority

- a) Besides Central Warehousing Corporation (CWC) and State Warehousing Corporation (SWCs), there is a nodal agency viz., Warehousing Development and Regulatory Authority (WDRA) which primarily regulates negotiability of warehouse receipts.
- There is a need of streamlining governance for warehousing under a single authority.
 - All the warehouses shall be required to be registered with the unified authority which would create a robust warehousing infrastructure.
 - The unified authority could prescribe detailed SOPs for the scientific storage practices for the individual commodities and should take measures to enforce quantity and quality of the underlying goods stored in the registered warehouses.
- b) There is a need for development of diverse network of warehouses across the country which service a wide range of commodities. Such network of warehouses should be closer to the farmers' farms.
- c) There is a need to develop professional warehousing / storage facilities and warehousing / storage industry could be accorded infrastructure industry status with necessary incentives to set up warehouses in the nooks & corners of the country.
- d) Easy access to transport the agricultural produce to warehouse and cheap warehousing services will help farmers to store their produce and avoid distress sale.

Action: GoI, Ministry of Agriculture, Ministry of Consumer Affairs, WDRA, SWCs, CWC, warehouse operators, and all stakeholders

Time frame: Medium term and ongoing

7) Procurement Schedule and programs

- The institutions supporting the procurement on behalf of the governments may restructure their programs by drawing up advance schedules and disseminating the same only to the farmers.
- Such institutions could use the electronic communications in reaching out to the farmers like making provision for online registration well in

advance with specific date and time and also payment should be made at the same time, and procurement centres should be conveniently located for easy transportation the commodity etc.

- Such institutions may also explore the electronic spot market platform / exchanges, derivatives markets or contract farming as source for procurement of the agricultural commodities

Action: GoI, Ministry of Consumer Affairs, Agricultural marketing institutions, state governments

Time frame: Short term

8) Harmonise grades and standards

- Primarily there are two major standards, viz: AGMARK and FSSAI. In addition to these 2 standards there are various other standards for specific purposes like FCI standards, CODEX standards and APDEA standards.
- It may be explored if a unified organization could prescribe standards across all agricultural commodities. The unified agency could prepare a common set of standards that is easy to implement, ensure uniformity of standards across various segment of the market depending upon end use.

Action: Directorate of Marketing and Inspection, Ministry of Health & Family welfare, FSSAI, FCI, APEDA

Time frame: Medium term and ongoing

9) Development of Assaying facilities

- There is a need for the development of network of assaying facilities across the country to cater to all types of commodities. It is a fact that the assayed goods would fetch better prices if the quality is good.
- As and when electronic spot exchanges are developed, there should be a mandatory requirement of assaying of goods before trading them on the exchange.
- Electronic spot platforms should adopt new technologies to enable quick and accurate assaying at low costs. This may help farmers in getting their goods assayed and fetch better prices for the goods.
- Assaying facilities may be moved closer to farmers and such facilities may be provided at a reasonable fees.

Action: GoI, FSSAI, AGMARK

Time frame: Medium to Long term and ongoing

10) Creation of skilled human resources

- There should be efforts in creating and investing in a skilled workforce with respect to the agricultural sector including pre-sowing to post harvest activities like storage, assaying and grading.
- The need of the hour is to constantly improve the education standards with respect to agrarian economy and constantly upgrade the agricultural practices.

Action: Ministry of Agriculture, Agricultural institutes / universities,
Ministry of Skill Development

Time frame: Medium to Long term and ongoing

11) Data dissemination

- Efforts should be made for creation of an integrated database and its dissemination on periodical basis with respect to the production, arrivals in APMCs/yards, imports, consumption, exports, and carryover stocks for any given commodity. This could aid in formulating policies and also help the farmers in taking informed decisions.

Action: Ministry of Agriculture, Ministry of Statistics, Ministry of
Commerce

Time frame: Medium term

12) Negotiable Warehouse Receipt

- There is a need for institutional development to promote the market for eNWR, since for issuance of NWR, WDRA registration is mandatory, WDRA may carry out an assessment on poor number of registration of warehouses and take measures accordingly.
- Mentioning quality and grade in Repository receipts should be mandated, so that trading of goods stored in accredited warehouses through e-NAM can be easier to be implemented.

Action: WDRA, warehouses, eNAM

Time frame: Medium term

13) Development of food and agro-processing units

The food and agro-processing units can serve as one of the important modes for the farmer to sell his produce at an attractive price.

Action: Ministry of Food Processing, Ministry of Agriculture

Time frame: Medium term and ongoing

14) Increasing Participation

a) Participation by institutions listed below would deepen the commodity derivatives markets.

- banks,
- mutual funds,
- foreign entities,
- insurance companies,
- pension funds,
- farmer collectives,
- aggregators,
- listed corporates
- agricultural marketing institutions

b) Participation of such institutions in the commodity derivatives market could help in many ways including:

- Leveraging the geographical reach and research expertise of banks, mutual funds, insurance companies for distribution of commodity derivatives products.
- Better credit mobilization at MSME level, farmers or farmer collectives
- Building liquidity in far-month contracts which could in-turn help in increased hedgers' participation.

Action: GoI, SEBI, RBI, PFRDA, IRDA and all relevant stake holders

Time frame: Medium term

15) Introduction of New products

Thrust should be on developing new products which caters to the needs of the stakeholders. Such products could be-

- options in more number of commodities (currently, options with underlying as Gold and Guar Seed are permitted)

- commodity based exchange traded funds (ETFs)
- commodity index derivatives
- weather derivatives
- freight derivatives

Action: SEBI and Stock Exchanges

Time frame: Medium term

16) Rationalisation of cost of trading

- At present cost of trading in commodity derivatives is very high which includes transaction costs, brokerage, statutory levies including taxes and stamp duty, warehousing/vault charges etc. This has led to migration of trading from the Indian commodity derivatives exchanges to the global markets and has also deterred many from making efficient use of the derivatives platform.
- A comparative study may be carried out for costs associated with the trading of commodity derivatives in India vis-à-vis the global exchanges and based on the outcome of the study; necessary efforts could be made in order to reduce/rationalise cost of trading.
- In order to promote farmers and FPOs participation in the commodity derivatives markets, SEBI and/or exchanges could reduce the transaction charges for such participants.

Action: Ministry of Finance, SEBI, and recognized stock exchanges

Time frame: Short term

17) Linkages with the Global commodities market

In the context of globalisation of markets, steps should be taken to link Indian derivatives market with their global peers. This may include:

- Designing of contracts in such a manner that it improves hedging effectiveness of globally linked commodities.
- In order to improve international competitiveness in respect of some of the commodities that are unique to the domestic market, steps may be taken to align trading hours of Indian exchanges with the trading hours of Asian, Latin American and Australia markets.

Action: SEBI and recognized stock exchanges

Time frame: Medium Term and ongoing

18) Measure to increase hedger's and farmer's participation

Hedgers would like to hedge their underlying holdings through commodity derivatives; hence the exchanges should design the contracts in such a manner and with such specifications that they have close linkages with the actual trade practices in the underlying physical markets.

Action: SEBI and recognized stock exchanges

Time frame: Short Term and ongoing

19) Expanding the basket of commodities for launch of commodity derivatives products

Exchanges could carry out detailed study on the need of derivatives contracts on new commodities. For example, exchanges could initiate steps on developing derivatives contracts (subject to the requirements of the industry) on metal scraps, ferrous metals, dairy products and animal husbandry etc., which are presently missing in the domestic markets. Such contracts could bring in those entities which are now keeping themselves out of the derivatives market due to non-availability of such exchange traded products.

Action: Ministry of Finance, SEBI, Exchanges and stake holders

Time frame: Medium Term and ongoing

20) Stakeholder's awareness programs

- In order to attract more and more participants in the commodity derivatives, awareness programs for various stakeholders may be carried out with special focus on the efficient use and benefits of commodity derivatives market for risk management and price discovery.
- The strategy for the awareness programs could be multi-fold like creating awareness at the level of ultimate users like farmers and traders etc., and creating awareness at level of institutions such as banks, farmers collectives, agricultural marketing institutions and government organisations dealing in policy making etc.

Action: SEBI, Exchanges and stake holders

Time frame: Medium Term and ongoing

21) Specific issues pertaining to the agricultural commodity derivatives contracts

There are certain issues which are unique to the agricultural commodity derivatives contracts, which can cause adverse impact on agricultural commodities (either in spot or derivatives market) and also can affect the performance of the commodity derivatives markets. Some of the issues specific to the agricultural commodity derivatives contracts that need to be addressed are as under:

- There should not be sudden discontinuation or disruption in derivatives trading in agricultural commodities due to reasons (such as production shortage/glut, volatility in spot prices, imposition of stock control limits etc...) which are beyond the control of the derivatives market. These issues need to be addressed separately to take necessary policy decision.
- The stocks deposited within exchange accredited warehouses for the purpose of trading on exchange platform should be considered for exemption from imposition of stock control limits under Essential Commodities Act, 1955 (ECA) as information regarding such stocks are transparently disclosed on exchange website to public/Govt.
- As the exchange contracts are standardized they are required to meet various quality standards issued by multiple agencies. However, the underlying markets of such commodities may not be following these quality standards at primary sales or even at secondary sales but are followed only when ultimately used at consumption level. Such quality prescriptions act as an obstacle for large no. of physical participants to deposit their goods for sale on exchange platform. There appears a need to harmonize these standards as well as point in the value chain needs to be appropriately prescribed at which these standards should be applied.

The central and state agricultural marketing institutions can consider derivatives markets (especially option trading) as one of the source for procurement of the agricultural commodities and use this market as one of the tools for creating adequate buffer stocks of the essential commodities.

Action: GoI, state governments, Ministry of Agriculture, Ministry of Consumer Affairs, SEBI, exchanges, Agriculture marketing institutions and stakeholders

Time frame: Long Term and ongoing

22) Creation of an electronic platform and developing a robust electronic spot platform or exchange under a Regulatory Body

Derivatives market can achieve better convergence with the spot markets in view of the transparent and reliable spot prices which could be available on the electronic platform in the same products that would be concurrently traded on both the platforms during same/similar trading hours.

Thus, development of online electronic Pan-India spot trading platform/exchange for commodities under a regulatory body would facilitate transparency of the physical markets as well as discovery of reliable spot prices and its integration with the derivatives markets.

Action: GOI

Time frame: Short Term

23) Quality and standards

- There should be product standardization and uniform standards for assaying and warehousing in respect of the contracts/commodities which are traded in spot market and derivatives market. This will lead to better integration of spot and derivatives.
- As the Indian markets cannot be left in isolation, the objective should be alignment of domestic spot and derivatives market with proper international markets wherever feasible.

Action: GoI, BIS, FSSAI, APEDA, AGMARK and all stakeholders

Time frame: Medium Term and ongoing

24) Certification requirements

There could be requirement of certification programs for the spot market, derivatives' market, warehousing sector, and quality assaying etc. This could help in creating a certified and qualified professional workforce for overall development of the commodity markets.

Action: GoI, BIS, Proposed Spot Exchanges Regulator

Time frame: Short Term

25) Developing robust dispute resolution mechanism

With development and integration of the spot markets with derivatives markets, there is a likelihood of increase of disputes/litigations amongst various stakeholders. Thus, it is necessary to have in place, a common and

clear mechanism for resolution of disputes arising out of trading on the spot and derivative exchanges.

Action: GoI, proposed spot exchange/ platform regulator, SEBI, stock exchanges and all relevant stakeholders

Time frame: Medium Term

26) Common KYC

In order to enable ease of doing business, a common KYC and uniform set of documents along with a unique identification code for seamless transaction across the various markets may be considered.

Action: GoI, proposed spot exchange/ platform regulator, SEBI, stock exchanges and all relevant stakeholders

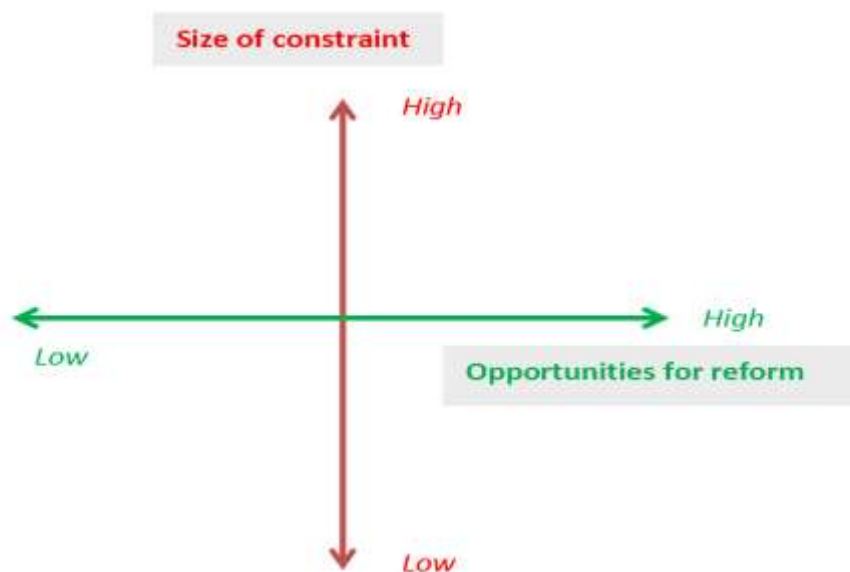
Time frame: Short Term

6.2 Strategies for Reform

In general, as the analysis in this report suggests the number of constraints to spot-derivatives markets integration is large and diverse, leading to a long list of recommendations, even if we were to focus on the most critical of these. This calls for wholesale reform that works on several fronts and may present immense challenges to implementation. We propose therefore to organize these recommendations in way that helps prioritize interventions aligned closely to the mandate of the committee.

Of all the issues identified some may be severe constraints, in the sense that relieving the constraint would have large benefits to farmers, but opportunities to reform these may be few in the sense that these are difficult to undertake especially in the short run. There may be those that are fairly small constraints (in terms of the potential to impact farmers significantly) that may be easy to fix. However the returns to doing these may be relatively small. Those that are small constraints and also have limited opportunities for reform ought to figure low on the priority list since these would not be a good use of resources. The focus would therefore be to identify those fairly large constraints that also present opportunities for reform before moving on to those that might be more difficult to undertake. Figure 10 represents the prioritization methodology. Prioritizing recommendations in this manner will enable the Committee in preparing a road map for implementation of the reforms required for promoting increased spot and derivatives markets integration.

Figure 10: A framework for prioritizing recommendations



The discussion on the issues that need to be addressed in spot-derivatives markets exchange was hitherto treated as a set of overarching issues across all commodities. Yet, not all commodities are equally amenable to such integration, for example with most horticultural crops. Even internationally, derivatives exist mostly for processed forms (orange juice, etc.). Dairy commodities have Skim Milk Powder, Cheese, Butter and Whey derivatives. With India becoming among the world's largest producer of milk, this may be an area that deserves attention.

There are several commodities where India has functioning derivatives markets which are well integrated with world markets (e.g. soya bean complex, cotton, rapeseed and mustard, castor), other where the commodities are relevant mostly in India and not worldwide (turmeric, cumin, coriander). There are those commodities where government controls and intervention have hindered the development of derivatives markets in India (rice, wheat and sugar, for example, or sensitive commodities such as onion, potato where consumer interests are critical.).

In the approach to the integration of commodity spot and derivatives markets, it might be a useful approach to sequence the effort in a way that we start with those commodities where the domestic and trade policy is conducive to such integration. This would provide the space for learning and course correction, and for aligning the policy environment for other commodities to the goal of spot-derivative market intervention.

7 Future Work

This report reflects current evidence on various issues pertinent to spot-derivative market linkages for agricultural commodities. Yet, there are several issues that merit further scrutiny in order to better design and operationalize interventions that will support this transition to a seamless commodity marketing system. In particular, specific commodity studies to evaluate the prospects and constraints to integration.

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Appendix 1: Recommendations of select previous committees on spot and derivatives markets for agriculture

A. Recommendations on Spot Markets

	2001	2002	2008	2013	2014
Storage	<p>Legal: Institutionalize warehouse receipt system</p> <p>OP: 1. Improve storage infra in hilly areas 2. Promote private investment in storage infra</p>	<p>Legal: Introduce negotiable warehouse receipt system</p>		<p>Legal: Need stable and long term National Policy on storage and movement.</p>	<p>OP: 1. Reduce warehouse and assaying costs. Promote scientific storage and grading 2. Need for high quality warehouses, negotiability of warehouse receipts and spot market trading in them.</p>
Movement				<p>Legal: Notify type of documents reqd. for seller to be a farmer to ensure free movement at check posts</p> <p>OP: Remove physical barriers such as check-gates for recovery of market fee.</p>	
Pricing	<p>Legal: Include crops not under MSP,</p>	<p>OP: Revamp MIS, delink MSP from procurement.</p>		<p>Legal: ECA: Distinguish b/w genuine service</p>	

	2001	2002	2008	2013	2014
	in MIS.			providers and black marketers/hoarders.	
Cross Border Trade	OP: Encourage export of high-value crops			Legal: Adopt more consistent stand in import-export policy. No sudden switch-on or switch-off policy.	
Quality	OP: 1. Alternate tech use like nitrogen filling 2. Improve Grading & cleaning facilities 3. Enhance capacity of agro-processing sector	Legal: Avoid relaxing of FAQ norms frequently.		Legal: Provide DMI the inputs such as name of commodity and quality parameters to form grade standards (AP (G&M) Act, 1937) OP: 1. Grade agri produce before it is sold 2. Establish grading units with trained manpower	
Market Structure	Legal: Design full-fledged AM credit policy OP: 1. Specialised markets for fruits/veg	Legal: 1. Deregulation of new market areas from purview of APMC Act 2. Declare		Legal: 1. Amend APMC Act for setting up of Private Wholesale Market and terminal	Legal: Adopt Indian Financial code to reduce regulatory and legal risk.

	2001	2002	2008	2013	2014
	<p>2. Develop rural periodic markets</p> <p>3. Promote direct marketing</p> <p>4. Privatization of market infrastructure</p> <p>5. Use information technology for direct marketing</p>	<p>market dev. projects as infra projects in Section 10(23G) of Income Tax Act</p> <p>3. Amend APMC Act to allow private sector to do direct marketing, removing licensing restrictions and regulations</p> <p>4. Legalize contract farming</p> <p>OP: 1. Increase no. of purchase centres</p> <p>2. Record all contractual arrangements with Govt.</p> <p>3. Transparent contracts for contract farming</p> <p>4. Easy bank finance to small & marginal farmers</p> <p>5. Direct Marketing: Long term credit, fast approval of services like</p>		<p>market complex.</p> <p>2. Increase competition by removing mandatory requirement of shop for traders</p> <p>3. Exempt contract farming and direct marketing licensees from stock limits up to 6 months.</p> <p>4. Need to regulate markets and still attract investment</p> <p>5. Unified single registration for Hub (main market) and Spokes (collection centre)</p> <p>6. Exempt private agri markets on land ceiling</p> <p>7. Demarcate role of service provider and regulator to ensure independenc</p>	<p>OP: Address market failure thru consumer protection, micro prudential regulation and preventing market abuse.</p>

	2001	2002	2008	2013	2014
		power, sewage, etc., allocate sufficient land for agri produce markets and for farmers' association.		e OP: 1. Promote formation of SHGs for farmers to get all APMC Act reforms' benefits. 2. Use a progressive system of registration for traders/agents with open and transparent criteria 3. Waive off market fee on fruits and vegetables 4. Link mandi fee with the services being provided for transactions. 5. Charge no mandi fee to those who pay in the State of procurement, and bring to another state for processing 6. Levy mandi fee on primary produce	

	2001	2002	2008	2013	2014
				<p>only, but user charges may be levied according to the use of services</p> <p>7. Organise farmers' groups for bargaining power</p> <p>8. Treat private markets on par with APMCs in terms of registration</p> <p>9. Specify minimum parameters for setting up private markets</p> <p>10. Requirement for security and bank guarantee must be reasonable to facilitate infrastructure.</p> <p>11. Charge developmental fee of private market at par with APMCs</p> <p>12. Provide subsidy/viability gap</p>	

	2001	2002	2008	2013	2014
				<p>funding for private investment (to attract FDI and ECB)</p> <p>13. Promote PPP model for infra development</p> <p>14. Levy market fee only for 1st transaction b/w farmer and trader, and only service fee after that.</p> <p>15. Need for electronic trading in mandi to get best price.</p>	
Governance framework		<p>OP: Create contract farmers' associations at plant level for bargaining power</p>		<p>OP: Appoint CEO of market committee from outside cadre</p> <p>Submit final report to Govt with request for national level conference on AM</p>	

A. Recommendations on Derivatives Markets

	2001	2002	2008	2013	2014
Access Rules		Legal: Make FMC (like SEBI) autonomous to strengthen regulatory framework	Legal: Allow FCI to be allowed as the option writer (for both call and put options)		
Trading	OP: Forward contract may well be regarded as direct and alternative marketing facilitator.	Legal: Amend FC(R) Act to allow options trading	OP: Contract designs should be tailored to enable farmers' participation in futures		Legal: Banking regulation act: 1. remove restrictions on banks and other financial institutions from participating in futures market. 2. Allow foreign financial firms in commodity derivatives 3. Exempt arbitrageurs from the restrictions on holding inventory under the ECA, 1955. Operational: 1. Market development to improve market liquidity and reduce transaction cost. 2. Stop suspension

	2001	2002	2008	2013	2014
					for abrupt trading behaviour by firm to assist their organizational capability development.
Clearing					
Settlement					
General		<p>OP:</p> <ol style="list-style-type: none"> 1. Expose exchanges to best practices of the world. 2. Remove compartmentalization of commodity exchanges trading derivatives 3. Modern national level commodity exchanges are reqd. Also warehousing receipt system. 4. Increase general awareness among farmers on futures trading 	<p>Legal:</p> <ol style="list-style-type: none"> 1. Amend FC(R) to allow simple options in agri-commodity group. Exempt transaction fees 2. Implement proposed FC(R) amendment bill to increase regulator's autonomy <p>OP:</p> <ol style="list-style-type: none"> 1. Promote agricultural derivative markets 2. Cohesion of FMC, warehousing act, banking, etc. is required to increase participation of farmers in futures. 3. Better rural communication, transport, etc. 4. Use transaction tax from futures trading, or infra development 5. Use media to 		<p>Operational:</p> <p>Establish an annual process of computing measures of futures market liquidity, price discovery and hedging effectiveness.</p>

	2001	2002	2008	2013	2014
			<p>disseminate price discovery</p> <p>6. Enable RRBs, NGOs to trade on exchange on behalf of farmers.</p> <p>7. Approve banks and in institutions to devise customized OTC product for small/marginal farmers</p> <p>8. Reforming spot market should be top priority. Expedite the process of model APMC act adoption and also setting up of national spot electronic exchange of NCDEX.</p>		

C. Miscellaneous Recommendations

2001 Report

1. Strengthen the commodity exchanges. Existing exchanges are not fully efficient.
2. A massive programme of marketing extension should be launched at the disaggregated level. In each agro-climatic region the extension messages should include (a) advise on product planning; (b) market information; (c) secure markets; (d) alternate marketing channels; (e) improved marketing practices including grading and packing; and (f) advantages of group marketing.
3. Encouragement may be considered for promoting marketing of organically grown produce, fruits & vegetables, medicinal plants, herbs etc.

2002 report

1. For sustainability of contract farming, selection of appropriate plant genotype is essential.
2. Ensure contract farming does not promote monoculture, and does not destroy biodiversity/ecology
3. To promote pledge loans for agricultural commodities, it is recommended that in respect of high value crops, RBI should enhance the ceiling of advances from existing Rs.1 lakh to up to Rs.5 lakhs to farmers against pledge/hypothecation of agricultural produce (including warehouse receipt) where the farmers were given crop loans for raising produce, provided the borrowers draw credit from the same bank.
4. Institutional interface between warehousing corporations, banks and financial institutes, clearing and settlement corporations, have to be strengthened.

2008 Report

No miscellaneous recommendations

2013 Report

1. Validity period of Unified Single Registration for private wholesale markets (including Collection Centers) should be greater than five years. 10 years is desirable.
2. Market fee/cess including Rural Development Fund, Social Development Fund and Purchase tax, etc. should be maximum 2% of the value of the produce and the commission charges should be not more than 2% for food grains/oilseeds and 4% for fruit and vegetables;
3. Proposed Agricultural Produce Inter-State Trade and Commerce (Development & Regulation), Bill may, to start with, be applied for a few perishable agriculture commodities and it may be expanded for other commodities depending upon the experience of its working
4. Investment in marketing infrastructure under RKVY may be increased to minimum 10-15% of State RKVY spending in reformed States. Efforts

should be made to encourage private investment in marketing infrastructure outside the APMCs also

5. Market fee/cess including Rural Development Fund, Social Development Fund and Purchase tax, etc. should be maximum 2% of the value of the produce and the commission charges should be not more than 2% for food grains/oilseeds and 4% for fruit and vegetables;

6. **(Contract Farming)**

To encourage contracting parties and simplifying and rationalizing the registration process:

- a. District level authority may be set up for Registration of Contract Farming and no market fee should be levied under it. The APMC should not be the authority for registration / dispute settlement under Contract Farming; and
 - b. The disputes may be settled within 15 days and the decretal amount of appeal should not be more than 10 % of the amount of goods purchased under Contract Farming. Appeal should be disposed of within 15 days.
 - c. No solvency certificate / Bank guarantee may be required from private sponsor/operator, if payment is made to the farmers on the same day of procurement of their produce;
 - d. Promote small and marginal farmers' groups/associations or their company/society to encourage contract farming in the States.
7. **(Data entry)**: Ensure proper and regular data entry in AGMARKNET nodes provided in the Regulated Markets in the State for the benefit of the farmers
 8. Instead of market fee, states can levy minimum user charges for developing general infrastructures like connecting/ rural roads, preferably not exceeding 0.5% of the value of produce for the use of any facilities created by the States/APMCs
 9. Constitute a corpus fund for development of market infrastructure in the North Eastern region and hilly areas, since their requirements are different from the rest of the country. A separate agricultural marketing strategy may be adopted for the region.

2014 Report

1. Contract design: having multiple contracts, and establishing cash-settled futures trading on indexes constructed out of multiple contracts.
2. Data: Improving precision of polled price series. For this FMC and exchanges should work with data producers, and also ensure larger numbers of time-series is captured.

Appendix 2: Summary of Recommendations on Warehousing

1. Warehouse regulation should be neutral to the categories of users of warehouses. Regulations that impose performance requirements must impose such requirements as are generally necessary to make the business of warehousing trustworthy and credible.
2. Co-ordinated efforts between WDRA and state warehousing regulators must be made to bring unlicensed warehouses within the regulatory purview. Additionally, users of warehouses must be convinced of the legal risks of using unlicensed warehouses.
3. Regulation must require the creation of structured and standardised formats for reporting information. Lending will improve further once lenders see a market with greater transparency and information.
4. An electronic NWR system will enable market participants to use NWRs without having to worry about fraud and duplication.
5. The unit of regulatory supervision in warehousing must be the owner of the warehousing operation rather than the owner of the warehouse.
6. Business processes and the quality of service are key factors of competition in the market. Regulation must therefore create minimum standards and ensure compliance with them.
7. A focus on the processes of warehousing will enable regulation of both WSPs and CMCs. Collateral management being a subset of warehousing does not need to be regulated separately. Regulation of warehousing services in general, will enable supervision of collateral management processes as well.
8. Warehousing registration has to be a quick and nimble process in order to facilitate the current market practices that are helping in market development. For this, registration- related entry barriers must be lower and post-registration supervision must be better.
9. There must be no regulatory supervision of pricing within warehousing services. Any restrictions will disrupt the organic developments within the warehousing market that is leading to its transformation.
10. Regulations should ensure that insurance coverage for all aspects of legal liability is covered. Both the warehousing infrastructure, and the commodity stored within a warehouse must be insured against structural infirmities, fire, burglary, theft, employee malfeasance, etc.
11. Regulators should abstain from attempting to solve operational risks to WSPs. Doing so would disrupt the operation of competitive forces in a rapidly evolving market.
12. Regulations must contain directions to WSPs to devise operating

procedures that enable them to discharge their functions with due diligence. Regulatory supervision must focus on compliance with these processes.

13. Warehousing regulations with regard to registration of WSPs must focus on creating minimum standards with regard to business processes and quality standards.
14. Warehousing regulations should focus on bridging information gaps in the warehousing market. On one hand, an information repository with details of WSPs, capacity utilisation, past track record of WSPs should be created, on the other hand regulatory supervision should focus on improved compliance on part of WSPs.
15. There must be a framework for dispute resolution. While greater competition will in time force WSPs to be more responsive to concerns of consumers, the government has a role in ensuring consumer protection. Regulated entities must therefore be required to create a framework for redressing grievances of consumers. WDRA must then provide a hearing against any unresolved grievances.
16. WDRA must create a consolidated online database of all NWRs issued, which should be updated real-time with every NWR transaction or transfer.
17. The database created by the regulator, must be easily accessible through a user-friendly portal, with ease of use and intuitive learnability of software, where all users of the NWRs are able to view and undertake transactions easily. It must also account for providing information to users without internet access, through tele-access, mobile SMS alerts etc.
18. Most WSPs covered during the course of the study had the basic infrastructural requirements (or arrangements) for accurately weighing and assessing the quality of the commodity. It is advisable that the ownership of weighing and quality testing infrastructure is not made compulsory, provided that other checks are in place. For instance: In case of presence of weigh-bridges close to the warehouse, it is essential that WSP staff accompany the depositor to ensure correct measurement of commodities being deposited. The presence of in-house weighing equipment may not be imperative.

Appendix 3 : History of Commodity Futures Trading in India

Commodities futures trading in India can be traced back to more than one century. Perhaps the first organised futures market in India was established as the Bombay Cotton Trade Association in 1875, which permitted trade in cotton derivatives contracts. In the pre-independence era, the principal commodity markets were 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 were all prominent (*Report of the Expert Committee to Study the Impact of Futures Trading on Commodity Prices, 2008*). There were no standard regulations governing these markets.⁵⁶

After Independence, the government banned cash settlement and options trading. The governance of all commodity derivatives contracts were brought under the FCRA. Towards the end of the sixties, a period of prolonged drought caused crop failure with several farmers defaulting on their obligations. This led to supply shortages and soaring prices in agricultural commodities. There was both an explicit economic and social shock: among these high prices for their commodities, there was a large number of farmers who committed suicide because of their default on delivering goods. Such a stress in the system led the government to ban trading of futures contracts. In the seventies, futures trading on commodities was permitted again, starting with a small set of non-essential commodities. By then, trading had moved underground to OTC contracts and volumes never reached their pre-ban levels. Even today, it is said that the underground OTC market dwarfs the liquidity of the visible exchanges.

In the traditional Indian commodity derivatives markets, instead of one exchange trading multiple commodities, each commodity would have multiple exchanges. Each exchange would be set up in, or close to, the region where the commodity was produced and were associations of brokers.

For historical reasons, commodity exchanges were governed by a different law (the FCRA) and overseen by a different regulator (the Forwards Markets Commission, FMC) than have financial derivative exchanges. Thus, traditionally, India traded commodity derivatives on exchanges that were separate and distinct from those exchanges trading other financial derivatives. This framework makes India more like Japan, which has separate laws,

⁵⁶ *The Bombay Forward Contracts Control Act, 1947 was the first to be enacted in this regard.*

regulators and exchanges for physical commodity and financial derivatives, and less like the U.S. and Europe, where physical and financial derivatives trade side by side on exchanges like the Chicago Mercantile Exchange and Euronext Liffe.

As part of the overall liberalisation of India's markets between 2000 and 2002, the law was changed, regulations were rewritten, and many restrictions on commodity futures trading were lifted. The framework was put in place to allow the creation of a new type of pan-Indian commodity exchange, which had electronic trading and which explicitly listed and traded several products simultaneously. This enabled exchanges to gain economies of scale when compared with the pre-existing regional exchanges. The first of these new national, electronic exchanges out of the box was the National Multi-Commodity Exchange of Ahmadabad (NMCE), which started in November 2002. A year later two more exchanges opened their doors in Mumbai—the Multi-Commodity Exchange (MCX) and then the National Commodity Derivatives Exchange (NCDEX).

Today, with the liberalisation of the financial sector in India, commodity derivative markets are very different. Reforms have seen a more significant development of institutions that enable a manifold increase in the size and accessibility of commodity derivatives in India. These developments started at the end of 2003, and the commodities markets are still in the process of transition towards an equilibrium between the spot and the futures markets.

For example, a decade after the first reforms, there were a total of 24 exchanges, some of which were the large, national, multi-commodity exchanges, and others which traded served a more local base of users. These are the regional commodity exchanges such as the Rajkot Commodity Exchange. As of May 2015, there were 16 such regional commodity exchanges.⁵⁷

. These are a mixture of the traditional commodity exchanges and new electronic exchanges. The traditional commodity derivatives exchanges are organised as local open-outcry market places with broker-owners that coordinated the order flow between buyers and sellers. Often, the futures markets trade a single commodity, like cotton, chana or chilly peppers. As mentioned, these serve localized pools of liquidity and price discovery.

However, in the last few years, some of these regional commodity exchanges have ceased to exist due to non-fulfilment of compliance set up by SEBI.⁵⁸ As of today, it is primarily the national exchanges that operate on commodity derivative markets. What is important to note is that there was no longer a distinction between exchanges trading only agriculture commodities

⁵⁷ See <http://www.fmc.gov.in/index3.aspx?ssid=51&subsublinkid=64&langid=2>, last accessed on Jul 25, 2017.

⁵⁸ http://www.business-standard.com/article/markets/india-s-only-castor-seed-exchange-at-rajkot-downs-shutters-116121600942_1.html.

or non-agriculture commodities. Each exchange today can trade multiple commodities on the same platform.

There are thus three major electronic exchanges today, which offer a single trading and clearing platform across the nation. These are: the National Multi-Commodities Exchange (NMCE) in Ahmedabad, Gujarat, Multi-Commodities exchange (MCX) in Bombay and National Commodities Derivatives Exchange (NCDEX) in Bombay. These exchanges managed professionally and owned by financial entities, rather than by the brokers, as used to be the case before the recent reforms. These can include foreign ownership as well. For example, Fidelity International is a shareholder in MCX and the Goldman Sachs Group has invested in NCDEX. These new exchanges trade multiple commodities. When a commodity trades on one of the new national exchanges, traded volumes tend to move away from the traditional local exchange that used to previously be the center of liquidity for that commodity, onto the new national exchange. Of all the exchanges, MCX and NCDEX, account for the traded volume of the 10 most active contracts. NCDEX dominates in the traded volumes of the agricultural contracts. However, agricultural contracts accounted for only around 12% of total volume.

Report of the Group on Non- Agricultural Commodities

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Group on Non-Agricultural Commodities

1. In the first meeting held on August 02, 2017, the members of the expert committee suggested that two separate groups may be created comprising different members of the committee i.e., one group to look into issues relating to the agricultural commodities and the other group to focus on issues relating to the non-agricultural (metals, bullion and energy) commodities. The committee felt that the issues and challenges concerning agricultural commodities and non-agricultural commodities being different, they need to be separately examined for better appreciation of these commodities which would help the committee to understand the respective markets with better clarity. SEBI was made the coordinator for the group constituted for non-agricultural commodities.
2. The expert committee nominated the following representatives as the members of the group on non-agricultural commodities:
 - i. Dr. Kirit N. Shelat, IAS (Retd.)
 - ii. Dr. R.J.R. Kasibhatla, Deputy Legal Adviser - Department of Legal Affairs
 - iii. Dr. Shashank Saksena, Adviser - Department of Economic Affairs
 - iv. Ms. Susan Thomas, Head, Finance Research Group - Indira Gandhi Institute of Development Research (IGIDR)
 - v. Shri Chandrashekhar Vashistha, Additional Director - State Agricultural Marketing Board, Madhya Pradesh
 - vi. Shri Manoj Kumar Dwivedi, Joint Secretary (Export Promotion - Gems and Jewellery) - Department of Commerce
 - vii. Shri S K Mohanty, Executive Director - Securities and exchange Board of India (SEBI)
 - viii. Shri T. Rabi Sankar, Chief General Manager, Financial Markets Regulation Department- Reserve Bank of India (RBI)
3. The group had three rounds of meetings at SEBI Office in Mumbai on October 06, 2017, October 25, 2017 and December 27, 2017.
4. The report of the group is organised as under:
 - Chapter 1: This chapter provides an overview of the non-agricultural commodities market.
 - Chapter 2: This chapter focuses on physical market ecosystem of the non-agricultural commodities market including regulations

governing those markets, various issues and challenges faced and global best practices observed for such markets.

- Chapter 3: This chapter provides a brief background on the derivatives market of these commodities.
- Chapter 4: This chapter presents highlights of electronic platforms for both spot market and derivatives market as well as also suggestions for Indian scenario.
- Chapter 5: This chapter deals with the challenges for integration of commodity spot and derivatives markets in the context of India.
- Chapter 6 and 7: These two chapters summarize the suggestions /recommendations for integration of commodity spot and derivatives market and indicates a roadmap for their implementation.

Acknowledgements

1. During deliberations, the members of the group had also the benefit of interacting with external experts from the corporate sector, advisory firms, commodity derivatives exchanges and industry associations etc...
2. The group would like to acknowledge the valuable contributions made by following experts for sharing their expertise.

Precious metals, Gems and stones

- a. Shri Bhargav Vaidya - B.N. Vaidya & Associates

Base Metals

- a. Shri Sandeep Jain - Bombay Metal Exchange
- b. Shri Vijay Murthy and Shri Abhishek Jha - Hindustan Zinc Limited (HZL)
- c. Shri Sanjeev Ranjan, Shri Avinash Kemna and Shri Mayur Karmarkar - International Copper Association India Ltd.
- d. Shri Dilip Morzaria - Kamman Group
- e. Shri Dhawal Shah - Metal Recycling Association of India Pvt. Ltd. (MRAI)

Commodity derivatives exchanges

- a. Shri Sameer Shah, Shri Sarat Mulukutla and Shri Anshuman Purohit - National Commodity & Derivatives Exchange Limited (NCDEX)
- b. Shri Sanjit Prasad - Indian Commodity Exchange Limited (ICEX)
- c. Shri Mrugank Paranjape, Dr. V Shunmugam, Shri Chittaranjan Rege, Shri Sameer Kenia, Ms. Rashmi Nihalani and Shri Girish Dev - Multi Commodity Exchange of India Limited (MCX)

Petroleum Products

- a. Shri Ranajit Banerjee - Directorate General of Hydrocarbons
- b. Shri Ashutosh Deshpande - Essar Oil Limited
- c. Shri Daniel Santosh - Hindustan Petroleum Corporation Limited (HPCL)

General and electronic platforms for Spot market

- a. Shri Muzammil Patel - Deloitte India

- b. Shri Deepak Bhattacharya, Shri Prashant Jha and Shri Satyavir Singh - Mjunction Service Ltd
 - c. Shri Ayush Kakar - Trafigura India
3. The Group would also like to acknowledge the valuable support and assistance extended by SEBI and all the officers from its Commodity Derivatives Markets Regulation Department (CDMRD).

Executive Summary

1. In most of the non-agricultural commodities, India's consumption far exceeds its production, due to which India has been a net importer of many of these commodities.
2. In the past, the Government of India (GoI) has constituted several committees from time to time to deal with various issue of spot and derivatives market keeping in view the sensitivities around agricultural commodities and their impact on the farmers and the consumer. However, there has been hardly any focussed study in respect of the non-agricultural commodities sector more so on the issue of integration of spot and derivatives markets of these commodities.
3. The group has reviewed the work of some of the earlier committees, and their recommendations on the issues relevant to developing spot and/or derivatives market or/and integration of commodity spot with its derivatives market. A summary of the recommendations made by such committees have been listed out in *Appendix 1*. While there are established legislations like the Agricultural Produce Market Committee (APMC) laws enacted by the states (based on the model law) and various other allied laws for agricultural markets, no such law exist for the non-agricultural commodities. Moreover, the secondary market i.e. the scrap market for the metals is highly fragmented having hundreds of unorganised tiny units spread across the country.
4. The regulatory framework for the non-agricultural commodities is such that spot and derivatives are working in isolation with no tangible connection with each other, while both these markets are well integrated with the global markets. The reason for the global linkages could be that India does not have its own benchmark prices for any of the non-agricultural commodities and India generally follows benchmark prices determined in other jurisdictions say, London Metal Exchange (LME) for the non-ferrous metals. Moreover, the ancillary activities involved in the trading of the non-agricultural commodities are also highly fragmented throughout the country. This is further explained as below:
 - a) **Spot market:** Unlike APMCs for the agricultural markets, there is no organised physical market as such for the non-agricultural

commodities. There are also no specific laws with respect to the trading of the non-agricultural commodities. There is infact a complex maze of the laws governing various activities involved in the primary spot market of these commodities. The secondary market, which represents mostly the recycled or scrap market, is highly unorganised and is dispersed amongst large number of tiny units spread across the country which are generally not amenable to enforcement of any laws/regulations applicable to such commodities.

- b) **Derivatives market:** The derivatives market is governed by a central legislation called the Securities Contracts Regulation Act, 1956 (SCRA), which provides for the legal framework for organised derivatives trading. The derivatives market for the commodities is regulated by SEBI. The pricing of the derivatives contracts of non-agricultural commodities are mostly aligned with the global pricing of such contracts.
- c) **Storage Infrastructure:** Storage infrastructure is vital for the commodities market both for the agricultural commodities or non-agricultural commodities. Different categories of commodity groups require different storage practices. For example the storage requirement for precious metals such as gold would be entirely different when compared with the storage practices required for petroleum products or base metals. There is a nodal agency viz., Warehousing Development and Regulatory Authority (WDRA) which is currently regulating storage practices in the agricultural market but in case of non-agricultural commodities there is no regulatory authority to regulate storage of such commodities except for the petroleum products which have a sector specific regulator to oversee the oil and natural gas sector.
- d) **Delivery standards:** Presently, India has not developed a domestic delivery standard for any of these non-agricultural commodities and is relying upon the global standards. India is lagging behind many countries including China and other western countries to become a major global player in these commodities. For example in Gold where India is one of the top consumers, is yet to develop pan Indian delivery standards and is relying upon the global standards of London Bullion Market Association (LBMA).

- e) **Pricing:** The domestic prices of most of the non-agricultural commodities are linked to the global markets. The Indian prices for such commodities are mainly benchmarked on global benchmark prices with required premium/discount to that price (which generally includes cost of transportation, duties, and currency conversion costs etc.).
- f) **Institutional support:** There is no formal institutional support mechanism for non-agricultural commodities as compared to agricultural commodities where central schemes do exist for purchase of produce by central/state agencies like Food Corporation of India (FCI), National Agricultural Cooperative Marketing Federation of India Ltd. (NAFED). For the non-agricultural commodities agencies may be, say, MMTC Limited, The State Trading Corporation of India Limited (STC), PEC Limited etc., could provide support to the MSMEs in various ways like procuring raw materials or financing etc...
- g) **Trade related aspect:** Free Trade Agreement (FTA) signed with a host of countries is highlighted by domestic industry as one of the factor impacting development of the domestic industry and proper markets for these commodities.
5. Based on the deliberations and inputs received from experts, the group proposes the following suggestions/recommendations on various issues confronted by physical markets and derivatives market, and also on the integration of spot and derivative market of these commodities. The group believes that there should be an integrated model of spot and derivatives market to bring out the synergies between physical markets and the derivatives market which could in turn, lead to the overall growth of market of such commodities.

A. Physical markets:

It is an impeccable fact that the whole universe of the non-agricultural commodities comprises primarily global commodities. Hence, their markets – both underlying physical as well as derivatives, cannot be conceived in isolation of the global markets of these commodities. The Indian markets of these commodities need to be globally competitive

and at the same time should also cater to the domestic conditions and necessities. For this purpose, a right mix of the following suggestions can be adopted.

- i. **Increase dependency on recycling of non-agricultural commodities:** Rising prices, dominance by a few big players on the supply side, low access to primary markets for raw materials especially by the Micro, Small & Medium Enterprises (MSME), and environmental policies and regulations, make a strong case for more reliance on recycling of the non-agricultural commodities especially the base metals and precious metals.
 - The recycling industry must be developed in terms of application of the latest technology, better standards of manufacturing quality, uniform policy for scraps, and putting in place an enabling infrastructure to support the industry.
 - The recycling of base material saves energy and carbon-dioxide emissions and also has the potential to generate new employment.

(Action: Government of India, Ministry of Commerce and Industry, Ministry of Micro, Small & Medium Enterprises (MSME), Ministry of Environment and all other Stakeholders)

- ii. **Focus on research, development and innovation:** There should be a policy focus towards carrying out research, development and innovation in the field of the non-agricultural commodities, be it metals or energy products. This could certainly act as an important catalyst for the India's economic growth, keeping India competitive with other markets. *(Action: Government of India, all relevant Stakeholders)*
- iii. **Reliable energy supply and costs:** The metal industry utilises large chunk of electricity/energy at various stages of production cycle, starting from mining to fabrication, to manufacture of the finished goods. The markets of such non-agricultural commodity would immensely benefit from stable electricity/energy supply and prices. *(Action: Government of India, Ministry of Power, Ministry of Petroleum and Natural Gas)*

- iv. **Trade policies:** Almost all of the experts with whom the group members interacted have requested that GoI should review its Free Trade Agreements (FTA) signed with a host of neighbouring countries. Such FTAs may have adverse impact on the growth of the domestic industries. (Action: Ministry of Commerce and Industry)
- v. **Developing regulated storage infrastructure:** A well regulated network of storage infrastructure holds the key to the successful development of the non-agricultural commodities market. India does not have a regulated storage infrastructure that are generally left to the producers and suppliers who have their own warehousing/delivery points which do not follow any prescribed standards relating to storage and free movements of such goods. The vaults providing services for storing precious metals such as Gold or silver are not regulated by any agency despite the fact that they have huge amounts of valuable deposit with them. (Action: Government of India, Ministry of Steel, Ministry of Coal, Ministry of Petroleum and Natural Gas, all Stakeholders and Warehousing Development and Regulatory Authority)
- vi. **Developing and improving ancillary infrastructure:** There should be a special focus on developing ancillary infrastructure such as transports (which is suitable for transport of such commodities), regulated assaying and refining and testing facilities etc., across the country to facilitate overall growth of these sectors. (Action: Government of India, Ministry of Transport, Ministry of Railways, Warehousing Development and Regulatory Authority, Bureau of Indian Standards and all Stakeholders)
- vii. **Developing India delivery standard and alignment with global standards:** Presently, India has not developed any Indian standards for delivery, in any of the base metals or precious metals and is relying upon the global standards. In order to compete with global markets, India needs to first develop India specific delivery standards which can later on be aligned with the global standard. This will encourage manufacture of quality product from Indian manufacturers as per domestic market requirements. For example in gold where India is second largest consumer country has not yet developed any domestic delivery

standards and follows the LBMA standards much to the disadvantage of domestic refineries and jewellery industry. (Action: Bureau of Indian Standards and all Stakeholders)

- viii. **Quality technical education:** The non-agricultural commodities are used as raw-materials for the different industries which require trained and qualified human resources. The need of the hour is to constantly improve the technical education standard and keep them constantly updated with the demands of industry. Vocational education having apprenticeship could play an important role in this regard. (Action: Government of India, Ministry of Skill Development and Entrepreneurship and all Stakeholders)
- ix. **Improving transparency:** In the sectors such as base metals, precious metals, gems and stones, there is a perception of opaqueness, particularly due to the fragmented nature of the industry. Steps may be taken to improve the transparency by increased registration of enterprises, higher discipline in quality testing / assaying, financial reporting and tax payments as well as increase the share of organized sector in markets of such commodities. (Action: Government of India, and all relevant stakeholders)
- x. **Creation of dedicated ministry/department for Precious metals, Gems and Non-ferrous Metals:** Unlike Steel, Coal or Oil & Natural Gas which are regulated by separate ministry/departments in the Central Government; there is no dedicated ministry / agency at central government level to regulate Precious Metals, Gems and other Non-ferrous Metals. As a result, industries engaged in Precious metals, Gems and Non-ferrous Metals business fall under the ambit of various government ministries like Ministry of Commerce, Ministry of Mines etc., and may have to comply with regulations of different agencies. A dedicated controlling ministry could help in overall growth of these sectors adding to the economic development of the country. It could also facilitate all activities related to Precious Metals, Gems and other Non-ferrous Metals industry/sector under single roof thereby leading to ease of doing business. (Action: Union Cabinet- Government of India)

xi. **Electronic spot market platform:** Undoubtedly, an online electronic Pan-India spot trading platform/exchange will facilitate transparency of the physical markets and discovery of reliable prices. This is evident from the success of the securities market (in early 90's) and also the commodity derivatives market (in 2003) which moved to electronic platform. Suggestions for domestic spot market could be either of the following or the combination of these:

- A single Pan-India electronic platform for all commodities
- Pan-India separate electronic platforms for different categories of commodities
- Separate platforms for spot and derivatives market
- Integrated platform for spot and derivatives market

As regards the regulation of these electronic spot market platforms, two models have been proposed. One is a model of electronic platform being internally Self Regulated Organization (SRO) complying with regulation as they exist in different stages of the physical trade and second is the model of regulation of the pre-settlement activities of the electronic spot platform by SEBI.

(Action: Government of India and all Stakeholders)

xii. **Developing policy for specialised transportation requirement for certain commodities:** There are few commodities in the non-agricultural commodities complex which require specialised facilities for transporting as movement of such commodities could have adverse impact on the environment. These commodities could include coal, lead and petroleum products. India requires focusing on better and more environment friendly transportation of these commodities especially coal and petroleum products.

(Action: Government of India, Ministry of Coal, Ministry of Steel, Ministry of Petroleum and Natural Gas, Ministry of Environment, and all other stakeholders)

B. Derivatives market:

In order to compete with the global markets the Indian commodity derivatives markets, can be revamped by adopting a right mix of the following suggestions:

- i. **Increasing Participation:** Allowing participation by institutional investors such as banks, mutual funds, foreign investors, insurance companies etc., in commodity derivatives markets. Participation of the institutional investors in the commodity derivatives market could help in:
 - Leveraging the geographical reach and research expertise of banks, mutual funds, insurance companies for distribution of commodity derivatives products.
 - Better credit mobilization at MSME level
 - Building liquidity in far-month contracts which could in-turn help in increased hedgers' participation

(Action: GoI, SEBI, RBI, PFRDA, IRDA and all relevant stakeholders)
- ii. **Introduction of New products:** New products like options in other non-agricultural commodities (currently, only gold options are permitted), Commodity based Exchange Traded Funds (ETFs) and trading in commodity index derivatives etc., could also help in increasing participation as well as improving risk management culture, in the commodity markets. *(Action: SEBI and Recognised Stock Exchanges)*
- iii. **Regulated storage infrastructure:** There is a need for promoting warehousing, electronic warehouse receipts, repositories & accounting system for metals. Extension of WDRA regulations to non-agricultural commodities may enable issuance of Electronic Negotiable Warehouse Receipt (e-NWRs) that will help in better financialization of these markets. This could also lead to better transparency of inventories held by the firms/warehouses throughout the country. *(Action: Government of India, all Stakeholders and WDRA)*
- iv. **Information dissemination:** Next step could be availability of weekly/ daily inventory data of such commodities stored in the warehouses, trading points, consumption points, vaults etc., which could give a better picture of demand supply scenario. This could be on the lines of the information dissemination carried by LME and Shanghai Futures Exchange (SHFE) as well as releases by Department of Energy (DoE) of United States of America (USA).

This could help the policy maker in taking informed decisions based on the inventories available in the country at any given point of time. Further there is a need to ensure credibility and reliability of such informational flow. A nodal agency in this regard may collect data from various sources such as relevant ministries, DGFT, industry & trade associations etc., and disseminate the same (Action: Government of India, Ministry of Statistics and Programme Implementation, Recognised stock exchanges and all Stakeholders)

- v. **Developing ancillary infrastructure:** Scaling up of support infrastructure such as storage facilities, assaying facilities, logistic capabilities etc., can enhance the linkages with the spot markets. (Action: Government of India, all Stakeholders, BIS, and WDRA)
- vi. **Rationalisation of cost of trading:** The high cost of trading at Indian commodity derivatives exchanges which includes transaction cost, brokerage, statutory levies, warehousing/vault charges etc., has resulted into migration of trading from the Indian commodity derivatives exchanges to the global markets at the cost of the liquidity in domestic markets. A comparative study may be carried out for costs associated with the trading of commodity derivatives in India vis-à-vis the global exchanges and based on the outcome of the study; necessary efforts could be made in order to reduce/rationalise cost of trading. (Action: GoI, Ministry of Finance, SEBI, and recognised stock exchanges)
- vii. **Linkages with the Global commodities market:** The exchanges should make efforts to link Indian derivatives market with their global peers. This may include:
- Designing of contracts in such a manner that it improves hedging effectiveness of such commodities.
 - Extending trading hours that overlap with other Asian and Australian markets to improve their international competitiveness.
- (Action: SEBI and Exchanges)
- viii. **Creation of India centric contracts:** Launching of India centric contracts would help the exchanges to meet the hedging demands

for those domestic or foreign entities which have an exposure to Indian markets. Further exchanges could develop contracts on “metal scraps” and on “ferrous metals” which are presently missing in the domestic markets. Such contracts could bring in those entities which are now keeping themselves out of the derivatives market due to non-availability of such exchange traded products. Additionally, trading of these commodities on a robust electronic Pan-India spot exchange could provide impetus to the derivatives trading of these commodities. (Action: SEBI, Exchanges and all stakeholders)

- ix. **Measure to increase hedger’s participation:** Hedgers would like to hedge their underlying holdings; hence the exchanges should design the contracts in such a manner and with such specifications that they have close linkages with the underlying physical markets including physical deliveries of such commodities. (Action: SEBI, Exchanges and all stakeholders)
- x. **Stakeholder’s awareness programs:** In order to attract more and more participants in the commodity derivatives, awareness programs for various stakeholders may be carried out with special focus on the efficient use of commodity derivatives market for risk management and price discovery. (Action: SEBI, Exchanges and all stakeholders)

C. Integration of commodity Spot/Physical and Derivatives markets:

Integration of derivatives and spot exchange, would certainly help in strengthening the price discovery process and also developing the ecosystem of such commodities in a manner that players of physical markets can seamlessly participate in the derivatives market and vice-versa, to manage their risks. In order to achieve an effective integration of both spot and derivatives market, India can adopt the following:

- i. **Creation of an electronic platform:** There is no doubt that an online electronic Pan-India spot trading platform/exchange will facilitate transparency of the physical markets as well as discovery of reliable spot prices. This is evident from the success of the securities market and the commodity derivatives market which after moving to electronic platform, have seen an impressive turnaround, in the

derivatives trading of these two segments. Derivatives market can achieve better convergence with the spot markets in view of the transparent and reliable spot prices which could be available on the electronic platform in the same products that would be concurrently traded on both the platforms during same/similar trading hours. (Action: Government of India)

- ii. **Developing a robust electronic spot platform or exchange under a Regulatory Body:** As regard the regulation of the electronic spot exchanges, there are certain commodities like electricity for which a separate regulatory body is already in existence. Similarly for commodities like crude oil, natural gas and petroleum products separate dedicated regulatory organisations are in existence, who could help establishment and regulation of a an electronic spot exchanges for commodities under their control. For commodities which are not exclusives monitored by an identified central ministry /agency such as non-ferrous base metals and precious metals, GoI may decide to frame appropriate regulations for setting up and regulating electronic spot platforms or spot exchanges for such commodities. (Action: Government of India)
- iii. **Standardization:** There should be product standardization and uniform standards for assaying and warehousing in respect of the contracts/commodities which are traded in spot market and derivatives market. This will lead to better integration of spot and derivatives. (Action: Government of India, Bureau of Indian Standards, WDRA and all Stakeholders)
- iv. **Creation of India Delivery Standards:** India needs to first develop India specific delivery standards applicable to domestic market, which can subsequently be aligned with the global standards of these commodities. This would help in effective integration of the spot and derivatives as it could lead to bridge the gap in the quality standards between the physical markets and the derivatives markets so that the value chain participants reap the benefit with ease, from the spot and derivatives market on a continuous basis. (Action: Government of India, Bureau of Indian Standards and all Stakeholders)

- v. **Diverse set of players:** Presence of diverse set of players in derivatives and spot markets, could help in better integrating between the physical markets and the derivatives markets. (Action: GoI, SEBI, RBI, PFRDA, IRDA and all other stakeholders)
- vi. **Continuous collection and dissemination of data with regard to spot and derivative market:** Availability of data with respect to various commodities traded on spot and derivative market including production, import, export, consumption, spot price and derivative price of such non-agricultural commodities, to the markets on a continuous basis would lead to transparency and integrity of both the market. (Action: Government of India and all Stakeholders)
- vii. **Clearing and Settlement:** The success of the spot as well as derivatives contracts requires credible clearing arrangements. As in the case of derivatives market, where the exchanges are clearing their trades through a separate clearing corporation, the spot exchanges should also have clearing corporation in place for efficient clearing and settlement of the spot trades. (Action: Proposed electronic spot platform)
- viii. **Collaboration with Global Players:** Adopting best practices for integration of domestic spot and derivative market would benefit by collaboration with various global players like LME in the respective commodities. (Action: Proposed electronic spot platform, and the Recognised stock exchanges)
- ix. **Increasing awareness amongst the players:** Market players participating in the spot market needs to be made more aware about the benefits of participating in the spot and derivatives exchange platform. (Action: All Stakeholders)
- x. **Warehousing and development of storage infrastructure regulation:** Registering of warehouses with a centralized authority such as WDRA, will permit them to issue negotiable warehouse receipts, which would generate a host of benefits to the ecosystem of non-agricultural commodities. Development of a warrant/warehouse receipt based delivery system to facilitate seamless

transfer between spot and futures markets thereby reducing arbitrage between the two markets. The Government could look into prioritizing the issue of tradability of warehouse receipts especially for the non-agricultural commodities as these commodities have long shelf life. (Action: Government of India, all Stakeholders and WDRA)

- xi. **Quality and standards:** For many of the products, domestic standards are not in tune with the internationally referred standards. Since most these commodities are imported, it is essential to align the domestic delivery standards proposed to be developed for various non-agricultural commodities with the international standards. The ultimate objective should be alignment of domestic spot and derivatives market with proper international markets. (Action: Government of India, Bureau of Indian Standards and all Stakeholders)
- xii. **Infrastructure standards:** There is a dire need for development of infrastructure across the value chain for enhancing quality standards, storage, transportation etc. which could help both the spot as well as the derivatives markets. (Action: Government of India, Bureau of Indian Standards, WDRA and all Stakeholders)
- xiii. **Certification requirements:** The regulators could make mandatory certification programs for the spot market, derivatives' market, warehousing sector, and quality assaying etc. This could help in creating a certified and qualified professional workforce for overall development of the non-agricultural commodity markets. (Action: Government of India, Proposed spot exchange/platform regulator, Bureau of Indian Standards and all Stakeholders)
- xiv. **Developing robust dispute resolution mechanism:** With the development and integration of the spot markets with derivatives markets, there is a likelihood of increase of disputes/litigations amongst various stakeholders. Thus, it is necessary to have in place, a clear mechanism for dispute resolution. (Action: Government of India, Proposed spot exchange/platform regulator, SEBI, Recognised stock exchanges and all relevant stakeholders)

1. NON-AGRICULTURAL COMMODITIES-AN OVERVIEW

- The commodity markets worldwide including India, fall in the primary economic sector. Soft commodities are mainly agricultural and agri-processed commodities such as wheat, soybean, corn/maize, coffee and sugar etc., while the hard commodities are generally mined, such as metals, gold, silver and energy products like oil, gas and coal. A pictorial overview of the commodities market is as below:

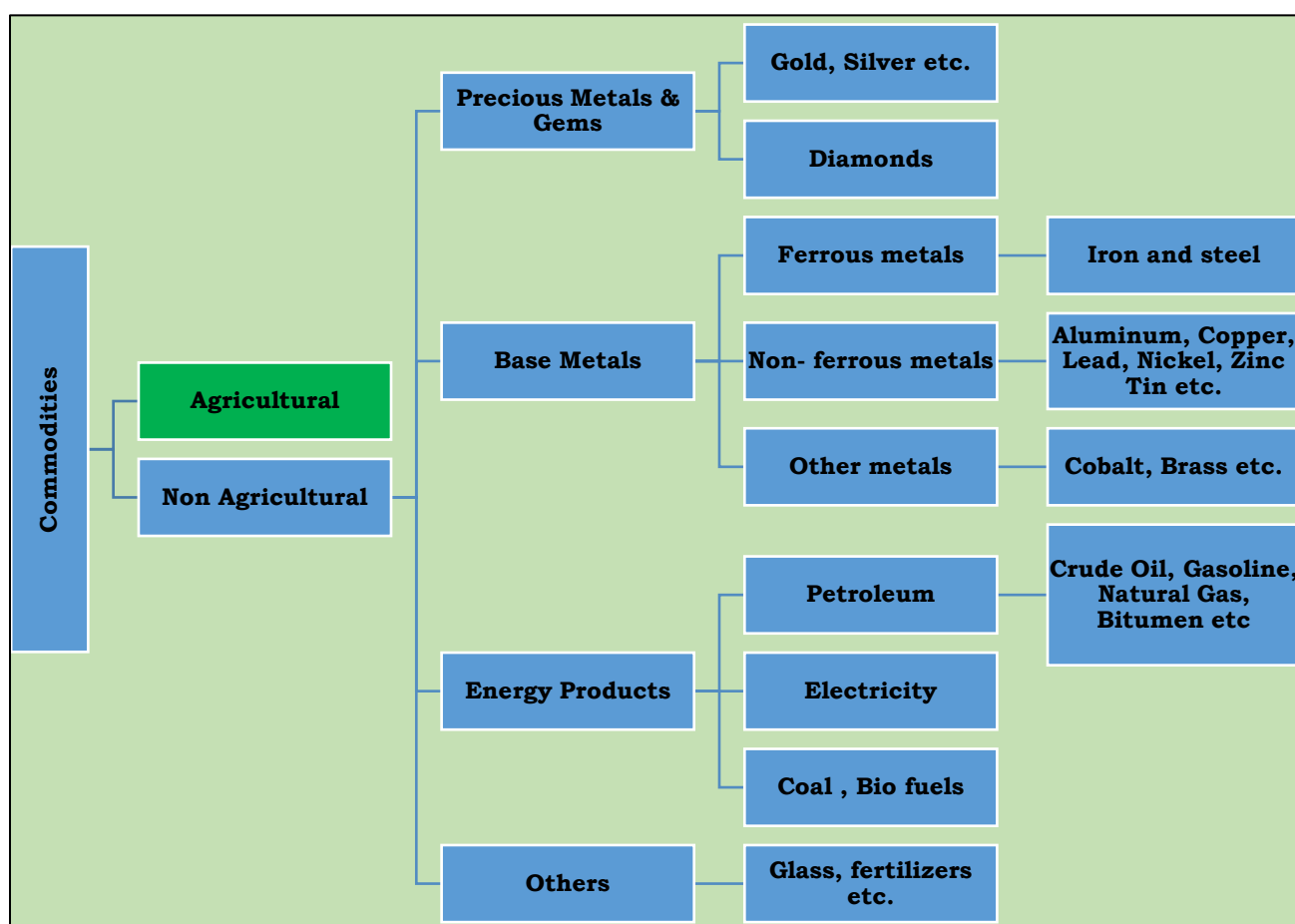


Figure 11: Commodities market

- The table below highlights the cross-section of various non-agricultural commodities.

Table 1: Non- agricultural commodities

Group	Commodities
Ferrous Metals	Iron and Steel
Non-Ferrous Metals	Aluminum, Copper, Lead, Nickel, Zinc, Tin
Other Metals/Alloys	Cobalt, Brass, Molybdenum, Uranium etc.
Precious Metals	Gold, Silver, Palladium, Platinum
Gems	Diamond
Energy	Crude Oil, Gasoline, Natural Gas, Coal, Bio-Fuels, Electricity and Other Petroleum Products such as Bitumen, Benzene etc.
Others	Glass, Fertilizers etc.

3. India is a commodity based economy having a long history of trading in the commodities markets. The trading in the commodity markets may include physical trading i.e. spot transaction (spot buying and selling of commodities) as well as the derivatives trading using spot prices viz., forwards, futures and options on futures.
4. India being one of the fastest growing and emerging economy, is one of the major consumers of various non-agricultural commodities. India is largely import dependent to meet its demand, as the production of these commodities is negligible or insufficient, especially in energy and precious metals products.
5. Precious Metals, Gems and Stones include commodities such as Gold, Silver, Platinum, Palladium and diamond etc...
 - a) Trading in the precious metals has been known since ancient times. India's demand for gold and silver has been growing persistently and is largely met through imports due to scarce domestic production.
 - b) International trade and prices of these commodities have direct impact on the domestic trade and price movements of these commodities.
 - c) India is among one of the largest consumers of Gold and Silver.
 - d) India has the leadership positions in polishing of rough diamonds.
6. Metals include both ferrous and non-ferrous metals such as iron, steel, aluminium, copper etc....

- a) India is amongst one of the largest producers of crude steel.
 - b) Most widely used non-ferrous metals are aluminium, copper, zinc, lead, nickel and tin.
 - c) Aluminium is the most widely used non-ferrous metal. It is used in various industries including transportation, packaging, cookware, construction, electrical applications and electronic appliances. India is among one of the largest producers in primary aluminium production.
 - d) Copper is the second widely used metal in industrial applications as power cables, telecommunication cables, railways, cathodes etc.
 - e) Zinc and lead minerals are known to coexist in varying concentrations in the earth's crust. Zinc is largely used for galvanizing iron to protect against corrosion. Zinc is also used to produce die castings, which are used extensively by the automotive, electrical, and hardware industries. Lead is extensively used in acid batteries and also used as protection against radiation.
 - f) Brass is metal alloy made of copper and zinc. It has been used for making utensils, locks, gears, bearings, doorknobs, ammunition casings as well as used in plumbing and electrical applications and musical instruments.
7. Energy commodities are generated from either renewable or non-renewable sources forming essential part any economy. Most widely used energy source commodities are crude oil, natural gas and coal.
- a) Coal is still one of the largest sources of energy in many developing countries including India.
 - b) Crude oil is the most widely used non-renewable energy used in the production of a number of products such as fuel oils like petrol or gasoline, LPG, paraffin wax, tar, petroleum coke, petro-chemicals etc., Crude oil is the most traded energy commodity in the world. India is almost entirely depends on imports for domestic consumption.
 - c) Natural gas is considered as one of the cleanest source of energy generated from fossil fuels. It is gaining importance as a less polluting alternative fuel energy source.
8. It needs to be highlighted here that though commodity markets fall in the primary economic sector, the abundance of the non-agricultural commodities have always helped nations of the world in their economic growth and prosperities. The importance of the commodities is such that

many countries have set-up the Sovereign Wealth Funds (SWFs) mainly out of the proceeds from the export earnings of their surplus natural resources representing the aforesaid commodities. It is interesting to find that majority of such SWFs have their origin as commodity. A list of few such SWFs are given below:

Table 2 : Origin of SWFs

<i>Country</i>	<i>Origin</i>
Chile	Copper
Botswana	Diamonds and Minerals
South Korea	Non-Commodity
Australia	Non-Commodity and Minerals
Kuwait	Oil
Norway	Oil
Saudi Arabia	Oil
Columbia	Oil and Mining
UAE	Oil and Non-Commodity
Iran	Oil and Gas
Qatar	Oil and Gas
USA	Oil, Gas and Minerals
Kiribati	Phosphates

2. NON-AGRICULTURAL COMMODITIES: PHYSICAL MARKETS ECOSYSTEM AND CHALLENGES

1. This section presents an overview of the physical market ecosystem, issues & challenges faced by the industry, and global practices in the sector.
2. The non-agricultural commodities dealt in this report are Gold, Silver, Diamond, Aluminium, Copper, Lead, Zinc, Nickel, Crude Oil, Natural Gas, Coal, Iron and Steel. India's position in global markets in respect of these commodities is depicted in the following table:

Table 3: India's position in global markets for select non-agricultural commodities

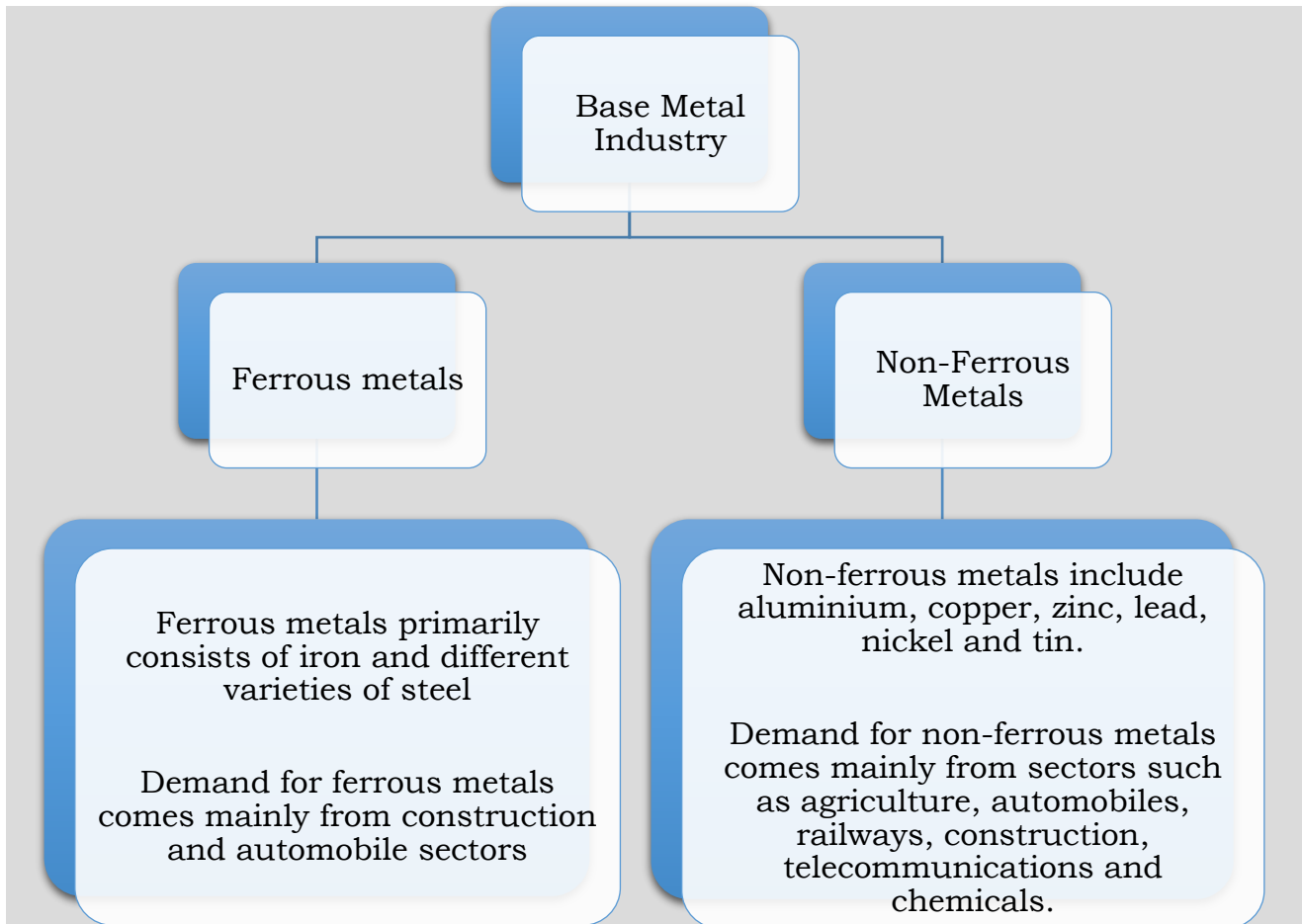
<i>Sr.</i>	<i>Commodity</i>	<i>Production</i>	<i>Consumption</i>
Ferrous Metals			
1.	Iron Ore	4	3
2.	Steel	3	3
Non Ferrous Metals			
3.	Zinc	5	3
4.	Nickel	No production	7
5.	Aluminium	5	3
6.	Copper	6	9
7.	Lead	2	3
Precious Metals, Gems			
8.	Gold	Negligible production	2
9.	Silver	14	3
10.	Diamond	Negligible production	3
Energy			
11.	Crude Oil	23	3
12.	Natural Gas	28	4
13.	Coal	3	3

3. The above table indicates that in most of the non-agricultural commodities, India's consumption far exceeds its production, due to which India has been a net importer of many of these commodities.

Base Metals

1. A metal represents a key sector which meets the requirements of a wide range of important industries.

Figure 12: Base Metals



2. Ferrous metals mostly contain iron. They have small amounts of other metals or elements added, to give the required properties. Ferrous metals are magnetic and give little resistance to corrosion.
3. Non-ferrous metals do not contain iron, are not magnetic and are usually more resistant to corrosion than ferrous metals. Non-ferrous metals are selected for use only when they satisfy certain specific requirements and possess some definite properties. Due to their extensive use, non-ferrous scrap metals are usually recycled. The secondary materials in scrap are vital to the metallurgy industry, as the production of new metals often needs them.

4. Non-ferrous metals, include aluminium, copper, zinc, lead, nickel and tin. A well-developed non-ferrous metals industry is vital for any country as it provides important raw material to various sectors such as such as agriculture, automobiles, railways, telecommunications, construction and chemicals, which are the pillars of economic development.
5. The metal industry generally incorporates a range of activities along various stages of the value chain including mining, smelting recycling refinery, processing and fabrication. The rise in the infrastructure development and automotive production could be major factors for driving growth in the metals and mining sector.
6. Metals are key intermediate inputs in industrial production and it lays the foundation of any economy. Iron Ore and Steel (which is produced from iron ore) is the most important base metal which is mostly used for construction, transportation equipment, and machinery. Copper is the second-most-important base metal used in electrical wire. The third-most-important base metal is Aluminium which is used in the aerospace industry as well as other industries requiring light metal.
7. Recycling is also an important part of metal industry because the recycling process is much less energy intensive than the production of primary metal. Advanced economies rely more on recycling.
8. A brief overview of various commodities in base metals sector is placed at **Appendix 2**.

Regulations governing the metal industry

1. Ministry of steel is dedicated ministry which regulates iron and steel industry in the country. Presently there is no dedicated ministry which regulates non-ferrous metals industry/sector. But, industries engaged in non-ferrous metal business may fall under ambit of one or the another following government agencies:
 - Regulations for the mines fall under the purview of the Ministry of Mines. Management of mineral resources is the responsibility of both the Central Government and the State Governments in terms

of Entry 54 of the Union List (List I) and Entry 23 of the State List (List II) of the Seventh Schedule of the Constitution of India.

- The Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act), lays down the legal frame-work for the regulation of mines and development of all minerals other than petroleum and natural gas.
- The Central Government, on 25, March 2015 amended the Mines & Metals Development and Regulation Act to introduce a number of new measures to ensure speedier development of Mineral Based Industries.
- The Central Government has framed the Mineral Concession Rules, 1960 (MCR) for regulating grant of reconnaissance permits (RP), prospecting licences (PL) and mining leases (ML) in respect of all minerals other than atomic minerals and minor minerals. The State Governments have framed the rules with regard to minor minerals. The Central Government have also framed the Mineral Conservation and Development Rules, 1988 (MCDR), for conservation and systematic development of minerals.
- The trading of metals is covered under GST, which falls under Department of Revenue, Ministry of Finance
- Customs duty is under Central Board of Excise & Customs under Department of Revenue, Ministry of Finance. Custom duty is governed by the Customs Act, 1962 and Customs Tariff Act, 1975 which defines various kinds of customs that can be imposed.
- Foreign trade in India is governed by the Foreign Trade (Development and Regulation), 1992 which is the principal law related to this.
- Additionally, government time to time comes up with tax holiday schemes with an objective to develop certain ports and FTZs.
- India Foreign Trade Policy (2015 - 2020) enlists regulations on free import of metallic scrap in India. This includes both ferrous and non-ferrous scrap metal. The regulation includes restriction on scrap including hazardous, toxic waste, radioactive material, waste from arms, ammunition, mines, shells, etc. As per the FTP, pre-shipment inspection certification is necessary for import of any metallic scrap.

2. Hazardous & Other Wastes (Management and Trans boundary Movement) HWM Rules regulates copper and other metal scrap. With respect to the copper following documents are mandatory for import:

- Import license from DGFT
 - Pre-shipment inspection certificate
 - Valid consents to operate under the Air and Water Acts and the authorisation under these rules, for actual users.
 - One time authorisation from SPCB, for traders only
 - The chemical analysis report of the waste being imported
 - An acknowledged copy of the annual return filed with concerned SPCB for import in the last financial year
3. As Lead can enter water, air and soil from natural and anthropogenic sources and can cause adverse effects on many parts of the body. Thus Government of India, in order to regulate collection of lead acid batteries and channelize batteries scrap to recycling facilities adopting environmentally sound processing technologies, the Batteries (Management & Handling) Rules, 2001 have been notified. The salient features of Rules are as follows:
- Consumers to return used batteries and manufacturers/assembles/reconditioners /importers responsible for collection of batteries and transport to registered recyclers.
 - Auction of used batteries only in favour of registered recyclers
 - Dealers are also responsible for collection.
 - Level playing field.
 - Collection of batteries 50% in the first year, 75% in the second year and 90% from the third year onwards.
 - Batteries have been categorised

Issues and challenges in Metal industry

1. Following are the general issues and challenges in the physical market for base metal industry:
- As the primary productions of such metals are concentrated among few players only, they are having monopoly businesses in physical market.
 - Currently, the domestic industry is also getting hurt because of dumping of metals by various counters.
 - Lack of quality producers is aiding to the growth of foreign suppliers because they are using better refining facilities at their overseas manufacturing facilities.
 - New substitutes could potentially reduce demand.

- Companies also faced substantially increased operating costs on account of increased logistics & raw material costs and other charges.
 - Slow renewal of mining licenses has historically impacted production of metals in India.
 - As the local prices are highly dependent on the LME/CME prices, wild fluctuations in these prices due to global factors, only add to the woes of consuming industries.
2. Other issues and challenges faced in the base metal sectors are as under:
- Lack of storage facilities for metals
 - Inability to monetize warehouse receipts increases pressure on the entire value chain
 - Lack of adequate infrastructure and transport facilities limit movement and delivery of metals.
 - The Indian steel sector is disadvantaged due to limited availability of some of the essential raw material such as high grade lumpy Manganese ore & Chromite, coking coal, steel grade limestone, refractory raw material, Nickel, Ferrous Scrap etc. Due to shortage of domestic coking coal, both in terms of quantity and quality, pig iron producers in India are required to depend on import of coking coal.
 - Steel sector have been adversely impacted due issues such as cancellations of iron ore and coal mine allocations, delays in land acquisition, environmental clearances, which led to significant cost and time overruns.
3. Issues specific to the lead physical markets
- Lead can enter water, air and soil from natural and anthropogenic sources and can cause adverse effects on many parts of the body. Lead in certain form is also considered a possible carcinogen.
 - Recycling of lead from used batteries is done largely by the informal sector and this leads to high levels of pollution as these smelters have no pollution control systems. This is a major challenge facing the industry.
 - As the automobile segment in India has seen a massive growth, the demand for lead in India is expected. Hence India needs to ramp up its exploration activity in Lead. As a toxic and polluting metal relying more on imports could be challenging for India.

Global best practices in metal industry

1. Global best practices that can be implemented in Indian scenario for base metals are as under:
 - The Indian grades need to be aligned to globally accepted grades. This will ensure quality product from manufacturers leading to the competitive prices.
 - LME has over the years developed a global warehousing network with documented standards for warehousing, commodity grades, electronic warrants, repository enabling efficient exchange deliveries, financialisation of metal warrants and stock details. Developing a model on similar lines may serve as a benchmark for developing a modern, efficient, transparent metals ecosystem in India.
 - Availability of weekly/ daily inventory data may provide a picture of demand supply scenario leading to better transparency of inventories.
 - Increase the flow of credit to a commodity ecosystem, thereby increasing the liquidity of smaller entities in the value chain, reduce the cost of credit (due to the certainty of recovery of loan by a bank) and spur other related activities like standardization, insurance.

Precious Metals, Gems and Stones Sector

1. The precious metals, gems and stones sector/ industry occupy an important position in the Indian economy. It is one of the leading foreign exchange earner, as well as also one of the fastest growing industries in the country. The two major segments of the sector in India are gold jewellery and diamonds.
2. Precious metals, gems and stones sector/ industry have played a pivotal role in the Indian social fabric and economy. These are a part and parcel of Indian traditions and customs. Gold has traditionally been valued in India as a savings and investment vehicle and even today, continues to be the second most popular instrument after bank deposits.
3. The precious metals, gems and stones sector/ industry which is highly fragmented, unorganised and family owned business which carried out majorly sourcing, processing, manufacturing and selling of precious

metals and gemstones such as gold, platinum, silver, diamond, ruby, sapphire, among others.

4. The value chain of the industry starts from sourcing and mining of the metals and extends to jewellery retail. Though India is not a major miner of precious metals or stones, it a world leader in processing of diamonds because inexpensive and skilled workforce. India is the second largest consumer of gold in the world, majority of this consumption goes in making of gold jewellery. India has an abundant supply of skilled manpower suited for designing and producing high volumes of exquisite jewellery at low labour costs.
5. India is the largest diamond cutting and polishing centre in the world and 9 out of 10 diamonds sold worldwide are processed in India.
6. A brief overview of various commodities in precious metals, gems and stones sector is placed at **Appendix 3**.

Regulations governing the Precious Metals, Gems and Stones sector

1. Spot market trading falls under the ambit of the State Governments. Spot markets need to comply with provincial/state government laws and regulations (such as Stamp Act, Contracts Act (1876) etc.). Some of the relevant Ministries/organizations dealing in Gold are :
 - a. Ministry of Finance - Department of Economic Affairs (DEA), Department of Financial Services (DFS), Department of Revenue, Central Board of Excise and Customs (CBEC)
 - b. Reserve Bank of India (RBI)
 - c. Ministry of Commerce and Industry - Department of Commerce, Department of Industrial Policy and Promotion (DIPP), Directorate General of Foreign Trade (DGFT)
 - d. Ministry of Consumer Affairs, Food and Public Distribution, etc...
2. Introduction of GST is expected to bring in transparency in bullion trade and help in the traceability of bullions.
3. Further, Bullion can only be imported into India by
 - a. Designated Banks notified by RBI
 - b. Agencies notified by the Department of Commerce

Issues and Challenges in the Precious Metals, Gems and Stones sector

1. Following are the issues and challenges in the physical market for the industry:
 - a) Vaults providing storage services for precious metals are not regulated by any regulator or agency.
 - b) Even those unregulated vaults, which are providing services, are insufficient for the size and spread of India's bullion market
 - c) Lack of regulated assaying and refining facilities
 - d) Inadequate policy encouragement to refiners to upgrade their standards. The purity and quality assurance that traders across the world get from LBMA standard is unmatched, the like of which is not available for India-refined bullions.
 - e) Absence of an electronic spot exchange; discovered prices of which could be taken as a transparent and trustworthy national-level reference prices.
 - f) Import of precious metals through illegal channels.
 - g) Absence of a clear policy for formalizing and developing the bullion lease market, or any incentive to financial institutions to provide bullion leasing services
 - h) Free Trade Agreement with some countries leading to surge in import of gold from those countries with little or no value addition.
 - i) Detailed guidelines to banks about hedging their exposure to gold under the Gold Monetisation Scheme are not yet announced.
 - j) Responsible Gold, Conflict diamond or blood diamond.
 - k) Natural diamond vis a vis artificial diamond
 - l) Declining bank credit to the industry and the high-risk perception that the banks have about the trade;
 - m) Over-grading and the temporary colour treatment of diamonds;
 - n) Undisclosed mixing of synthetic diamonds; and
 - o) Lack of price transparency
 - p) Gold imports add to Current Account Deficit (CAD)

Global best practices in Precious Metals, Gems and Stones sector

1. Global best practices that can be implemented in Indian scenario for base metals are as under:
 - a) Establishment of best purity and quality standards for India-refined bullions
 - b) Formalizing and developing the bullion lease market

- c) Establishment of an electronic spot exchange; discovered prices of which could be taken as a transparent and trustworthy national-level reference prices.
- d) Increase the flow of credit to a commodity ecosystem, thereby increasing the liquidity of smaller entities in the value chain, reduce the cost of credit (due to the certainty of recovery of loan by a bank)

Energy Sector

1. The energy sector comprising of the coal, oil and gas is among the six core industries in India and plays a major role in influencing decision making for all the other important sections of the economy.
2. In India, Ministry of Coal (MoC) is responsible for overseeing the management of India's coal industry while upstream oil and gas industries are overseen by the Ministry of Petroleum and Natural Gas (MoPNG).
3. Coal is India's primary source of energy and the country is the world's third largest coal producer after China and the United States. Though, India produces some oil and gas, however crude oil is the country's single largest import item. India is also dependent on the import of a range of other gas and petroleum products.
4. A brief overview of various commodities in energy sector is placed at **Appendix 4.**

Regulations governing the Energy Sector

1. The power to legislate in respect of matters relating to development of oilfields, mineral oil resources, petroleum and petroleum products and liquids and substances declared by Parliament to be dangerously inflammable is provided for in Entry 53 of List I of Schedule 7 to the Constitution. Parliament has sole and exclusive power to legislate in respect of subjects mentioned in List I of Schedule 7. In exercise of these powers Parliament has passed several laws which directly affect/regulate oil and natural gas sector.

2. **Oilfields (Regulation and Development) Act, 1948 (“Oilfields Act”):**
The Oilfields Act constitutes the basic statute for licensing and leasing of petroleum and gas blocks by the Government of India. The Oilfields Act empowers the Union Govt. with broad authority to make rules providing for the basic regulation of oilfields and for the development of mineral oil resources
3. **The Petroleum Act, 1934 (“Petroleum Act”) and the Petroleum and Natural Gas Rules, 1959 (“Petroleum Rules):** The Petroleum Act regulates the import into India, transfers within, storage, production, refining and blending of petroleum. The Petroleum Rules provide framework for grant of exploration licenses and mining leases.
4. **The Directorate General of Hydrocarbon (DGH)** is the Indian governmental regulatory body under the Ministry of Petroleum and Natural Gas. It was established in 1993 and operates under the administrative control of Ministry of Petroleum and Natural Gas. Objectives of DGH are;
 - To promote sound management of the oil and natural gas resources having a balanced regard for environment, safety, technological and economic aspects of the petroleum activity.
 - To be an upstream advisory & technical regulatory body of international repute, creating value for society through proliferation and dissemination of E&P knowledge optimal hydrocarbon resources management & environment friendly practices.
5. **Petroleum & Natural gas Regulatory Board:** The Petroleum and Natural Gas Regulatory Board Act, 2006 (“PNG Act”) notified on April 3, 2006, lead to the setting up of the Petroleum and Natural Gas Regulatory Board to regulate the refining, processing, storage, transportation, distribution, marketing and sale of petroleum, petroleum products and natural gas. The PNG Act provides for a legal framework for downstream gas sector regulation and development of natural gas pipelines and city or local gas distribution networks.
6. **Mines and minerals (Development and Regulation) Act, 1957**
7. **Environmental Protection Act, 1986**
8. **The Coal Bearing Areas (Acquisition and Development) Act, 1957**

Issues and Challenges in the Energy Sector

1. Following are the general issues and challenges in the physical market for the energy industry:
 - Lack of adequate infrastructure including transportation and storage facility.
 - Lack of active spot market remains a challenge in the domestic energy markets.
 - Transportation costs are perhaps the largest obstacle to natural gas trade. Natural gas requires specialized infrastructure to transport: either pipelines for overland transportation or import and export terminals for transporting LNG overseas.
 - Further, transmission infrastructure dominates in only the western and northern parts of the country. The eastern part of the country is almost devoid of gas pipeline connectivity and is characterised by low pipeline density.
 - The unbundling of natural gas transportation, storage and marketing is still to happen in India. In order to ensure the growth and mature markets, the need is that the authorized entities should have transportation and storage of natural gas as their sole business activity and not have any business interests in the gas marketing or gas distribution networks.
 - Natural gas prices are determined by different methods in different markets. However, these pricing mechanisms can be broadly classified into competitive or non-competitive mechanisms, depending on whether prices are set by competitive markets or by bilateral agreements.

Global best practices in Energy Sector

1. Global best practices that can be implemented in Indian scenario for crude oil industry are as under:
 - Transparent information about inventories: Like the U.S, India can have a periodical release of its crude oil inventory status.
 - Optimize price within available means: Securing fair and full prices is an immense challenge because the physical oil market is opaque, competitive, volatile and astonishingly complex. The spot price of various oil grades reflects a multitude of overlapping and dynamic

factors. Most NOCs have mastered the sophisticated skills for exporting their crude oil at fair and full value.

- Linking to a benchmark crude: Linking domestically used crude to benchmarks such as Dated Brent in the North Sea, West Texas Intermediate in the United States, and Oman/Dubai in Asia, is a widely utilized good practice. Thorough market insights enable NOCs to set a competitive price differential – either a premium or discount depending on the crude’s quality – against the benchmark crude. This enables exporters to follow the volatile spot market and receive the highest possible price. Brazil, Iraq, Mexico, Norway and Saudi Arabia all sell their grades very competitively versus the benchmarks through in-depth knowledge of the markets and smart pricing.

2. Global best practices that can be implemented in Indian scenario for natural gas industry are as under:

- A highly integrated pipeline network with multiple points of interconnectivity
- The separation of pipeline transportation services from gas sales
- Third-party access to pipelines, storage, and LNG terminals
- Transparency in the reporting of gas pipeline capacity utilization, tariffs, and prices at market hubs
- Broad liquidity in the physical and financial markets

3. Creation of a vibrant spot market in the energy sector

- Participation from crude oil producers, refiners, large consumers, integrated oil companies, traders and brokers
- Vicinity to consumption and production centres
- Industrialization with many refinery units associated with the center
- Large storage capacities available on merchant basis
- Access to other large trading centers by Sea
- Availability of barge transportation via rivers or channels
- Presence of leading international financial institutions and oil brokerage houses
- Easy access to large crude and product market place
- Transportation infrastructure

3. DERIVATIVES MARKET

1. Trading in commodities derivatives has a long history. The Amsterdam stock exchange is considered the oldest “modern” securities market in the world, when equities began trading on a regular basis as a secondary market to trade its shares. Prior to that, the market existed primarily for the exchange of commodities, though the modern trade in commodity futures could trace its origins back to the 17th century in Osaka, Japan where futures trading in rice was carried out. Organized trading on an exchange started in 1848 with the establishment of the Chicago Board of Trade (CBOT) in USA.
2. Globally, there are commodity derivatives exchanges in various jurisdictions with the major exchanges being located in:
 - Brazil
 - Canada
 - China
 - France
 - India
 - Japan
 - Singapore
 - United Kingdom
 - United States of America
3. Major economies whether developed or developing have exchanges that are offering commodity derivatives. The stakeholders have always wanted transparency, better communication and logistics and globalization of the trade that adds to the price discovery and price risk management. Some of these exchanges have set themselves at the benchmark markets and the prices on such exchanges act as benchmark prices which are followed by rest of the world for various commodities in physical market. The volumes (in number of lots traded) across all commodity futures and options contracts across major exchanges is as under:

Table 4: Global Commodity Derivatives Volumes

<i>in Lots (2016)</i>		
<i>Segment</i>	<i>Futures</i>	<i>Options</i>
Energy	2,057,483,642	156,679,849
Non-Precious Metals (Base Metals)	1,866,899,966	10,447,489
Agriculture	1,849,276,230	82,633,634
Precious Metals	300,333,194	11,803,841
Total	6,073,993,032	261,564,813

4. It is observed that the volume of futures is approximately 23 times of the options. Further, in futures segment the maximum volume is in energy commodities followed by base metals and agricultural commodities while in the options segment it is energy commodities followed by agricultural commodities. A pictorial representation of the global future and options volume across various commodity groups is given below.

Figure 3: Global future trading volume - Commodity group wise

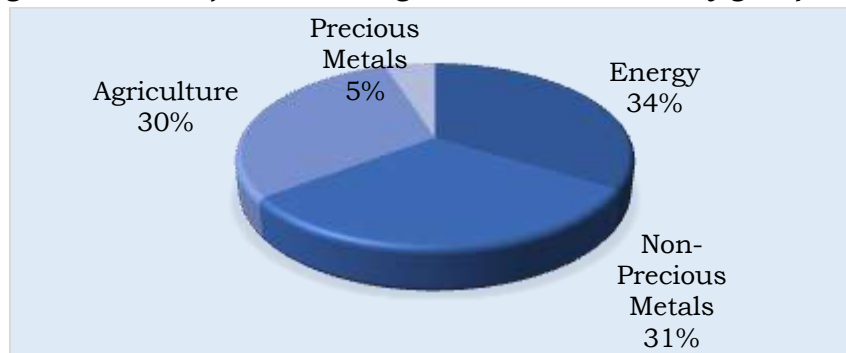
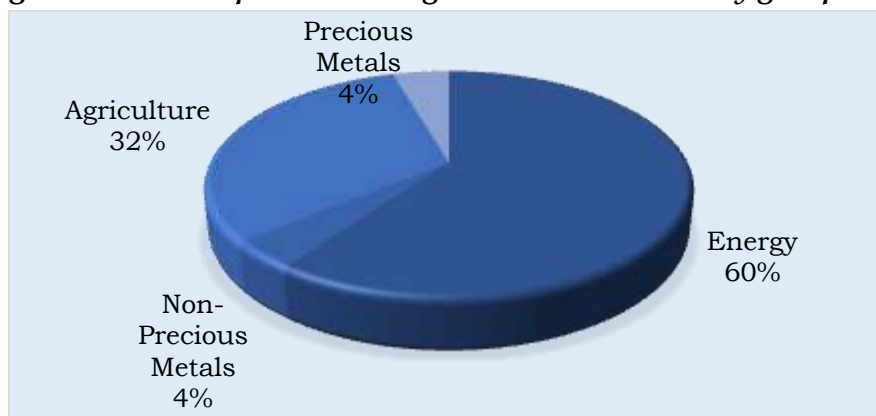


Figure 4: Global options trading volume - Commodity group wise



5. The list of prominent global exchanges offering commodity derivatives contracts is provided below, which indicates that most of the exchanges offering futures and options in various commodity segments. LME is unique in providing an integrated spot and derivatives platform for metals. Some of the exchanges such as Moscow Exchange, Korea Exchange, Borsa Istanbul, Dubai Gold and Commodities Exchange, Dubai Mercantile Exchange etc., also have a spot trading platform for commodities such as Gold, Crude Oil along with their derivatives market.

Table 5: Global derivatives exchanges and products offered with respect to the non-agricultural commodities

<i>Exchange</i>	<i>Country</i>	<i>Commodity Segment</i>
Rofex	Argentina	Futures , Options
B3 (erstwhile BM&FBOVESPA)	Brazil	Futures, Options, Spot-(Gold)
SHFE	China	Futures
DCE	China	Futures
ZCE	China	Futures
TOCOM	Japan	Futures, Options, Spot- (Gold, Petroleum)
Moscow Exchange	Russia	Futures, Options, Spot - (Gold)
SGX	Singapore	Futures, Options
JSE	South Africa	Futures, Options
KRX	South Korea	Futures, Options, Spot - (Gold, Petroleum)
DGCX	UAE	Futures, Options, Spot - (Gold)
DME	UAE	Futures, Spot - (petroleum)
LME	UK	Futures, Options, Spot (Non-ferrous metals)
CME group (including CBOT, COMEX, NYMEX)	USA	Futures, Options
ICE	USA, Europe, Canada, Singapore	Futures, Options

6. From the above table, it could be seen that in some of the exchanges which are providing spot trading in the commodity derivatives are also providing trading in the same or different underlying physical commodities.
7. In India futures trading in commodities started with the setting up of the Bombay Cotton Trade Association in 1875, only a decade after world's first futures exchange, CBOT was established in 1865. Later, the Forward Contracts (Regulation) Act, 1952 was enacted by Government of India to regulate futures trading.
8. Following food shortages in the 60s, futures market was banned in most commodities for many years, despite the recommendations of many expert committees, such as the Khusro Committee (1980) and Kabra Committee (1994) for revival of this market. The liberalization of the economy in the early 1990s led to policy changes in India.
9. The Government of India, in April 1999, finally lifted bans on futures trading, leading to the setting up of, demutualized, national level, multi commodity exchanges by end of 2003. At that time, there were 21 regional commodity exchanges trading in a single or few commodities. Most of these regional exchanges were practicing the "open-outcry" system. National level multi commodity exchanges were established during 2002-2003.
10. The commodity derivatives market in India, has come under the regulation of SEBI following merger of erstwhile FMC with it, with effect from September 28, 2015. Currently, both futures and options are permitted in the Indian commodity derivatives markets. Derivatives trading is permitted in 91 commodities as per the SCRA of which derivatives contracts are listed on commodity derivatives exchanges in respect of around 40 commodities both agricultural as well as non-agricultural. Amongst non-agricultural commodities, derivatives contracts in Gold, Silver, Diamond, Aluminium, Copper, Lead, Nickel, Zinc, Crude Oil and Natural Gas are actively traded.
11. Though the Indian commodity derivatives market has been in active existence, it is the initial liberalization policy in early 2000 that resulted in the setting up of national commodity exchanges. The shifting of

regulation of commodity derivative markets to SEBI from FMC and the inclusion of 'commodity derivatives' in definition of 'securities' is expected to set forth new lease of reforms in the Indian markets. However, at present the Indian commodity derivatives markets faces various deficiencies vis-à-vis the global markets:

- *Absence of participation of financial institutions such as banks, foreign investors and Domestic institutional investors (DIIs) etc.* - It is widely perceived and internationally observed that presence of financial institutions (particularly banks) in the commodity derivatives market makes the market strong and inclusive.
 - *Absence of diverse derivatives products, viz. commodity indices, weather related products etc.* Options, which have been very recently launched, are yet to achieve sufficient liquidity levels due to various reasons including high cost of transactions, and absence of institutional participation. These products are very much in demand in India as they can be tailor-made to suit the risk management demands of specific user groups.
 - *Inadequate support infrastructure across the country in terms of warehouses, quality testing labs etc.* Marketing infrastructure is a necessary link for financialisation of commodities and developing the value chain of the commodity. The warehousing of non-agricultural commodities is also not regulated resulting in lack of standardization, affecting the ability of smaller participants to realize credit based on stored commodities.
 - *High cost of trading:* The high cost of trading which includes various costs such as transaction cost, brokerage, statutory levies, warehousing/vault charges etc., has led to migration of trading from the Indian commodity derivatives exchanges to global markets and affecting the liquidity in domestic markets.
 - *Fragmented underlying physical markets or non-existence of regulated physical markets.*
12. In order to compete with the global markets, the Indian commodity derivatives markets need to adopt a right mix of the following suggestions.
- Broad-basing participation by institutional investors such as banks, mutual funds, foreign investors, insurance companies etc. This could help in

- Leverage the geographical reach of banks, mutual funds, insurance companies for distribution of commodity derivatives products.
 - Better credit mobilization at SME level
 - Build rich liquidity in far-month contracts which could in-turn help in increased hedgers' participation
- New products - Options in non-agricultural commodities (currently, only gold options are permitted) and trading in Indices. This could also help in increasing participation as well as improving risk management culture.
- Need for E-warehousing, electronic warehouse receipts, repositories & accounting system for metals. Extension of WDRA regulations on non-agricultural commodities would enable issuance of e-NWRs that will help in better financialisation of metal markets. This could also lead to better transparency of inventories held by the firms/warehouses.
- Availability of weekly/ daily inventory data could provide a better picture of demand supply scenario. This could help the policy maker eventually in taking informed decisions based on the inventories.
- Scaling up of support infrastructure such as storage facilities, assaying facilities, logistic capabilities etc.

4. ELECTRONIC PLATFORMS FOR NON-AGRICULTURAL COMMODITIES

This section provides an overview on the electronic platforms which could be either standalone spot/auction platforms, standalone derivatives platforms or integrated platform offering both spot as well as derivatives, on single commodity or on multiple commodities.

Standalone spot exchange/auction platforms

1. The following table provide details about the electronic platforms across the globe which are currently providing facility only for the spot market. These may be either electronic spot exchange or marketplace for auction platform.

Table 6: Electronic platforms providing only spot trading or auction trading in select non-agricultural commodities

<i>Sr</i>	<i>Region</i>	<i>Name of electronic platform</i>	<i>Commodities</i>
1.	Romania	Bursei Romane de Marfuri	Natural gas
2.	Singapore	Singapore Diamond Investment Exchange	Diamond
3.	China	Shanghai Gold Exchange	Gold, Silver and Platinum
4.	Malaysia	The Kuala Lumpur Tin Market	Tin
5.	Europe	Metalprodex	Base metals
6.	China	Bohai Commodity Exchange	Major Non-agricultural commodities
7.	Europe	Open Mineral	Major Non-agricultural commodities
8.	India	Mjunction	Iron and Steel
9.	Japan	TOCOM	LNG
10.	South Korea	KRX	Petroleum

2. From the above table, it could be seen that globally there are very few electronic platform which act as either spot exchange or marketplace for auction platform. Only handful of such platforms provides electronic

platform for different kinds of non-agricultural commodities. The possible reason for this could be that the handling requirement of the commodities differ from one commodity sub-groups to another. For example the specialisation required for the physical delivery of say, precious metals would be very different for the natural gas or base metals.

Standalone Derivatives platform

1. The following table provides details about the exchanges across the globe which are providing derivatives trading.

Table 7: Exchange providing only derivatives trading in non-agricultural commodities

<i>Sr</i>	<i>Region</i>	<i>Name of electronic platform</i>	<i>Commodities</i>
1.	Argentina	Mercado a Término de Rosario	Gold and Oil
2.	China	DCE	Iron Ore, Coal
3.	China	SHFE	Base Metals, Precious Metals, Oil, Bitumen
4.	China	ZCE	Glass, Coal, Ferroalloy
5.	Europe	Euronext	Nitrogen fertilizer
6.	Europe	Eurex	Gold and Silver
7.	India	MCX	Base Metals, Precious Metals and energy
8.	India	ICEX	Diamond
9.	Malaysia	Bursa Malaysia	Tin, Gold
10.	Singapore	SGX	Iron Ore and Steel, Coal, Petroleum products, Gold, Oil, LNG and electricity
11.	South Africa	JSE	Gold, Copper, Silver, Crude Oil, Diesel and Platinum
12.	Taiwan	Taiwan Futures Exchange	Gold
13.	Thailand	Thailand Futures Exchange	Gold

<i>Sr</i>	<i>Region</i>	<i>Name of electronic platform</i>	<i>Commodities</i>
14.	USA	CME Group	Major Non-agricultural commodities
15.	USA, Europe, Canada, Singapore	ICE Group	Major Non-agricultural commodities

Integrated electronic exchange / platform for both spot and derivatives

1. The following table provides details about the exchanges across the globe where the same exchange provides both spot (underlying physical) as well as derivatives market in select commodities.

Table 8: Integrated platform providing both spot as well as derivatives market in select non-agricultural commodities

<i>Sr</i>	<i>Region</i>	<i>Name of electronic platform</i>	<i>Commodities</i>
1.	Brazil	B3	Gold
2.	Turkey	Borsa Istanbul	Gold
3.	Iran	Iran Mercantile Exchange	Gold
4.	UAE	DGCX	Gold
5.	Japan	TOCOM	Gold
6.	South Korea	KRX	Gold
7.	UAE	DGCX	Gold
8.	Russia	Moscow Exchange	Gold, Silver
9.	UK	LME	Non-Ferrous Metals
10.	UAE	Dubai Mercantile Exchange	Oil
11.	Russia	Saint-Petersburg International Mercantile Exchange	Petroleum Products

2. It may be noted that LME, which is based in UK, is the major exchange which provides all kinds of trading, be it spot, derivatives and forwards

in most of the non-ferrous metals. The prices at LME in fact, serve as the world's benchmark prices for non-ferrous metals. Designed to mirror physical trading, daily prompts enable users to accurately hedge their physical transactions down to the day. The contracts on LME trade, daily out to three months forward, weekly up to six months and monthly up to 123 months in the future, depending on the underlying metal. The three-month forwards virtually function as derivatives for risk management with daily-prompts (form of a market) fulfilling the functions of a spot market. Thus LME offers both the spot and derivatives markets, under the regulation of the same entity on the same exchange. The published daily cash settlement price of LME is being used extensively in the physical trade by the value chain participants.

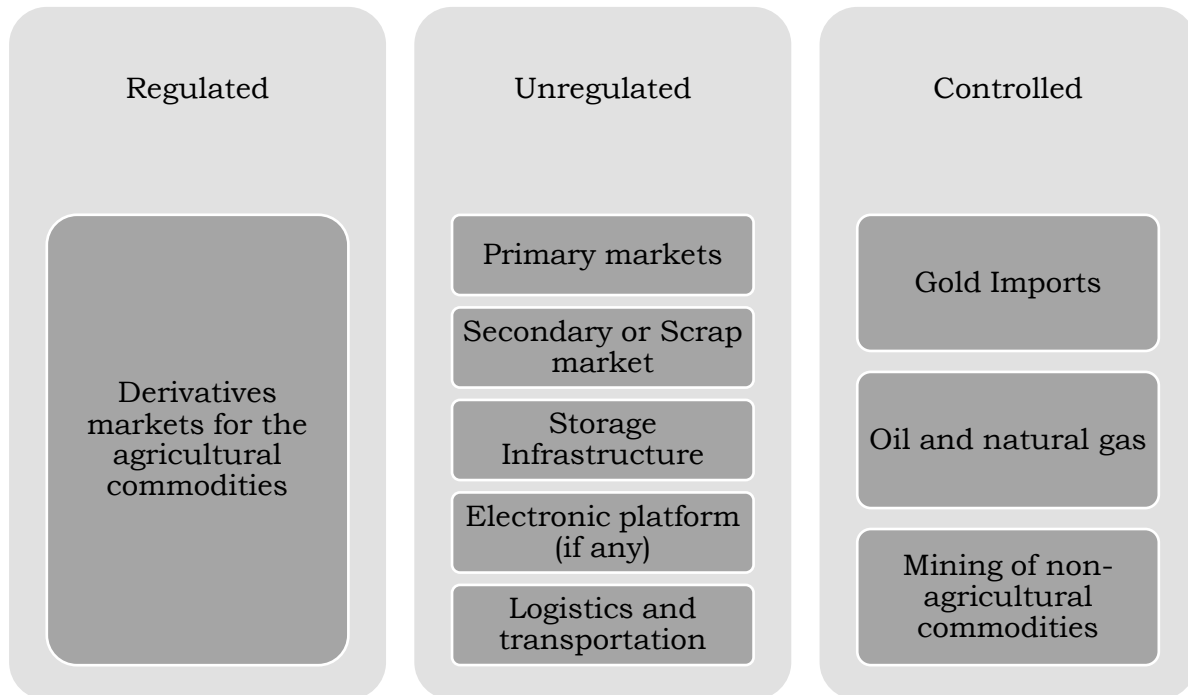
3. Besides LME, other exchanges mentioned in the above table which are regulated either by the securities market regulator or commodity market regulator are also providing trading in spot and derivatives but only in select commodities namely Gold, Silver and petroleum products.

Proposed model for Indian scenario

1. Presently, in India, for non-agricultural commodities a well-organized over-the-counter market is not yet in place and there exist no spot exchanges (except for the power exchanges) either for the primary markets or for secondary/recycled/scrap market. Hence, stakeholders would be benefited if a Pan India electronic spot exchange/market is set-up for spot trading of these commodities.
2. In the absence of any regulated spot market, the participants across the entire value chain for various non-agricultural commodities viz., producers, refiners, manufactures and recyclers are required to deal bilaterally, without adequate facility to hedge their positions, and with inadequate information about demand, supply and inventory position at any given point of time in the country.
3. Absence of an electronic spot exchange/market for non-agricultural commodities in India is in fact a stark contrast to the success of derivatives trading in India on such commodities. The derivatives markets for the non-agricultural commodities are well regulated while

the underlying physical markets lack any central regulations, thus leading to natural infirmity. This is pictorially shown as under:

Figure 5: Status of various markets for non-agricultural commodities



4. A Pan India electronic spot exchange/market could provide a platform for buyers and sellers across the nation to trade, to determine the market prices, thus acting as a platform for price discovery. These discovered prices would be of essential importance for extraction companies, refiners, recycling companies and manufacturers even for the purpose of negotiating for their bilateral contracts.
5. A Pan India electronic spot market can cater to the value chain participants of the primary as well as secondary markets of non-agricultural commodities who can trade on standardized contracts (either for the primary products or for the scarp products) in a wide range of commodities for immediate delivery at specified delivery centres. Delivery centres can be equipped with high-quality storage and distribution infrastructure, delivered goods can be subject to rigorous grading and certification procedures, and the platform may be integrated with collateral management services to enable easy access to financing on the basis of electronic warehouse receipts. The advantage of the spot exchange platform could be as under-

- a) Electronic Spot exchange could act as a vehicle for “physical transaction-based price discovery” and “price transparency”
 - b) Exchange-traded markets could eventually reduce the risks of trade
 - c) Improve the bargaining power of parties who would normally lose out in a situation of asymmetric information.
 - d) Benefits accrued in derivative market will percolate to unorganised small players in spot market
 - e) Spot exchange mechanism will ultimately lead to development of marketing infrastructure like modern warehousing and enhancing credit availability through credible warehouse receipts
 - f) Coordinating through a centralized exchange reduces costs associated with identifying market outlets, physically inspecting product quality and finding buyers or sellers.
6. A spot exchange for non-agricultural commodities could be either of the following or the combination of the following:
- A single Pan-India electronic platform for all commodities
 - Pan-India separate electronic platforms for different categories of commodities
 - Separate platforms for spot and derivatives market
 - Integrated platform for spot and derivatives market
7. The following paragraphs deal with specific suggestions with respect to different commodity sub-groups.

Precious Metals, Gems and Stones

1. As would be observed from the section on commodity profiles, India is one of the leading global players in the precious metals, gems and stone. This has also led to a vibrant market for gold jewellery and diamond providing employment to large number of population. This also has a visible presence in India’s export basket. If we study Indian gold value chain, we shall understand that it clearly brings out the fact that while an entire ecosystem has developed in the country around gold, including a vibrant derivatives market, lending and borrowing mechanism, vaults, refining facilities, etc. a key element that is missing in the gold ecosystem is a Pan India electronic spot exchange.

2. Gold Markets in India :

- Gold is imported in India via the Banks and nominated agencies who in turn further sell to wholesalers. Most of the gold is imported from markets like Dubai and Singapore, as jewellers and traders feel the lack of infrastructure to procure gold at competitive prices in India.
- India has negligible gold mine production and as it is not a major gold exporter in pure bar form. It does exports gold jewellery and medallion
- The gold market remains fragmented in India and non-trivial price arbitrage exists across the channels of gold buying and selling.
- India has a large inventory of household and institutional gold holdings, however, the share of financing and refinancing of gold in the Indian market remains tiny and miniscule only.
- There is no commonly accepted benchmark price. Given that there is no physical market where gold is bought and sold, participants still rely on informal gold price quotes disseminated by the jewellery trade. Various sources in India publish daily gold prices and premiums/discounts on local prices relative to international gold prices.
- An organised spot platform could help in price discovery for Indian physical markets that would efficiently encompass the domestic market fundamentals. With an online spot gold exchange, market participants would be able to derive optimal benefits of the existing vibrant derivatives market, leading to development of the entire gold ecosystem consisting of refining infrastructure, assaying facilities, vaulting, as well as development of a financial market around gold, viz. gold-based lending and borrowing mechanism, etc. For this to develop, the rightful linkages between existing derivatives and a spot exchange is vital. The derivatives market, at the time of expiry of contracts and delivery of gold, are anyways functioning as a de-facto spot exchange and doing so quite efficiently over the years. Besides, a push of physical market transaction on regulated spot gold platform would help in better audit trail of gold.
 - Enhancing Price Discovery and Price Transparency:
 - Advantage for all the Stakeholders: Refiners/Large Bullion Traders/ Retail Client
 - 'India Benchmark Price'
 - Gold Standard (Quality benchmark)

Metals

1. The growing Indian economy is placing a huge demand for base metals which is a vital component of country's infrastructure. In this context, a spot exchange in base metals would help the market stakeholders in efficient price discovery considering domestic market fundamentals, leading to enhanced transactional efficiency in physical market. Along with the existing vibrant derivatives markets in base metals, a spot exchange in these commodities would enable market stakeholders to access a complete package of hedged physical market solutions and derive benefits such as receiving better benchmark prices while negotiating their business contracts. To attain this, there is a need for the right integration of these two markets. Again, given the relatively advanced stage of development of the base metals derivatives platform market in India, the existing infrastructure, expertise and experience in running derivatives market can be leveraged to operate an electronics spot exchange in base metals.

2. An overview of the Metal Market Structure is as under:
 - Production of Primary metal is concentrated within few large corporates.
 - India is a price-taker with domestic prices closely linked to LME for the non-ferrous metal sector.
 - Sales by these corporates are linked to global prices
 - Usage by large number of varied industries -- OEM manufacturers, SMEs, MSMEs etc.
 - Markets become highly fragmented, as we move down the value chain
 - Multiple grades, forms makes pricing opaque
 - No standardization of storage spaces - lack of regulations in warehousing
 - Secondary production done by large number of small, medium producers
 - Lack of transparency in secondary scrap metal markets
 - Most of the regions across India have a specific locality where the Metal trade clusters were developed. Over a period of time, even if the godowns / factories may have moved outside city limits, the commercial pulse has remained at the old clusters itself.
 - There is no specific body which regulates trading in metals.

- Metal markets in India have seen an uptrend because it has huge domestic demand which is the biggest asset even in times of global slowdown.
- Rise in infrastructure development and automotive production are driving growth in the metals and mining sector in India.
- Initially, the trend has been that Chinese companies used to buy mines in Australia, Africa and other supplying countries, but now we see Indian companies are also investing in buying mines across the globe. This trend clearly shows that metal demand is going to rise in India and the government wants to make the supply secure in the near future.
- The prices of base metals are related to their overall demand scenario. As base metals are mainly used in industrial and infrastructure related activities, their overall demand is dependent on global economic growth mainly. India being among the fastest growing nations it is obvious that the domestic demand for base metals will remain strong.

Energy Products

1. A spot platform in energy products, in which India is one of world's largest consumers, would help in encompassing India's demand and supply fundamentals in price discovery, currently missing as India today is completely a price taker, helping create an India benchmark. One of the major outcomes of energy trading platform with benchmark delivery centres is that they lead to the emergence of benchmark prices for use by stakeholders of the entire ecosystem. That is how Henry Hub (U.S.) and National Balancing Point (U.K.) for Natural Gas and Cushing (U.S.) for Crude Oil emerged as global pricing benchmarks for these commodities.
2. By aggregating supply and demand, spot markets offer industry participants the benefits of intensive competition among buyers and sellers, transparency, high liquidity, and greater efficiency in the pricing of natural gas and crude oil. These spot markets generate efficient price signals about the market value by instantly reacting to actual and expected changes in supply and demand.
3. A well organised spot platform would help in healthy development of contracts for future deliveries as well as a myriad of financial hedging

instruments. The development of the physical market will be followed by the expansion of the financial market where gas market participants can hedge their risks. The energy market with trading of contracts for physical delivery and the financial gas and oil market with trading of contracts for price risk management is the healthy mix for the development of the markets in India.

4. Oil and Gas Sector in India

- The Indian oil and gas sector is among the six core industries in India and plays a major role in influencing decision making for all the other important sections of the economy.
- India's economic growth is closely related to energy demand; therefore the need for oil and gas is projected to grow more, thereby making the sector quite conducive for investment.
- The Government of India has adopted several policies to fulfil the increasing demand. The government has allowed 100 per cent Foreign Direct Investment (FDI) in many segments of the sector, including natural gas, petroleum products, and refineries, among others.
- India is expected to be one of the largest contributors to non-OECD petroleum consumption growth globally.
- The time for energy spot exchange in India is particularly ripe now with increasing demand and also as there is a visible change in India's purchasing patterns with buyers increasingly showing interest in short-term purchases including spot deals. As per the Annual Report of The International Group of Liquefied Natural Gas Importers, more than 50% of India's LNG imports were on short term/spot basis in 2016. This essentially makes the case for existence of a spot platform in Natural Gas and Crude Oil
 - An online trading spot platform will help in emergence of referenceable benchmark prices.
 - The exchange mechanism would provide for efficient and transparent price discovery which is one of the important facilitator in transition of energy sector in the country.
 - The prices shall reflect the demand - supply scenario in the country by providing a neutral, transparent reference price for both the wholesale and retail markets.
 - The spot exchange shall facilitate trading, distribution of market information, promoting competition and creation of liquidity in the energy market in India.

- In fact the development of the spot exchange would hinge upon suppliers who are currently very few in number. They need to look at the exchange platform as an attractive and transparent selling opportunity to connect with large number of small buyers, compared with small number of large buyers who are currently operating on fairly long-term contracts basis.

Key requirements for the electronic spot platform

1. The Electronic spot markets for commodities could play a crucial role in integration of localized physical market, establishing direct link between the buyer and seller and providing a transparent mechanism of price discovery. Further, being electronic, the value addition offered by the electronic spot exchanges is also scalable in nature. It is in recognition of these benefits that various Acts like the Model Agricultural Produce and Livestock Marketing (Promotion & Facilitation) Act, 2017 have encouraged the setting up of electronic trading platforms for notified agricultural commodities, including livestock.
2. The regulation of spot exchanges covering the entire spectrum of commodities across the country and will bring home the advantages of an electronic spot trading platform to all market participants in all commodity segments
 - There is no definition of a spot exchange, either in the Central List or in any of the existing regulations. It will be necessary to define the same, preferably under a relevant section of the Union List and relevant regulations proposed to be governing the spot exchange.
 - Presently spot market regulation is under the purview of the Ministry of Consumer Affairs and not under the Ministry of Finance. This has been the case because spot markets are almost always associated with agricultural commodities and not with non-agricultural commodities.
 - Spot market trading falls under the ambit of the State Governments. This is because spot markets need to comply with provincial/state government laws and regulations (Stamp Act etc.).
 - Spot contracts for commodities perse are not under the ambit of SCRA. However, there is a definition of the ready delivery contracts which are outside the purview of SCRA.

3. Allowing Different Types of Products: Multiple products should be allowed on such a Spot Exchange - Spot, Swaps, and Lease Rate etc.
4. Regulating & strengthening the storage Network: A high-quality network of storage facility such as warehouses, vaults etc., with traceability needs to be standardised across the country, under robust regulatory framework. Spot exchanges mostly follow systems existing in derivative exchanges, where deliveries are permitted only in accredited/ approved warehouses at exchange designated delivery centers. Additionally, in DGCX, once marked and matched, all commodity deliveries are affected through the DMCC Tradeflow Platform, which is a warehouse receipt system. Presently there is inadequate nationwide regulation and enforcement for warehouses in non-agri market. State warehousing laws vary from state to state, and are applied inconsistently across the country.
 - A uniform nationwide registration process will eliminate this fragmentation in the warehousing market and allow for consistent regulation and enforcement across the country, as well as facilitate warehouse service providers to operate in more than one state.
 - Introduction of NWRs: In addition to agricultural based commodities, warehouse receipts should be introduced for non-agri commodities like bullion. The electronic warehouse receipts (agri and non-agri products) will provide traders and bankers with an instrument similar to an ideal trade cum financing tool.
5. Bank Financing: Electronic receipts issued against the value of non-agri commodities can help businesses to generate financing against their inventories which has the potential to develop into an innovative risk mitigating factor. Under the Basel regime, banks are on the lookout for secured lending options without jeopardizing their risk adjusted return on capital. Hence the electronic warehouse receipts (agri and non-agri products) may provide traders and bankers with an instrument similar to an ideal trade financing tool.
6. Trading in electronic Negotiable Warehouse Receipts (e-NWRs): Following the setting up of commodity repositories which may operate under the Warehousing Development and Regulatory Authority (WDRA) and issue e-NWRs, trading in e-NWRs may soon be a possibility. A spot platform for e-NWRs will provide a much larger marketplace, assisting in efficient price discovery and creating the right

linkages between the physical and derivatives market. Warehouse Receipts in electronic form through repositories can allow trading in such instruments to take place without the need for exchange of physical goods. This will lead to popularisation of trading of the proxy goods in the form of e-NWRs, leading to depth in the market and thus strength in the process of price discovery in goods market. Key stakeholders, such as farmers and users of metals, will be greatly benefitted as they would be able to take sound decisions with respect to cropping, marketing and negotiating deals with suppliers/ customers. However, at present, there is lack of fungibility of underlying commodities in e-NWRs. This means that each contract has a warehouse specificity associated with it, which would limit the scalability of NWR backed spot trading.

7. Need for creation of India delivery standards: It is irony that India has yet not created delivery standards in almost all of the non-agricultural commodities which a main challenge in physical markets. For many of the products, domestic standards are not in tune with the internationally referred standards. Since most these commodities are imported, it is essential to bring domestic product standards comparable with international standards. Even in commodities such as Gold, silver or diamond where India has large market share does not have any deliverable standards, thereby leading to disadvantageous position in global trade.
8. Trading systems :
 - Spot exchanges could largely follow electronic order matching system on 'price-time priority' logic as in case of the derivatives exchanges. However, spot exchanges could also look into the auction logic also.
 - Trading products in spot exchanges often include physical trading, deferred trading, and leasing with facilities for netting (of the sell and buy trades) to enhance the strength of their price discovery process.
9. Risk management, Clearing and Settlement:: There could be various modes for risk management which could be looked at:
 - Most derivatives exchanges would have SPAN-based margining system that calculates margins at pre-determined timings. Derivatives exchanges also levy tender period margin, delivery period margin and additional margins.

- The Dubai Gold and Commodities Exchange (DGCX) follow Span-based upfront gross margining with real-time position and risk monitoring – signifying leverage based trading.
 - SGE and Borsa Istanbul Precious Metal Market (BIPMM) of Turkey charge ‘full amount’ or Risk Collateral which sets the upper limit on the transaction volume trading – signifying no leverage based trading.
 - Many follow their derivatives counterparts where clearing done by the exchange or a subsidiary, e.g. Spot trades on DGCX are cleared by Dubai commodity clearing corporation (DCCC), a 100% subsidiary of DGCX.
 - SGE uses central clearing of the trades executed in the SGE Gold Fix auctions to ensure no credit risk.
 - Prudence can also be explored in functioning of electronic trading platforms for commodities on the principle of *first delivery, then payment on sell-side* and *first payment, then delivery on the buy-side*. In addition, a small, pre-stipulated margin could be taken as an advance payment to incentivize performance of the contract. This way, the exchanges can offer *compensation guarantee* rather than *settlement guarantee*, by way of forfeiture of margins.
10. Dispute Resolution: Based upon the nature of parties involved, two kinds of dispute may arise in the trade executed on the spot exchange platform – one, between buyer and seller and another between client and exchange. While the exchanges mediate the former, there are no guiding principles for the same sans regulator. In the latter disputes, a regulator is the natural adjudicating authority. In case of agricultural commodities, this role is taken up by Directorate of Marketing (DMI) of the concerned State Government (which issues the license to the spot exchange to trade in agricultural commodities pursuant to State APMC Act). However, for trading in other commodities, there is no such adjudicating authority.
11. Membership:
- Membership is largely open to all categories of participants in the global spot exchanges. Given the diversity of trades and bilateral nature of contracts, commodity spot exchanges have evolved by offering Direct Trading Access (as opposed to access via broker’s terminal in spot markets for equity and other securities). Accordingly, the guidelines for registration process / KYC of the

clients is at present, independently laid out by the exchange. This may require streamlining from the regulatory point of view.

- However, unlike spot exchanges, participation in derivatives exchange is from non-physical players as well (in addition to physical players), who trade to benefit from desired changes in prices, without indulging in physical delivery.

12. Presence of multiple regulations / regulators operating in physical markets:

- What is important and imperative is to create a policy environment that encourages setting up of electronic commodity spot marketplaces and promotes their growth and expansion in the context of the needs of the broader commodity economy. An important element of such a policy should be the regulatory framework that governs the operation of such a marketplace, as exchange-traded markets rely entirely on public faith in them.

Regulation brings in:

- Trust in the Markets
 - Standardization of Practices
 - Standardization of Contracts-Financialisation of commodities
 - Price Transparency
 - Framework for undertaking market surveillance
- In the post-reform period of the last two decades, one of the more important innovations facilitating a more rapid pace of economic development has been the creation of regulators.
 - These are statutory entities that were placed outside of the machinery of the government, but given powers to regulate and supervise the functioning of a sector - more so when it turns out to be a public utility.
 - One reason for the government to create such authorities was to have expert bodies to regulate sectors where they faced an increasing complexity of economic activities. Here, the regulator would have domain knowledge to deal with such complex issues.
 - A more powerful reason was the arms-length relationship that freed the regulatory entities from the political compulsions of the government.

- Considering various sectors of commodities – Bullion, Base Metals and Energy, all the sectors have different peculiarities. The factors influencing each of these sectors are also different.
 - For example, gold, the most sought-after of all precious metals, is acquired throughout the world for its beauty, liquidity, investment qualities, and industrial properties. As an investment vehicle, gold is typically viewed as a financial asset that maintains its value and purchasing power during inflationary periods.
 - Base metals, aluminium, copper, lead, nickel and zinc are used mainly in industrial and infrastructure related activities. The price movement of these base/industrial metals is a rational way to gauge economic activity and therefore investors use the base metal prices as representative of economic growth of major countries.
 - As such probably the sectoral regulators can play an important and effective role and lay the foundations of efficient and well developed spot markets In India through a package of reforms consisting of various measures to regulate, liberalize and develop the spot markets in coordination with the government and policy makers. All these measures implemented over a period will ultimately lead to enhanced market efficiency, augmented transparency that shall prevent to a large extent unfair trade practices. This has the potential to bring the Indian markets match international standards making it a trustworthy place for the international investors as well.

13. However there could be distinctive features between Electronic trading Platforms/Spot Exchanges

- Electronic trading platforms intermediating between seller and buyer of a physical commodity deal with a diverse set of grades and quality of the commodity, intended to be sold on “as is where is basis”. Thus, the exchange cannot rely on offering standardized contracts alone, but may be required to inevitably diversify into customized or over-the-counter contracts.
- Given the inherent non-homogeneity of commodities, the auction formats take different forms on the electronic spot exchange (in addition to standard bid-ask matching on stock exchange). Some of

these are Ascending/Descending auctions, Buyers auction (anchored by large seller), Sellers' Auction (anchored by large buyer), Pre-audit auction (where the potential buyers can pre-audit the quality of commodity in warehouse) etc. Further, the contracts manifesting out of these auctions have different attendant risk margins (for e.g. margins in pre-audit contract would be lesser as it is backed by physical commodity to begin with). As a result of this bilateral matching, series of prices emerge on the spot exchange corresponding to series of grades of the same commodity.

- As already mentioned in other section of the report, all the contracts of spot exchange must result in physical delivery, therefore warehousing infrastructure must be regulated and more importantly, widespread for ease of giving/taking delivery.
14. Considering above, there appears to be a great need for spot exchange for non-agricultural commodities which could be either of the following or the combination of the following:
- A single Pan-India electronic platform for all commodities
 - Pan-India separate electronic platforms for different categories of commodities
 - Separate platforms for spot and derivatives market
 - Integrated platform for spot and derivatives market.
15. As regards the regulation of spot exchange platforms, in light of above discussion, two possible models for regulation for spot trading platforms for commodities could be suggested:
- i. **SRO/Distributed Regulation Model:** In this set-up, the Spot Exchange/Electronic Trading Platform could be a Self-Regulated Organization (SRO) complying with regulation as they exist in different stages of the trade. This would mean that the Order-Matching and Auction Formats could be decided by the Exchange, Payments and Funds Clearing aspect could be regulated by Reserve Bank of India (authorizing agency under Payment and Settlement Systems Act, 2007), the physical delivery could be regulated by Commodity - Specific regulators in the physical market, who could also be in a better position to enforce compliance to Good Delivery Standards in specific commodities.

However, the dispute resolution (where Spot Exchange is one of the party) remains unaddressed in the above Distributed Regulation Model. Accordingly, separate provisions for the same may have to be made.

- ii. **Regulation by SEBI and its Pre-requisites:** Alternatively, SEBI could be the regulator of Pre-Settlement Activities to begin with. Its natural advantage in regulating electronic trading in securities market could be leveraged to adapt best practices in risk management, fund settlement and dispute resolution on electronic trading platforms in commodities. However, the physical settlement of the commodities may continue to be executed as per the standards set by physical markets regulators in commodities.

The above model of regulation by SEBI, however, would require enabling amendments to Securities Contracts (Regulation) Act (SCRA), 1956. These amendments have to not just empower SEBI with prescription powers (related to trading and risk management standards) but also with powers to enforce the same.”

Pre-requisite for integration of spot with derivatives markets in India

1. Global market experiences and the history of commodity trading in different countries indicates that the successful development of the economy must necessarily be paired with development of organized and standardized commodity exchanges – spot and derivatives. Improving price discovery, linking retail participants to markets, reducing transaction costs, institutional development and increasing overall growth pattern in the economy are some of the popular benefits of developing spot commodity exchanges in the country.
2. Aligning Quality and Grades of the traded commodities: Broad similarities should generally exist between the quality specifications laid down for trading at spot and derivatives market. Exchanges and regulators should introduce exchange specific quality standards alongside other broad grades with premium / discounts to encourage the physical market players to grade and sell their products on spot exchanges while taking up hedging and risk management on futures

exchanges. When there are more number of common commodities being traded in both the markets and the quality standards are aligned with those of the futures contracts, it would facilitate better price discovery and price transparency also.

3. Information integration among spot and commodity derivatives exchanges: Integrating spot and derivatives markets will remove information asymmetries and especially benefit the market participants at large. This will help to make commodity derivatives an efficient price discovery platform and a healthy reflection of the spot market. In fact it will also leads to development of a common pool of participants which can enable seem-less arbitrage opportunities to keep both the markets aligned closely.
4. Integrating Market Participation: Integration of players of both the ecosystem by permitting members and authorised persons of recognized national commodity exchanges to register on spot exchanges and aligning KYC norms of both the platforms can be an enabling mechanism for future development of both the markets.
5. Warehousing / Vault Network: A high-quality network of vaults with traceability needs to be standardised across the country, under regulatory framework.
 - A uniform nationwide registration process will eliminate this fragmentation in the warehousing market and allow for consistent regulation and enforcement across the country, as well as facilitate warehouse service providers to operate in more than one state.
 - Introduction of NWRs: In addition to agricultural based commodities, warehouse receipts should be introduced for non-agri commodities like bullion. The electronic warehouse receipts (agri and non-agri products) will provide traders and bankers with an instrument similar to an ideal trade financing tool.
6. Financialisation of Commodities Ecosystem: Trading in electronic Negotiable Warehouse Receipts (e-NWRs) - Following the setting up of commodity repositories which may operate under the Warehousing Development and Regulatory Authority (WDRA) and issue e-NWRs, trading in e-NWRs may soon be a possibility. A spot platform for e-NWRs will provide a much larger marketplace, assisting in efficient

price discovery and creating the right linkages between the physical and derivatives market.

7. Enabling new participants for deep and liquid markets: Enabling Institutional Participation like banks and hedge funds can greatly enhance market quality by providing the necessary depth and liquidity. Institutions like banks already play a key role in the development of commodity sector in India, on the account of their vast reach and expertise in lending besides their relationship with stakeholders in the industry like corporates, SME /MSMEs, jewellers as well as market intermediaries like brokers etc., through various financial services. Given the same, bank participation in commodity derivative markets could act as a catalyst in integration and alignment of both the spot and commodity derivative markets.

- Institutional participation in the commodity derivatives market would be on the strength of their own research-based realistic information in a professional and organised manner, infusing accurate information about commodities into the market. This would provide liquidity to the market, reducing the impact cost and making the price discovery process more robust.
- Institutions are best suited to act as catalysing agents in linking the (rural) real economy to the modern financial sector, contributing to market inclusion of commodity producers and stakeholders
 - Offer transparency in undertakings
 - Have better access to market-related information
 - Possess in-house expertise and can build up expertise over time
 - Can offer tailor-made OTC products to SMEs on the basis of their position on exchanges

Operational concern regarding integration of spot with derivatives markets in India

1. Given the diversity of trades and bilateral nature of contracts, commodity spot exchanges have evolved by offering Direct Trading Access (as opposed to access via broker's terminal in spot markets for equity and other securities). Accordingly, the guidelines for registration process / Know Your Client (KYC) procedures is at present, independently laid out by the exchange. This may require streamlining from the regulatory point of view.

2. Based upon the nature of parties involved, two kinds of dispute may arise in the trade executed on the spot exchange platform – one, between buyer and seller and another between client and exchange. While the exchanges mediate the former, there are no guiding principles for the same sans regulator. In the latter disputes, a regulator is the natural adjudicating authority. In case of agricultural commodities, this role is taken up by Directorate of Marketing (DMI) of the concerned State Government (which issues the license to the spot exchange to trade in agricultural commodities pursuant to State APMC Act). However, for trading in other commodities, there is no such adjudicating authority.
3. Electronic trading platforms for commodities typically function on the principle of first delivery, then payment on sell-side and first payment, then delivery on the buy-side. This obviates the need for Settlement Guarantee Fund at the exchange level. In addition, a small, pre-stipulated margin is generally taken as an advance payment to incentivize performance of the contract. This way, the exchanges can offer compensation guarantee rather than settlement guarantee, by way of forfeiture of margins. Further, given the direct trading access of clients and bilateral nature of contracts, netting of funds is also bilateral in nature. Such an arrangement may not be systemically prudent.
4. Another issue that has been raised is to allow spot trading in commodities by way of electronic trading of Negotiable Warehouse Receipts (NWRs). While WDRA has launched Electronic Negotiable Warehouse Receipts (e-NWRs) for agricultural commodities stored in its registered warehouses, there is lack of fungibility of underlying commodities in e-NWRs. This means that each contract has a warehouse specificity associated with it, which limits the scalability of NWR backed spot trading.
5. Diverse regulators in the leg of physical settlement and dynamic nature of contracts suggests that possibility of replicating the regulatory model of Stock Exchanges in Commodity Markets is limited. Once the trade enters the settlement stage, delivery mechanism is commodity specific. For e.g. WDRA regulated warehouses for delivery of agricultural products, load dispatch centres (under CERC) for delivery of electricity, pipelines (regulated by Petroleum and Natural Gas Regulatory Board

(PNGRB)) for delivery of natural gas etc. However, the above commodity specific regulators, which largely work in the physical market segment, cannot streamline common, pre-settlement trading activities, largely comprising Order Matching, Delivery v/s Payment, Clearing and Netting of Funds etc. It may be explored whether there could be a common regulator for pre-settlement phase of the electronic trading in commodities.

5. CHALLENGES IN INTEGRATION OF SPOT AND DERIVATIVES MARKET

Legal Challenges

1. In the Constitution of India, the Legislative power in respect of the subject matter 'trade and commerce' within a State or between different States are dealt within following three entries of the Seventh Schedule to the Constitution:-
 - **The Union List** - Entry no. 42 of List I relating to "Inter-State trade and commerce".
 - **The State List** - Entry no. 26 of List II relating to "Trade and commerce within the State subject to the provisions of entry 33 of List III".
 - **The Concurrent List** - Entry no. 33 of List III relating to "Trade and commerce in, and the production, supply and distribution of,-
 - a. The products of any industry where the control of such industry by the Union is declared by Parliament by law to be expedient in the public interest, and imported goods of the same kind as such products;
 - b. Foodstuffs, including edible oilseeds and oils;
 - c. Cattle fodder, including oilcakes and other concentrates;
 - d. raw cotton, whether ginned or unginned, and cottonseed; and,
 - e. raw jute
2. Presently, there is no specific central law in the country for setting-up of or regulation of spot exchanges in agricultural or non-agricultural commodities. The central law is for the Stock exchanges and futures markets under entry 48 of the union list. Thus, in absence of any central law for the regulation of the spot exchanges in commodities market (whether agricultural commodities or non-agricultural commodities), the commodity spot exchanges are required to be incorporated as normal companies under the provisions of the Companies Act.

3. However, Entry no. 43 in the union list regarding 'Incorporation, regulation and winding up of trading Corporations, including banking, insurance and financial corporations but not including Co-operative Societies' may allow the central government to pass a central law with regards to trading corporation, but it would require further deliberations whether the spot market regulation could be covered under entry 43 of the union list.

Spot markets

1. Absence of electronic spot exchange results in opacity in price discovery process. Presence of spot exchanges may help in transparent price discovery process leading to benchmark of a national-level reference prices.
2. In case of metals and energy commodities, primary markets are dominated by a few sellers or manufacturers / refiner of the commodities and all transactions are largely linked to benchmark global prices. The consumer side is largely fragmented with the presence of a huge number of SMEs and MSMEs that operate in an unstructured manner across industries.

Transparency and Commercial Aspects

1. Opacity in price discovery and other market information: Lack of transparent and seamless information dissemination on imports, inventory levels, capacities etc. for all non-agricultural commodities.
2. Commercial transactions in the physical markets, especially in case of metals are not adhering to a common quality standard. This lack of quality standardisation affects price transparency and hence is a major road block for developing an electronic spot exchange.
3. The infrastructure for encouraging quality standardisation in terms of assaying and grading centres is also inadequate.
4. In case of metals, Scrap Recycling Industry in India is fragmented and scattered. It has lack of any quality standards and pricing is opaque.

5. Logistical challenges is another major aspect that is a hindrance to development of any integrated spot and derivative market.
6. While this segment has off late been working on cost control and a reduction in working capital cycles, weak demand growth, import pressure (FTA issues), low physical premiums and sub-optimal capacity utilisation undermine the performance of this segment.
7. The metal industry is plagued by several issues such as lack of accurate information, opaqueness with regards to various supply-demand information, credit availability, volatility in US dollar and metal prices, high proportion of expenditure for raw materials for manufacturing SMEs etc.

Warehousing infrastructure

1. No regulator for warehousing and storage: Lack of warehousing standards for almost all non-agricultural commodities in the physical markets.
2. Warehousing also poses another big challenge to the industry. The warehousing industry is dominated by Private players and is still fairly unorganised as well as unregulated. There are no set guidelines as of now for the storage of nonferrous metals in these warehouses. There is also lack of sufficient physical infrastructure in the warehousing as well as lack of international warehousing standards. These inconsistencies make standardisation difficult.
3. Precious metals: Insufficient certified vaults for the size and spread.

Actual movement of physical goods

1. Pricing of a physical commodity is to a significant extent governed by the physical location. In most commodities transport costs are substantial and hence may command more if located close to processing and vice versa.
2. The delivery infrastructure for crude oil and natural gas is not freely accessible to all categories of participants, as they are mostly privately

owned by large energy conglomerates involved in exploration, imports, refining, transportation and marketing of these products. Only big PSUs and large private players have necessary resources and wherewithal to engage in physical delivery of these commodities.

3. All necessary infrastructures for storage & other logistics such as delivery access to pipeline systems are with very few dominant physical market participants, created for their own purposes at strategic locations, involving significant cost for establishment and maintenance. Their accesses especially in crude oil, natural gas and petroleum products is highly restricted and are not practically available to all participants. Hence, if a delivery is marked to a participant and he does not have the required infrastructure and logistics support, this in turn would attract a penalty as the participant would not be able to honour the commitment and would lead to a default. Thus, physical ownership and transport of energy commodities such as crude oil & Natural Gas in India is difficult in the event of a delivery marking to any position holder at the time of expiry.

Derivatives market

1. From a futures market perspective, the exchanges are currently dominated by retail players or corporates which would like to hedge. The participation from the highly growing SME/MSME sector in India is scarce. Additionally, there is an absence of institutional players due to which the liquidity in the far month's contracts on the exchange is very limited. There needs to be sufficient depth and liquidity in the futures market for a seamless integration of both spot and futures market.
2. Further the prices in the futures market are linked to the international benchmarks prices and (except for bullions) and the contracts are practically non-deliverable.
3. High cost of trading, has reduced liquidity and further enhanced the cost of trading for all categories of participants, especially hedgers.
4. There is an absence of institutional players due to which the liquidity in the far month's contracts on the exchange is very limited. There needs to

be sufficient depth and liquidity in the futures market for a seamless integration of both spot and futures market.

6. SUGGESTIONS AND RECOMMENDATIONS FOR ACHIEVING INTEGRATION OF SPOT MARKET WITH DERIVATIVES MARKET

1. Despite the size and long history of India's trade and commerce, the physical commodities market in India is largely unorganized, fragmented, and unduly complex. Therefore, the call of the time is that we should work towards creating an integrated and transparent physical market, under a regulated framework.

2. Integration of spot and derivative markets can be achieved by undertaking various steps as suggested below:

a) Reforms in the underlying physical markets:

- i. Rising prices, dominance by few big players on the supply side, low access to primary markets for raw materials especially by the MSME units, and environmental policies and regulations, make a strong case for more reliance on recycling of the non-agricultural commodities especially the base metals. The recycling industry must be developed in terms of application of the latest technology, better standards of manufacturing, uniform policy for scraps, and putting in place an enabling infrastructure to support the industry. It is a noted fact that the recycling of base material saves energy and carbon-di-oxide emissions and also has the potential to generate new employment.
- ii. There should be a policy focus towards carrying out research, development and innovation in the field of the non-agricultural commodities, be it metals or energy products. This could certainly act as an important catalyst for the India's economic growth as well as keeping Indian markets competitive to other markets.
- iii. The metal industry consumes large chunk of electricity/energy at various stages of production cycle starting from mining to fabrication to manufacture of the finished goods. The markets of such non-agricultural commodity would immensely benefit from stable electricity/energy supply and prices.

- iv. GoI may like to review the Free trade Agreements (FTA) signed with host of neighbouring countries apparently causing prejudice to the interest of the domestic industries.
- v. The non-agricultural commodities are used as raw-materials for different industries which require trained and qualified human resources. The need of the hour is to constantly improve the technical education standard and keep them constantly updated with the demands of industry. Vocational education with apprenticeship could play an important role in this regard.
- vi. Unlike Steel, Coal or Oil & Natural Gas which are regulated by separate ministry/departments in the Central Government, there is no dedicated ministry/agency at central government level to regulate Precious Metals, Gems and other Non-ferrous base Metals industry/sector. As a result, industries engaged in Precious metals, Gems and Non-ferrous Metals business fall under the ambit of different ministries (like commerce, industries etc.) and various other agencies and have to comply with regulations of different ministries/agencies. A dedicated controlling ministry could help in overall growth of these sectors adding to the economic development of the country. It could also facilitate all activities related to Precious Metals, Gems and other Non-ferrous Metals industry/sector under single roof leading to ease of doing business.
- vii. Some of the non-agricultural commodities require specialised facilities for transporting, as movement of such commodities could have adverse impact on the environment. These commodities could include coal, lead and petroleum products. India requires to focus on better and more environment friendly transportation of these commodities especially coal and petroleum products.

- b) **Development of a regulated electronic spot platform:** This could be a major step forward to boost integration between spot and derivative markets. This is evident from the success achieved by the securities market or the commodity derivatives market after these markets moved to electronic platforms.
 - i. Suggestions for spot exchanges in the Indian context could be either of the following or the combination of these:

- A single Pan-India electronic platform for all commodities
 - Pan-India separate electronic platforms for different categories of commodities
 - Separate platforms for spot and derivatives market
 - Integrated platform for spot and derivatives market
- ii. As already mentioned in the report, the existing physical markets of most of the non-agricultural commodities in the country lacks transparent price discovery mechanism. Emergence of a spot exchange on a pan India basis can not only help in making price discovery process transparent but also in building domestic benchmark prices for the respective commodities that would be well aligned with the international markets. Thus, establishing electronic spot exchange/platform with appropriate regulation to oversee their efficient functioning would meet the objective of transparent price discovery and dissemination of benchmark reference prices.
- iii. Currently, the legal implications around the setting up and running of a spot commodity exchange in India involve some ambiguities, as noted below:
- There is no definition of a spot exchange, either in the Central List or in any of the existing regulations. Therefore before one plans for a regulatory framework for a spot exchange, it will be desirable to define the same, preferably in the Union List. Additionally, relevant regulations/policy guidelines for governing the spot exchange should be framed.
 - Presently at Central Government level inter-state spot market regulations are under the purview of the Ministry of Consumer Affairs and not under the Ministry of Finance. This may be due to fact that spot markets in India are almost always associated with agricultural commodities. The regulatory provisions pertaining to spot market regulations may need to be re-examined and such power be vested in an appropriate Ministry or in different sectoral ministries, dealing with different non-agricultural commodities.
 - Spot market trading also falls under the ambit of the State Governments. Spot markets within a state government

territory, need to comply with provincial/state government laws and regulations (Stamp Act, and APMC Act etc.).

- iv. Amidst this regulatory uncertainties, setting up of a pan-India spot commodity exchange warrants appropriate regulatory mechanism so as to secure the trust & faith of the market participants. It is very essential to create a robust spot platform for these commodities. A well-thought out regulatory mechanism is also required to protect consumers, depositors (of goods) and investors against possible abusive market practices. The regulator would promote high quality standards and frame relevant rules and regulations that will ultimately promote accountability, responsibility and transparency.
- v. Development of a regulated, national electronic spot market for metals can lead to an integration of the value-chain for non-agricultural commodities by improvement in price transparency, development of adequate, standardized, regulated warehousing, improvement in credit availability and standardization of grades, forms, etc.
- vi. The regulated online electronic spot platform for non-agricultural commodities has to be fungible with existing derivatives market and would position itself as an alternative and also as a competitive supply source, both for domestically produced and imported goods.
- vii. There are certain commodities like electricity for which a separate regulatory body, viz: CERC is already in existence. Similarly for commodities like crude oil, natural gas and petroleum products separate dedicated regulatory organizations are in existence, who can facilitate setting up of Pan-India electronic spot exchanges for commodities under their direct control, the way CERC is regulating electricity spot exchanges in the country. However, it has to be ensured that there should not be any regulatory gaps nor overlaps in any arrangement that could pose threat to the integrity of both the markets leading to systemic risks in both the markets.

c) **Reforms in derivative markets:** The derivatives markets should be made more relevant for physical market participants by way of :

- i. Broad-basing participation in derivative markets by permitting institutional participants, so as to enhance their

- geographical reach, increase liquidity in farther months, and enhance institutional research that will improve price discovery.
- ii. Developing new products like commodity options that are more suited for hedging and can contribute to development of a risk management culture.
 - iii. Development of adequate and sufficient storage infrastructure is a major requirement for developing derivative and spot markets; hence, like agricultural goods warehousing, the non-agricultural warehousing sector in the country should also be placed under an independent regulator.
 - iv. The high cost of trading at Indian commodity derivatives exchanges which includes transaction cost, brokerage, statutory levies, warehousing/vault charges etc., has resulted in migration of trading from the Indian commodity derivatives exchanges to the global markets thereby affecting the liquidity in domestic markets. A comparative study may be carried out for costs associated with the trading of commodity derivatives in India vis-à-vis the global exchanges and based on the outcome of the study, necessary efforts could be made in order to reduce/rationalize cost of trading, to attract more participation.
 - v. The derivatives exchanges should make efforts to link Indian derivatives market with its global peers and at the same time try to meet the demands of the domestic participants. This may include:
 - Designing contracts in such a manner that it improves hedging effectiveness of such commodities.
 - Extending trading hours that overlap with other Asian and Australian markets to improve their international competitiveness.
 - Creation of India centric contracts would help the exchanges to meet the hedging demands for those domestic or foreign entities which have an exposure to Indian markets. Further exchanges could develop contracts on metal scrap or ferrous metals which are presently missing in the domestic markets, thereby, bringing in those entities which are kept out of derivatives trading due to non-availability of such exchange traded products.

- vi. Hedgers would like to hedge their underlying holdings. The exchanges should design their contracts in such a manner that they have close linkages with the underlying physical markets including physical deliveries of such commodities.
- vii. Awareness programs for various stakeholders may be carried out with special focus on efficient use of commodity derivatives market for risk management and price discovery.

d) Spot exchanges as complement to Derivatives Platforms:

- i. The operational features of an electronic spot exchange can be, to a considerable extent, similar to that of a derivatives exchange.
- ii. Co-existence of futures and spot exchange and common participation with identical/similar products, would help strengthen the price discovery process, thus providing for a solution for stakeholders across value chain for meeting their diverse purposes, such as investment, trading, risk management, etc.

e) Warehousing and development of storage infrastructure regulation:

- i. At present there is no designated regulator for warehousing of non-agricultural commodities. Bringing in regulation of warehousing of non-agricultural commodities under a suitable regulator like WDRA would be another important step for integration of spot and derivatives markets. This would facilitate development of quality standards and dissemination of key market information about inventory and stocks of the products available in the regulated warehouse on a continuous basis.
- ii. The development of successful deliverable commodity derivative contracts in non-agricultural commodities, enabling participation by institutional financial institutions like mutual funds, other funds, foreign players, banks etc., in derivatives, integration of spot and derivative markets for these commodities would necessitate the development of a regulated warehousing sector for non-agricultural commodities like bullion, metals, chemicals, yarns etc. for the benefit of the stakeholders of both the markets.

- iii. Regulation of warehouses would enhance the trustworthiness, standardized procedures, transparency, of the delivery mechanism of these commodities considering the unorganized nature and the inefficiency caused by non-standardized procedures followed in warehousing practices of these commodities.
- iv. Regulation of warehouses would also permit the warehouses to issue negotiable warehouse receipts, that will bring about a gamut of benefits to the ecosystem of non-agricultural commodities like base metals and bullion as explained below:
 - Increase flow of credit to a commodity ecosystem, thereby increasing the liquidity of smaller entities in the value chain, reduce the cost of credit (due to the certainty of recovery of loan by a bank) and lead to other related activities like standardization, insurance, etc.
 - Negotiable warehouse receipts have the potential of being used as a trading tool.
 - The above benefits will increase the demand for negotiable warehouse receipts from the various value chain participants, which will spur the growth of quality warehousing in the country.
 - At present, negotiable warehouse receipts would be electronic (e-NWR), once the central repositories launched by WDRA are operational from mid-2017. Electronic warehouse receipts solve issues of splitting of warehouse receipts, risk of losing the document and risk of forgery. This improves the tradability of the warehouse receipts and can in the long-run bring about greater integration between warehousing and futures trading.
- v. WDRA registered warehouses storing non-agricultural commodities could provide a uniform framework that promotes and supports the development of a national network of warehouses that is subject to a uniform set of regulations and minimum standards.
- vi. Facilitating pledging of warehouse receipts will help the SMEs/MSMEs involved in metals markets to avail the credit facilities and utilize the capital locked in inventory of the products.

- f) **Continuous collection and dissemination of data with regard to spot and derivative market:** Data with respect to various commodities traded on spot and derivative market including the production, import, export, consumption, spot price and derivative price of such non-agricultural commodities, should be disclosed to market which will lead to transparency and integrity of both the markets. Availability of weekly/ daily inventory data will give a picture of demand supply scenario to stakeholders and policy makers. This will also lead to better transparency of inventories held by the firms/warehouses. Further, trade repository could also be formed which could disseminate the trade data in an anonymous manner.
- g) **Reforms in the Quality and standards:**
- i. Most important challenge in physical markets of many of the non-agricultural commodities is quality standards of the commodities.
 - ii. For many of the products, domestic standards are not in tune with the internationally referred standards. Since most these commodities are imported, it is essential to develop a domestic product standards aligned with international standards.
 - iii. This would also help in effective integration as it could lead to bridge the gaps in the quality standards between the physical markets and the derivatives markets so that the value chain participants reap the benefit out of spot and derivatives market on a continuous basis.
- h) **Infrastructure development:** There is a dire need for development of robust infrastructure starting from enhancing quality standards, to adequate storage and transportation of these commodities, catering to the needs of the value chain participants.
- i) **Certification requirements:** The regulators could make mandatory certification programs for the spot market, derivatives market, warehousing sector, and quality assaying etc. This could help in creating a certified and qualified workforce for overall development of the non-agricultural commodity markets.
- j) **Developing robust dispute resolution mechanism:** With the development and integration of the spot with derivatives, there is a

likelihood of increase number of trade disputes posing a challenge to market infrastructure. Therefore, it is necessary to have in place a robust and clear mechanism for expeditious dispute resolution.

A gist of the summary of recommendations along with the agencies responsible for implementation of the suggestions is provided under “Executive Summary”.

7. ROADMAP FOR IMPLEMENTATION OF SUGGESTIONS AND RECOMMENDATIONS

This section provides a roadmap for the implementation of the suggestions for the various commodity sub-groups.

A. Base Metals

1. The first step towards integrating the derivative and spot markets would involve creating an efficient national market for spot trading, which is now absent. The physical market structure for base metals is highly oligopolistic with very few large sellers, who set the prices, with reference to global prices.
2. Improving the quality standardization in the physical markets would be the first initiative towards building of an efficient spot market for metals. Standards lead to homogenous quality that aid in price discovery and transparency across the value chain and would facilitate development of an efficient market for any commodity. Electronic anonymous markets can only function when sellers and buyers are able to price a commodity based on its quality specifications and are assured of the quality and quantity when physical delivery is executed.
3. Since pricing in the domestic metals markets is heavily influenced by global benchmark prices, India should develop its domestic delivery standards that follows internationally accepted standards so as to allow fungibility between products traded in the spot and derivative markets. The domestic derivative markets strictly track the global prices and have not been able to provide an effective risk management mechanism for smaller participants in the Indian metals value chain. The domestic

standards for metals in India need to be developed to cater to domestic value chain and at the same time should be made aligned to various internationally accepted standards that are accepted for delivery at benchmark exchanges like London Metal Exchange, so that the spot exchanges attract all stakeholders viz. importers, refiners, manufacturers, traders, consumers, small industrial units, etc.

4. To illustrate, LBMA standards for precious metals such as gold and silver, International Designations and Chemical Composition Limits for Unalloyed Aluminum as per North American and International Registration Record, are accepted for delivery by LME etc.
5. As the standards need to be synchronized, necessary environment for regulated development of the infrastructure for assaying and grading should be built up that will enhance quality consciousness and orientation across the value chain. This will be crucial for improving the standardisation across the metals ecosystem which will help in development of an efficient spot market platform with standardized commodities. If common standards are followed in the spot and derivatives platform, it will allow fungibility for delivery across platforms over a period of time - a crucial enabler for integration of these two markets.
6. The warehousing sector has to be developed in line with the modernisation of assaying and grading centres. The warehousing sector for metals is highly unorganized as we move down the value chain. A warehousing regulator for metals needs to lay down standards for warehousing, assure sanctity of warehousing receipts by regulating and monitoring the warehouse receipts issued by the warehouses. The Warehousing Development and Regulatory Agency (WDRA) may be mandated to regulate the warehouses storing non-agricultural commodities, considering the expertise it already has already developed in the agricultural goods. The central repositories for electronic Negotiable Warehouse Receipts established by WDRA will be able to extend their services for e-NWR of non-agricultural commodities too.
7. Development of a credible warehouse receipt mechanism will enable financialisation of metals stored in warehouses, which will be a major step towards integrating the spot and derivatives markets. Banks will be

ready to extend credit more comfortably against warehouse receipts issued by warehouses that are regulated by a national level regulator.

8. Similarly, the development of a modern warehousing infrastructure will provide information about stocks stored in warehouses, giving a daily view about the supply-demand scenario, which is currently not available. In effect, developing the warehousing sector will improve the current information vacuum in the metals sector. Further, the necessary warehousing infrastructure needs to be complemented by adequate logistic/transport support enabling seamless movement of commodities across warehouses and thereby quickly nullifying any price inefficiencies between different geographies and markets.
9. The improvement of quality standardization, marketing infrastructure and dissemination of better information will remove bottlenecks in the development of an efficient market place both for spot and derivatives.
10. Finally, there has to be a regulator to facilitate setting up of national electronic spot exchanges, framing rules/regulations for trading in spot contracts, administrating such electronic platforms, supervision of market operation that will pave the way for quick market acceptance of such spot exchange platforms in the country by all stakeholders.

B. Precious Metals, Gems and Stones

1. India's strong affinity for gold, is exemplified by her dependence on gold imports to meet domestic demand. India needs to develop a strong domestic spot market to match international standards so that it can become a major global market player given the fact that it is the second largest consumer of gold in the world. There is a need for setting up a pan-India bullion spot exchange that will allow for uniform price discovery, setting up of an 'India gold fix' and bring homogeneity through such gold standard. In addition to these, a regulated spot exchange will curtail grey market trading commonly known as 'dabba' trading and provide for a robust settlement mechanism, wherein each transaction gets recorded and paves way for traceability.
2. The setting up of a bullion spot exchange would require ironing out of certain legal and regulatory challenges. The Government may have to

take a policy decision with respect to the regulatory framework for such Bullion Exchanges that may be set up in the country.

3. There is no definition of a spot exchange, either in the Central List or in any of the existing regulations. Therefore, before one plans for a regulatory framework for a bullion spot exchange, it may be necessary to define the same under an appropriate statute or law. This may also be extended to other metals in this sector such as silver, diamonds, platinum or palladium.
4. Integrating Spot and Commodity Derivatives: The existing Commodity Exchanges have already acquired adequate liquidity and value-chain participation in the gold derivatives trading; hence integration with spot market can be easier as soon as a regulated spot exchange is set up with necessary policy guidelines in place to permit all the stake holders to participate in such an exchange.
5. Recycling of Gold: India is said to be holding more than 20,000 tons of Gold in domestic households. India, however imports most of her (approx. 1000 ton/per year) demand of Gold. For facilitating the recycling of domestic Gold and reducing import (thereby reducing burden on current Account Deficit) Spot Exchanges may have to have a two-way functionality. Export of Indian-refined Bullion should also be permitted to realize this vision. Bullion Banks should also be allowed to trade on Spot/Commodity exchanges. An Indian good delivery standard (gold fix) for gold bars is needed to attract the recycled Gold for trading after being refined in designed refineries. The Expert Committee is aware that a working group comprising various stakeholders and policy makers has been constituted under MoF which is looking into the modalities for developing spot market and electronic exchanges for gold in the country. While recommending for the establishment of pan India regulated gold spot exchange **(which could include other precious metals, gems and stones)**, the committee feels that the Government should also make a comprehensive review of the existing gold policy on all its aspects and facilitate all the stakeholders to participate in such spot exchanges.

C. Energy Commodities

1. An important missing link in bringing the integration between spot and derivatives market in energy segment is absence of an active organized spot market. An online electronic trading spot platform will help in emergence of a domestic benchmark price in energy commodities. There is a rising trend of short term trading in natural gas in India. Further, the majority of spot sales of natural gas are conducted based on bilateral relationships and ad hoc tenders or negotiations. These processes are not efficient and do not provide parties with the assurance if they are paying or receiving fair market prices. A spot exchange platform will facilitate trading of natural gas based on supply and demand fundamentals and allow transparent price discovery.
2. In this context, certain regulatory aspects and infrastructure aspects need to be enabled for the development of a robust spot platform in natural gas.
3. Apart from designating a regulator for the spot exchange, certain amendments in PNGRB Act and The Electricity Act, 2003 may be desired, for example, to include 'trading' in the Act, provisions for approval of trading in spot contracts, spot exchange regulations for natural gas, setting up of nodal agency, enabling third party access to transport facilities, unbundling gas sales from gas transmission, allowing foreign participants on the proposed natural gas spot exchange etc.
4. On infrastructural aspect, the missing component is the absence of underground and overhead natural gas storage facilities and independent pipeline operators. The development of such storage facilities and their commercial operation by the operators would be a key facilitator for promoting spot trading of natural gas in India.
5. The unbundling of natural gas transportation, storage and marketing is still to happen in India. In order to ensure the growth and development of spot markets, the need is that the authorized entities should have transportation and storage of natural gas as their sole business activity and not have any business interests in the gas marketing or gas distribution networks so as to avoid conflict of interest in any form in the gas storage and transportation business.

D. Provisional Roadmap

A roadmap for the implementation of suggestions as highlighted in the report is as under:

<i>Sr.</i>	<i>Broad Suggestions</i>	<i>Agency</i>	<i>Timeframe</i>
Reforms in the underlying Spot Markets			
1.	Developing regulated storage infrastructure for storage of non-agricultural commodities	Ministry of Steel, Ministry of Coal, Ministry of Petroleum and Natural Gas, and WDRA	Short-term for commodities like metals while long-term for petroleum products
2.	Electronic spot market platform under a Regulatory Body	GoI	Short-term But could be effective if and only if other measures are put in place
3.	Developing policy for specialised transportation requirement for certain commodities	Ministry of Coal, Ministry of Steel, Ministry of Petroleum and Natural Gas, Ministry of Environment	Short-term
4.	Creation of dedicated ministry/department for Precious metals, Gems and Non-ferrous Metals	Union Cabinet	Short-term
5.	Review of Trade policies like FTAs etc.	Ministry of Commerce and Industry	Medium term and ongoing
6.	Increase dependency on recycling of non-agricultural commodities	Ministry of Commerce and Industry, Ministry of Micro, Small & Medium Enterprises (MSME), Ministry of Environment	Medium term and ongoing
7.	Reliable energy supply and costs	Ministry of Power, Ministry of Petroleum and Natural Gas	Medium Term and ongoing
8.	Developing India delivery	BIS	Medium - term and

<i>Sr.</i>	<i>Broad Suggestions</i>	<i>Agency</i>	<i>Timeframe</i>
	standard and alignment with global standards		ongoing
9.	Improving transparency by increased registration of enterprises, higher discipline in quality testing / assaying, financial reporting and tax payments as well as increasing the share of organized sector in such commodities.	GoI	Medium - Term and ongoing
10.	Quality technical education	Ministry of Skill Development and Entrepreneurship	Medium - term and ongoing
11.	Focus on research, development and innovation	GoI	Long-term
12.	Developing and improving ancillary infrastructure such as enhancing quality standards, storage, transportation etc.	Ministry of Transport, Ministry of Railways, WDRA, BIS	Long-Term and ongoing

Reforms in Derivatives market

1.	Rationalisation of cost of trading	MoF, SEBI and recognised stock exchanges	Short- term
2.	Creation of India centric contracts	SEBI and recognised stock exchanges	Short- term
3.	Linkages with the Global commodities market	SEBI and recognised stock exchanges	Short- term
4.	Regulated storage infrastructure	GoI, SEBI, WDRA	Short - term and ongoing
5.	Increasing institutional Participation	GoI, SEBI, RBI, PFRDA, IRDA	Medium - term
6.	Information	Ministry of Statistics and	Medium - Term and

<i>Sr.</i>	<i>Broad Suggestions</i>	<i>Agency</i>	<i>Timeframe</i>
	dissemination	Programme Implementation	ongoing
7.	Increasing hedger's participation	SEBI and recognised stock exchanges	Medium - Term
8.	Introduction of New products	SEBI and recognised stock exchanges	Medium - term
9.	Stakeholder's awareness programs	SEBI and recognised stock exchanges	Medium - Term and ongoing
10.	Developing ancillary infrastructure	GoI, WDRA, BIS	Long-term

Measures for the Integration of commodity Spot and Derivatives

The measures suggested for spot/physical and derivatives markets and the synergies that would flow from the measures to be undertaken in those two markets are expected to result in convergence and integration between the two markets.

Time-frame: The short term are those that can be implemented within a period of one year, medium term between 1-3 years while long term would require a time period of more than 3 years for implementation.

Appendix 1- Recommendations of select committees with respect to the commodities market

1. Drat Report of the Working Group to Review of the Guidelines for Hedging of Commodity Price Risk by Residents in the Overseas Markets (RBI- 2017)

- *The Group recommends that residents who hedge their commodity price risk in overseas market should be encouraged to partly and progressively hedge their risks on the domestic exchanges. Awareness needs to be created by all stakeholders including the exchanges in this regard.*
- *The group recommends that in respect of domestic sale/purchase of commodities in the positive list, unlisted entities may be permitted to hedge commodity risk overseas with the approval of their AD bank. Subsequently, if and when AD banks are permitted by RBI to deal in commodity derivatives, unlisted entities may hedge with the banks as the counterparty.*
- *The Group recommends that domestic banks and/or their subsidiaries active in capital markets be allowed to offer commodity hedging facility to their constituents, initially on a back-to-back basis, on both OTC and exchanges, including on domestic exchanges. Later, when necessary risk management capability has been acquired, banks may be allowed to run a book in commodity derivatives within the umbrella limit of 20% of NOF applicable for investment in equities, venture capital funds (VCFs) & equity linked mutual funds. For this purpose, RBI may consider the necessary legal enablement in the B.R. Act, 1949.*

2. Report of the household finance committee 2017

- *The committee supports the creation of a spot gold exchange, to promote gold market liquidity so that households may more efficiently monetise their gold holdings if they so choose. The creation of the exchange will also facilitate price discovery and standardisation of gold prices, allowing households to better understand the value of their pre-existing gold holdings, and prevent them from either selling or collateralising their holdings at inaccurate or disadvantageous prices.*

3. Report of the Standing Council on International Competitiveness of the Indian Financial System: Volume I 2015

- Reduce or eliminate regulatory constraints on banks and MFs to participate in commodity derivatives. (RBI, SEBI, DEA, FMC)
- Allow foreign entities that have exposure to commodities through trade or finance to participate in Indian commodity derivatives. (DEA, FMC, SEBI, RBI). This requires the following:
 - i. Creating a mechanism for registering commodity-specific participants with FMC.
 - ii. Co-ordinating with FMC, RBI and SEBI to avoid multiple registration and compliance requirements.
- Implement the following key proposals of the FCRA Amendment Bill, 2010:
 - i. Provide statutory powers to FMC to become an independent regulator.
 - ii. Widen FMC's powers on investigation, enforcement and imposition of penalties.
 - iii. Make SAT the appellate body for FMC orders.
 - iv. Widen definition of commodity derivatives to include goods, services, activities and events.
 - v. Permit options.
 - vi. Permit cash-settlement of index-like products.
 - vii. Demutualisation and corporatisation of all recognised associations.
 - viii. Set up a clearing corporation. (DEA)
- Devolve contract design, product innovation and trading time-related decisions to exchanges to increase their operational flexibility. These should be monitored by FMC. (FMC).
- Increase priority on implementing GST. (Central and State Governments)
- Rationalise stamp duty through the India Stamp (Amendment) Bill, 2014. (Central and State Governments)
- Rationalise and reduce legislative contradictions around the interaction of derivatives and spot market for commodities. (Central and State Governments)
- Set up an expert committee to evaluate how a full-fledged OTC market for commodity derivatives can be created. This will also require an amendment to

the FCRA, which currently does not permit an OTC market in commodity derivatives. (DEA)

- *Move to a residence-based taxation regime over the longer term. (DEA, CBDT)*

4. Committee to suggest steps for fulfilling the objectives of Price Discovery and Risk management of Commodity derivatives market (Kolamkar Committee) 2014

- *Restrictions on banks under the Banking Regulation Act and other RBI regulated entities need to be removed so as to deepen and widen the participation in these markets.*
- *Foreign financial firms (both intermediaries and end-users) should be permitted to participate in commodity futures trading. The existing system of limits on open interest and risk management provides adequate safeguards against the risk of allowing foreign participation in Indian markets.*
- *Exchanges should explore new ideas in contract design, to more tightly define the product with a narrower set of grades and locations, so as to reduce the frictions of arbitrage and thereby improve hedging effectiveness wherever the movement of prices of the commodities across grades and locations are not aligned.*
- *Exchanges should explore the idea of extending trading hours that overlap with Asian and Australian markets to improve their international competitiveness. Currently, trading hours in India overlap with the European markets, but has little or no overlap with Australia and Asia, which is a large trading base that has been hitherto untapped.*

5. Report of the Working Group to Study the Issues Related to Gold Imports and Gold Loans NBFCs in India (RBI- 2013)

The following Derivative Products related to gold also can be developed and provided:

- *Spot, Forward and Options trading, Metal leases, consignments and loans, Physical Delivery Forward rate agreements;*

- *Metals certificate programs, Coins, Jewellery, inventory financing, and Custodial services,*
- *Depository services, location swaps, structured notes, hedging programs.*

6. Standing Committee on Food, Consumer Affairs and Public Distribution (2011-12) regarding Forward Contracts (Regulation) Amendment Bill, 2010 (December 2011)

- *The Committee note that the stock exchanges and futures market is a subject assigned under the Union List, in Schedule VII of the Constitution of India, whereas the 'Trade and Commerce' and —Agriculture// are the subjects within the jurisdiction of States. As such, the regulators of commodities exchanges do not have jurisdiction over spot markets, which are regulated by APMC Act, falling under the ambit of concerned State Governments. The Committee feel that for a healthy market, the spot market and future market need to be placed under the same regulator's framework. The Committee, recommend that in order to bring in better coordination and synergy between spot trading and future market, Government should find out ways and means to put spot and commodity market under one regulatory framework. The Government may consider amendment to the Constitution for the purpose, if necessary.*

7. Report of The Working Group On Warehouse Receipts & Commodity Futures (2005)

- *The Group recommends that banks may be permitted to have independent proprietary position in commodity futures linked in a macro way to their credit portfolio. Banks' exposure to a particular commodity is a general exposure and cannot be linked to a particular loan. Permitting banks to have independent proprietary positions is the best way in which banks can cover their risks. However, suitable risk control measures may have to be adopted by the banks.*
- *The Group considered whether banks may be permitted to deal in commodities other than agricultural commodities such as oil and gas. However, keeping in view the current state of development of spot as well as futures markets, the Group recommends that for the present, it will be prudent to permit banks to deal in agricultural commodities only.*

- *In order to get a global perspective of how banks manage risks associated with trading in commodities, the Group examined the guidelines issued by Financial Services Authority (FSA), UK and Australian Prudential Regulation Authority (APRA). Accordingly, the Group recommends that the guidelines issued by FSA and APRA may be suitably modified as would be consistent with the instructions issued by Reserve Bank on capital adequacy and market risk so far.*

8. Report of the Inter-Ministerial Task Force on Convergence of Securities and Commodity Derivative Markets (2003)

- *Stock Exchanges and futures market” is a subject under the Union list in schedule VII of the Constitution of India thereby bringing both spot and derivative trades in securities under the jurisdiction of the Central Government, which make it easy to develop and regulate securities markets. As against this, the “trade and commerce”, and, “agriculture” are subjects in state list of the Schedule, which implies that spot/cash trade in commodities is within the jurisdiction of the states whereas the futures trade rests with union government. The regulator of commodity exchanges does not have jurisdiction over spot markets even in non-agricultural commodities, like, bullion and other metals. Futures prices of commodities draw heavily on spot prices; therefore it is argued that the regulator of commodity markets in India should have a mandate to regulate the spot markets in commodities. This makes harmonization of spot and futures markets difficult as State taxes and physical restrictions on spot trade fragment the commodities markets. Therefore, unless these issues are resolved the full benefits of convergence cannot be realised.*

Appendix 2 – Brief overview of commodities in Base Metal Sector

Aluminium

1. Aluminium is the most widely used industrial metal with the symbol 'Al' and atomic number 13. Its name derives from the Latin word *alumen*. It is one of the most abundant metallic elements in the earth's crust making up about 8 percent of the earth's total surface.

Figure 6: Typical Aluminium Ingots



2. Naturally, aluminium is found combined with other elements in mineral form (silicates/oxides) in bauxite ore. Bauxite is the basic raw material in the aluminium manufacturing process. The aluminium production process can be divided into upstream and downstream activities. The upstream process involves mining and refining activities, while downstream process involves smelting and casting & fabricating. Aluminium end products include rods, sheets, extrusions and foils. It is primarily used in the transportation, packaging (cans), building/construction and consumer electronic industries. Secondary production of aluminium involves recycling of the scrap. Aluminium can be theoretically 100% recyclable without any loss of its natural qualities.
3. A pictorial representation of a typical value chain for aluminium is as under:

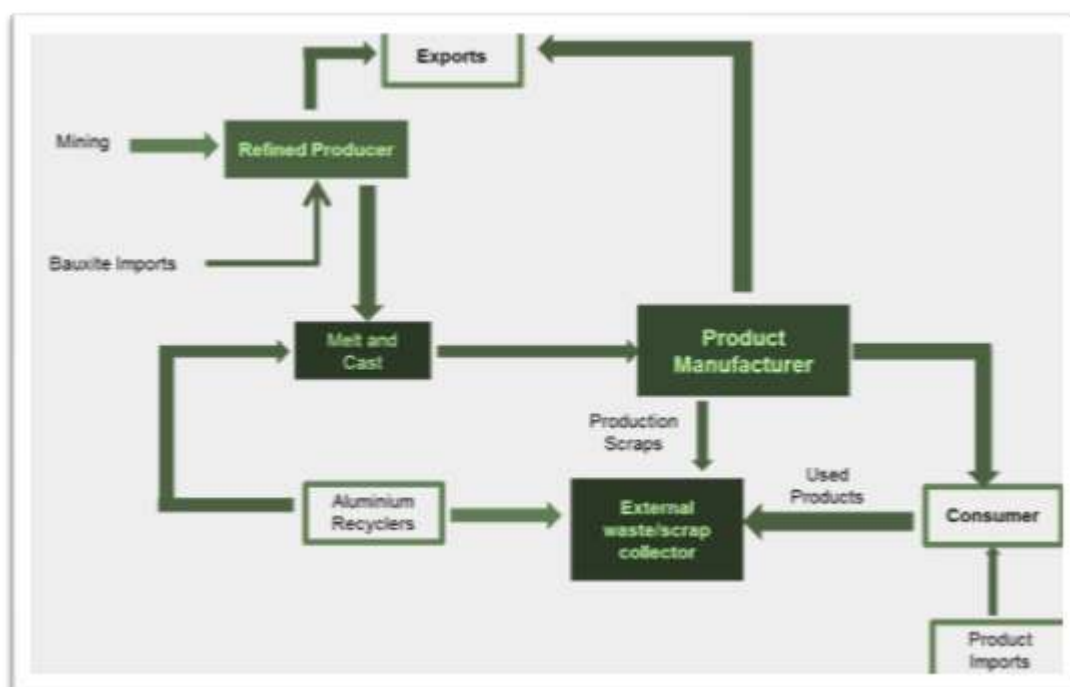


Figure 7: A typical value chain for Aluminium

4. India has deposits of approximately 2.11% of world's reserves. Odisha ranks in first in mine production followed by Gujarat, Jharkhand, and Maharashtra. The abundant reserves of bauxite have made India a net exporter of bauxite. India's rank in global aluminium economy is as follows:

- Production – 5th
- Consumption – 3rd

Table 9: India balance sheet for Aluminium

<i>(in lakh tonnes)</i>				
<i>Financial Year</i>	<i>Production</i>	<i>Import</i>	<i>Export</i>	<i>Consumption</i>
12-13	17.20	13.26	5.67	16.90
13-14	15.16	13.48	7.07	15.58
14-15	15.98	15.95	10.33	15.22
15-16	16.28	16.71	11.53	14.76
16-17	17.46	17.55	15.52	13.77

5. The major countries producing aluminium are China, Russia, Canada, Australia and India accounting for approximately 73% of world's production. Major consuming countries are China, Germany, Italy, Japan and India accounting for approximately 65% of world's consumption of Aluminium.
6. India imports Aluminium majorly from countries such as China, Malaysia, UAE and UK while it exports to countries such as South Korea, Malaysia, Mexico and USA etc...
7. The Indian Aluminium industry is a highly concentrated with the following three companies constituting the majority of the country's primary production:
 - Hindalco is one of the largest integrated primary producers of aluminium in India and enjoys a leadership position in aluminium and downstream value added products in India. Their finished products include alumina, primary aluminium in the form of ingots, billets and wire-rods, value-added products such as rolled products, extrusions and foils.
 - National Aluminium Company Limited (NALCO) has units in Odisha. NALCO's integrated aluminium complex, encompasses bauxite mining, alumina refining, aluminium smelting and casting.
 - Vedanta is an integrated producer of aluminium in India with mines, smelters and associated captive and independent power plants. Its aluminium business operates in the states of Odisha and Chhattisgarh.
8. Metal generated through the recycled route are termed secondary. The manufactured and consumed metal finds its way back into the system through scrap. The secondary aluminium sector in India is fairly important since it constitutes more than 40 per cent of the aluminium consumed in India. This market is made up of a large number of producers which can be attributed to the fact that the industry has low entry barriers and lower capital costs. However, the secondary market remains largely fragmented. Since the cost of primary aluminium smelting is high in India, the secondary producers depend upon imports of aluminium scrap from the Middle East, China, South Africa, China, Taiwan, Nigeria, Spain, Australia, Malaysia and the EU. Recycled aluminium is mainly used for transportation (mainly automobiles), followed distantly by building and construction, consumer durable

products and other industrial applications. Major consumers of the aluminium include electrical transmission and equipment companies, the transportation, constructions, packaging and beverage industries.

9. The overcapacity and surplus aluminium production in China (resulting in large exports) continues to be the most important factor affecting global aluminium prices. The world ex-China markets remain in deficit due to the lack of new investments and closure of inefficient high cost smelters. Further, Aluminium being an energy intensive industry requiring large amount of power, the cost of energy in the producing region can also have an impact on the metal price. Finally, global factors like US dollar and the price of crude oil also makes an influence on the price of the industrial metal.
10. Though aluminium is traded on LME, SHFE and CME, the prices at LME are accepted as global benchmark prices. The Indian physical markets or the spot trading quote incremental value over the globally accepted benchmarked price of LME which is also known as premium. The components of premium includes the cost of bringing the metal to India. Domestic prices closely track international price movements. However, the volatility on the domestic front is reduced to a certain extent owing to factors like import tariff protection and the absence of fragmentation in the domestic Aluminium industry.

Copper

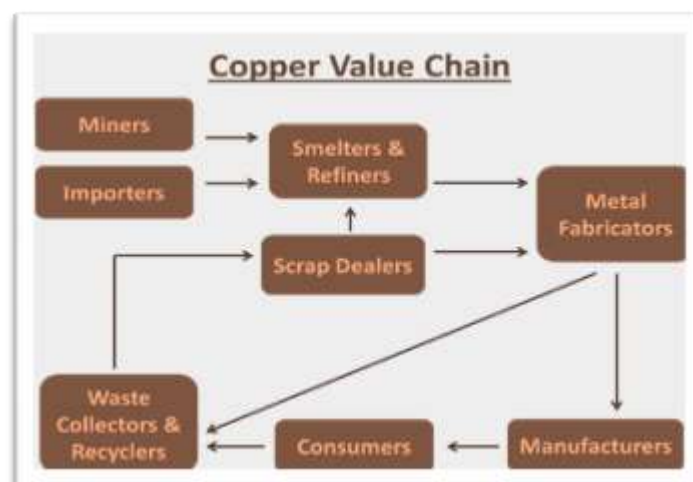
1. Copper is a chemical element with symbol 'Cu' (Latin: cuprum) and atomic number 29. Copper is one of the first metals used by humans for items such as coins and ornaments. Copper is found in many parts of the world. Copper is one of the few metals that occur in nature in directly usable metallic form as opposed to needing extraction from an ore. It usually comes from copper ore. Copper is obtained from these ores and minerals by smelting, leaching and electrolysis. Ore is first mined, then put through a series of processes to refine and purify the copper.

Figure 8: Typical copper cathodes



2. Copper is malleable and ductile and an excellent conductor of heat and electricity and also corrosion resistant and antimicrobial. Copper is an important contributor to the national economies of mature, newly developed and developing countries. Copper is among one of the most recycled metals, and its recyclability makes it a material of choice. A pictorial representation of a typical value chain for copper is as under:

Figure 9: A typical value chain for Copper



3. The size of India's Copper industry is approximately 3% of the world Copper market. Typically, over 30 per cent of India's Copper demand comes from the telecom sector and 26 per cent from the electrical sector in India. India's rank in global copper economy is as follows:
- Production – 6th
 - Consumption – 9th

Table 10: India balance sheet for Copper

<i>(in lakh tonnes)</i>				
<i>Financial year</i>	<i>Production</i>	<i>Import</i>	<i>Export</i>	<i>Consumption</i>
12-13	6.65	2.45	2.99	4.99
13-14	6.44	3.05	2.98	4.91
14-15	7.66	3.56	4.23	4.34
15-16	7.90	4.71	3.82	4.23
16-17	7.96	5.07	4.08	4.56

4. The major countries producing copper are USA, Chile, Russia, China, Japan and India accounting for approximately 66% of world's production. Major consuming countries are USA, Germany, China, South Korea, Japan and accounting for approximately 72% of world's consumption of copper.
5. India imports copper and articles from countries such as Chile, Indonesia, Australia, Peru, Canada and Brazil while it exports mainly to countries such as China, UAE, Singapore, Taiwan and Malaysia etc...
6. The primary producer in India includes Hindustan Copper Limited (HCL), Hindalco and Sterlite Copper. HCL is a vertically integrated producer whereas Hindalco and Sterlite industries are mainly custom smelters. Hindalco and Sterlite industries account for more than 80% of India's total refined Copper production. During the last few years, India's switch from net importer to exporter is due to a rise in production by all the three companies.
7. Copper prices are influenced by economic factors in major consuming countries such as China and USA as well as supply disruptions factors in major producing regions such as USA, Europe and Asia. Though copper is traded LME, SHFE and CME, prices at LME and CME are accepted as global benchmark prices.

Zinc

1. Zinc is a chemical element with symbol '*Zn*' and atomic number 30. It is the fourth most used metal after iron, aluminium and copper. It is hard bluish-white lustrous metal and becomes soft between 100 to 150 degree C. It is present not only in earth's crust but also in water and living organisms including humans. It is normally found in association with other base metals such as copper and lead in ores. It is normally covered with a white coating on exposure to the atmosphere.

Figure 10: Zinc Ingots



2. Zinc can be recycled indefinitely, without loss of its physical or chemical properties. Roughly 50 per cent of all metallic zinc produced today is used to galvanise other metals, such as steel or iron, to prevent corrosion. Large quantity of zinc is used to produce die castings, which are used extensively by the automotive, electrical, and hardware industries. Zinc is also used as a chemical compound in rubber, ceramics, paints, and agriculture. Zinc coating is widely used to protect finished products ranging from structural steelwork for buildings and bridges to nuts, bolts, strips, sheets, wires, and tubes. A pictorial representation of a typical value chain for Zinc is as under:

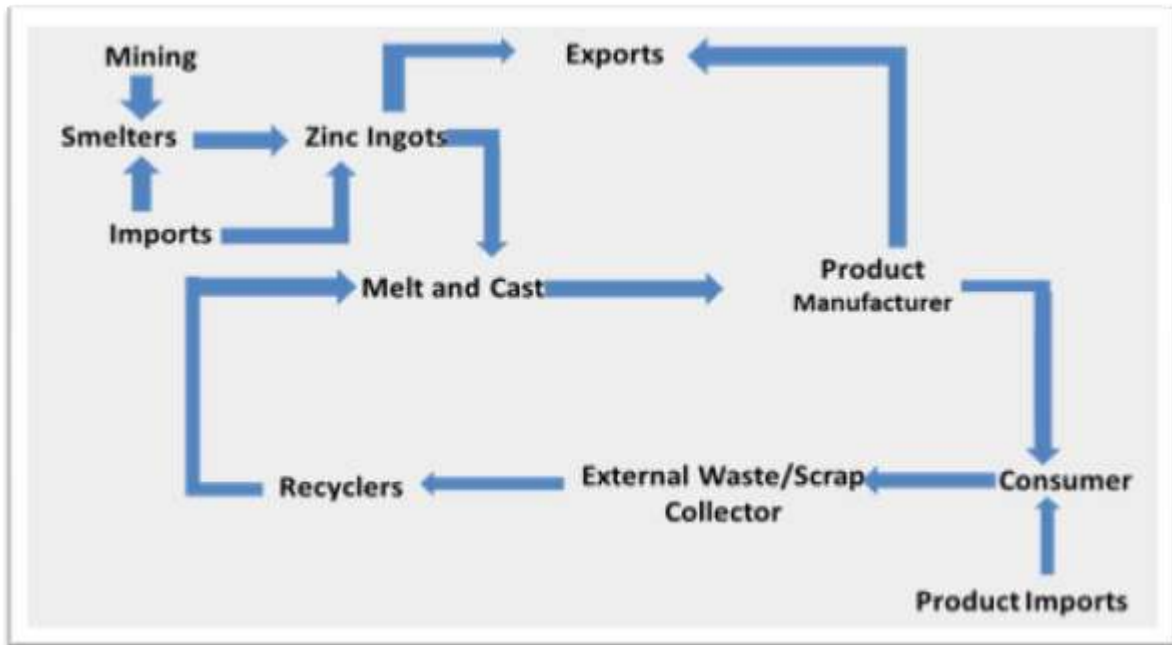


Figure 11: A typical value chain for Zinc

3. India accounts for about 5.3% of total world production. Indian zinc reserves are largely concentrated mainly in the state of Rajasthan and the world's largest zinc mine is located at Rampura Agucha in Rajasthan. India's rank in global zinc economy is as follows:
- Production – 5th
 - Consumption – 3rd
 - Import – 5th

Table 11: India balance sheet for Zinc

<i>(in '000 Metric Tons)</i>				
<i>Financial Year</i>	<i>Production</i>	<i>Import</i>	<i>Export</i>	<i>Consumption</i>
12-13	704	164	199	672
13-14	768	149	195	612
14-15	738	250	246	638
15-16	759	227	258	640
16-17	789	322	229	561

4. India imports Zinc from countries such as South Korea, UAE, Australia, Spain, Malaysia, USA, Kazakhstan and Belgium etc., while it exports to

countries such as China, Malaysia, South Korea, Taiwan, Singapore, UAE and Turkey etc...

5. The primary producers includes Hindustan Zinc Limited (HZL) which is the sole integrated zinc producer in the country and dominates the zinc smelting industry representing more than 96% of total domestic output. Major zinc consumers in the country includes companies in steel sector such as SAIL, National Steel, and Rashtriya Metals.
6. The major countries producing zinc are China, Peru, Australia, United States of America and Mexico which accounts for approximately 70% of world's production. Major consuming countries are China, Germany, USA, Japan and India accounting for approximately 65% of world's consumption of Zinc.
7. Scrap zinc is recovered and used by smelters, refiners, ingot makers, foundries, and other manufacturers. The metal generated through the recycled route is also termed secondary. Amount of metal manufactured and finally consumed finds its way back into the system through scrap and recycling. There are many units that produce re-melted zinc ingots which can be termed as secondary producers and are dependent on supply of imported scrap. Scrap is found world over and is not specific to any geographical location but regions such as Middle East and Russia are known to be aggregators of scrap. All major Indian ports are the places through which scrap is imported. The scrap industry also plays an important role when prices of the primary metals hit a high. Demand and supply play a more important role in setting the prices in the secondary market.
8. Zinc prices are influenced by prevailing economic factors in major consuming countries such as China and USA as well as factors affecting supply in major producing countries such as China, Peru and Australia. Prices of zinc on LME are well accepted as global benchmark prices.
9. The Indian physical markets or the spot trading for zinc quote incremental value over the globally accepted benchmarked price of LME which is also known as premium. The components of premium includes the cost of bringing the metal to India. The premium is usually negotiated on bi-lateral terms and is largely based on quantity, location, transport, value addition etc. For all practical purposes premium is good reference for domestic suppliers/producers as they constantly compete with imports to fetch their share of domestic business.

Lead

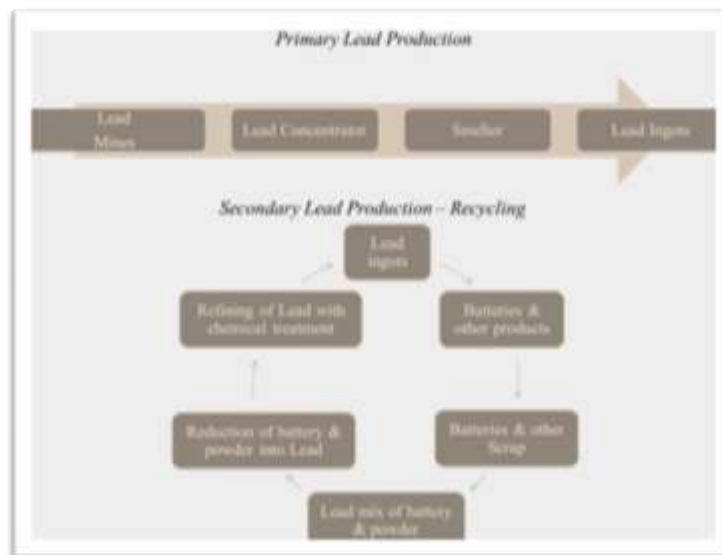
1. Lead is a toxic heavy metal found in mineral deposits in the earth's crust most commonly in the Zinc ore and also along with silver and cadmium. The origin of the symbol '*Pb*' is from the Latin word "plumbum" meaning "liquid silver". It is a corrosion resistant, dense, ductile & malleable and blue-grey metal.

Figure 12: Lead Ingots



2. High density of lead has proved effective for weights and anchors for boats and for ammunitions. These properties are used in lead radiation screening and sound proofing. The electrochemical properties of lead enable it to be used in storage batteries in all motor vehicles and for some back-up power supplies. The large scale use of lead is in acid batteries. A pictorial representation of a typical value chain for Lead is as under:

Figure 13: A typical value chain for Lead



3. India has a production share of around 2.3%. India's rank in global lead economy is as follows:

- Mining - 6th
- Production - 2nd
- Consumption - 3rd
- Import - 2nd

Table 128: India balance sheet for Lead

<i>(in '000 MT)</i>				
<i>Financial Year</i>	<i>Production (primary)</i>	<i>Import</i>	<i>Export</i>	<i>Consumption</i>
12-13	118	239	47	524
13-14	123	238	80	428
14-15	127	295	76	521
15-16	145	269	89	539
16-17	139	307	181	567

4. The major countries producing lead are China, Australia, United States of America, Peru and Mexico which accounts for approximately 81% of world's production. Major consuming countries are China, USA, India, Germany and Italy accounting for approximately 65% of world's consumption of lead.

5. The primary lead is produced directly from mined ore. It is twin metal to Zinc because the commonality of ore. Zinc and Lead ore coexist in the mine, it is the content dominance of either Zinc or Lead will ultimately decide what the mine will be called. In India, primary lead is produced entirely by HZL, smelters operated at Chanderiya and Dariba in Rajasthan. Lead and its scrap are traded world over as per the norms. Primary lead is currently produced by smelters operated in Rajasthan only. Secondary lead production is largely done by the unorganised sector. Major lead consumers in the country includes companies in battery sector.

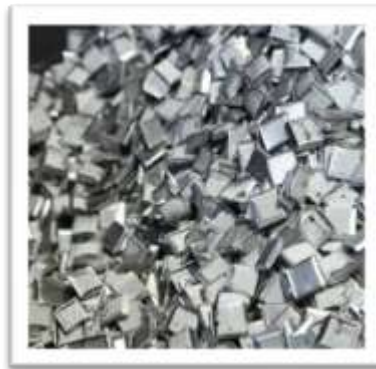
6. India imports lead majorly from countries such as South Korea, Australia, UAE, Vietnam and UK etc., while it exports majorly to countries such as USA, South Korea, Taiwan, UAE and Vietnam etc...

7. Lead & Zinc prices are influenced by economic factors in major consuming countries such as China, USA and India as well as supply disruptions factors in major producing countries such as China, Korea and Australia. Though lead is traded on LME, CME and SHFE, prices of Lead at LME are well accepted as global benchmark prices. Indian market works in tandem with global peers using LME prices as base and adds premium incrementally. Prices are determined depending upon the demand-supply mismatch, which in turn is dependent on the economic cycle.

Nickel

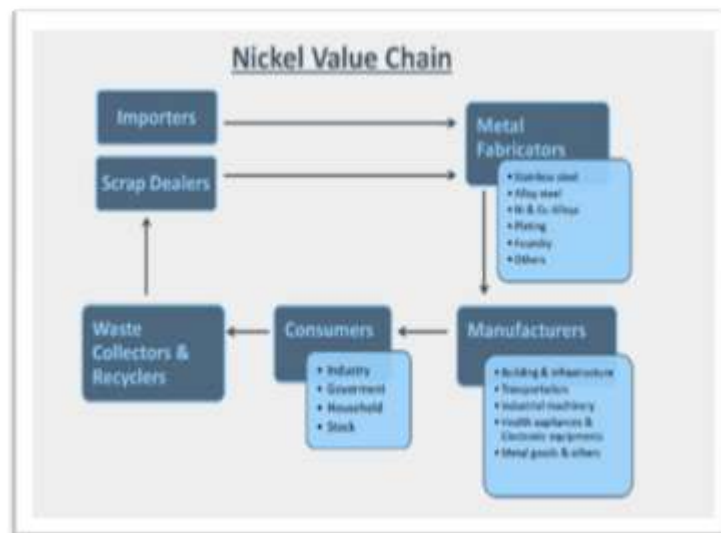
1. Nickel is a chemical element with symbol 'Ni' and atomic number 28. It is a silvery-white lustrous metal with a slight golden tinge. Some of the key characteristics of Nickel are high melting point, resistance against corrosion and oxidation, ductility and catalytical properties, ease of deposit by electroplating and formation of alloys readily.

Figure 14: Cut Nickel (4" x 4")



2. Nickel is used in food preparation equipment, mobile phones, medical equipment, transport, buildings, and power generation. Nickel gets precedence over other metals because it offers better corrosion resistance, better toughness, and better strength at high and low temperatures, a range of special magnetic and electronic properties. A pictorial representation of a typical value chain for nickel is as under:

Figure 15: A typical value chain for Nickel



3. There is no production of Nickel in India. Further, India is way behind the developed and the other developing countries in consumption. India's share in Nickel too continues to remain low as compared to other economies. India's rank in global nickel economy is as follows:
- Consumption - 7th
 - Export - 20th
 - Import - 14th

Table 13: India balance sheet for Nickel

<i>(in lakh tonnes)</i>				
<i>Financial Year</i>	<i>Production</i>	<i>Import</i>	<i>Export</i>	<i>Consumption</i>
12-13	0	1.02	0.21	0.57
13-14	0	1	0.26	0.37
14-15	0	1.3	0.47	0.27
15-16	0	1.39	0.37	0.37
16-17	0	1.24	0.08	0.57

4. India majorly imports nickel from countries such as Guinea, Australia, Belgium and Finland, while it exports nickel and articles to countries such as China, Malaysia, South Korea, Taiwan, Singapore and UAE etc...
5. The primary markets for Nickel are United States Australia Brazil Canada China Colombia Cuba Guatemala Indonesia Madagascar New Caledonia Philippines Russia. Major countries producing refined nickel are China, Japan, Russia, Canada and Norway constituting approximately 65% of production. Major consuming countries are China, Japan, USA, Germany, Taiwan and South Korea accounting for approximately 76% of world's consumption of nickel.
6. As India has no production of primary nickel, the consumers such as stainless steel manufactures directly imports the nickel while other MSMEs source their Nickel through importers of Nickel. The secondary market for nickel is mainly recycling of the primary metal. As Nickel is major catalyst to produce Stainless Steel, therefore recycling of stainless steel scrap can be termed as Nickel recycling. The scrap industry also plays an important role when prices of the primary Nickel hits a high. Demand-Supply balance plays a more important role in setting the prices

in the secondary market. In fact nickel is amongst the world's most highly recycled substances.

7. Nickel prices are influenced by economic factors in major consuming countries such as China, Japan and USA as well as supply disruptions factors in major producing countries such as China, Japan and Russia. Though nickel is traded on LME and SHFE, the prices at LME are accepted as global benchmark prices.

Iron

1. Iron ores are rocks and minerals from which metallic iron can be economically extracted. Iron is the world's most commonly used metal - steel, of which iron ore is the key ingredient, representing almost 95% of all metal used per year. It is used primarily in structural engineering applications and in maritime purposes, automobiles, and general industrial applications (machinery).

Figure 16: Iron Ore



2. Ores containing very high quantities of hematite or magnetite (greater than about 60% iron) are known as "natural ore" or "direct shipping ore", meaning they can be fed directly into iron-making blast furnaces.

Table 14: India balance sheet for Iron ore and concentrate

<i>(in Million Tons)</i>				
<i>Financial year</i>	<i>Production</i>	<i>Import</i>	<i>Export</i>	<i>Consumption</i>
12-13	136.6	.3	18.1	103.5
13-14	152.2	0.4	16.3	108.3
14-15	128.9	12.1	7.3	113.5
15-16	158.1	7.1	5.4	120.2
16-17	192.0	NA	NA	NA

3. Hematite and magnetite are the most important iron ores in India. About 59% hematite ore deposits are found in the Eastern Sector while about 92%

magnetite ore deposits occur in Southern Sector, especially in Karnataka. Major producers of iron ore includes NMDC, Vedanta Group, SAIL and Tata Steel. Iron and Steel sector including Sponge Iron industries account for over 99% of iron ore consumption in the country.

4. The major countries producing iron ore are Australia, Brazil, China, India and Russia which accounts for approximately 82% of world's production. Major consuming countries are China, India, Japan and South Korea accounting for approximately 70% of world's consumption of iron ore.
5. The Steel Index (TSI index) for 62% Fe iron ore fines, CFR Tianjin, is an established benchmark, the pricing point is CFRFO Tianjin port (China). It reflects the spot price of the most commonly traded iron ore products in the market - those with an iron content in the range 60-66% Fe. The price has been used as the leading settlement index for iron ore derivatives since 2009. As of date, there is no domestic benchmark price for iron ore. The pricing of iron ore is based on global parity and local demand and supply situation.

Steel

1. Iron & steel is decidedly the vital component of a country's economy and is considered amongst the driving force of modernization. The level of per capita consumption of steel is treated as one of the important indicators of socio-economic development and living standards in any country.

Figure 17: Steel



2. Steel continues to be the foremost engineering material, environment friendly and recyclable steel scrap recycling conserves raw material and energy. A pictorial representation of a typical value chain for steel is as under:

Figure 18: A typical value chain for Steel



3. As per the National Steel Policy 2017, India became the 3rd largest producer of steel in 2015 and is now well on track to emerge as the 2nd largest producer after China.

Table 15: India balance sheet for Finished Steel

<i>(in Million Tons)</i>				
<i>Financial year</i>	<i>Production</i>	<i>Import</i>	<i>Export</i>	<i>Consumption</i>
12-13	81.7	7.9	5.4	73.5
13-14	87.7	5.5	6.0	74.1
14-15	92.2	9.3	5.6	77
15-16	91.0	11.7	4.1	81.5
16-17*	73.9	5.5	4.9	61.5
<i>* Provisions (Apr-Dec 16)</i>				

4. Major producers of steel includes SAIL and Tata steel. The major consumers are from the sectors of construction and infrastructure, engineering and fabrication, automotive sector.
5. The major countries producing steel are China, Japan, India, USA and Russia which accounts for approximately 71% of world's production. Major consuming countries are China, India and Japan accounting for approximately 55% of world's consumption of steel.
6. Pricing for steel is region specific with major regions being the Chinese, American and Western Europe market. Price regulation of iron & steel was abolished in India on 16.1.1992. Since then steel prices are determined by the interplay of market forces. Domestic steel prices are influenced by trends in raw material prices, demand – supply conditions in the market, international price trends among others.

Appendix 3 – Brief overview of commodities in Precious Metals, Gems and Stone sector

Gold

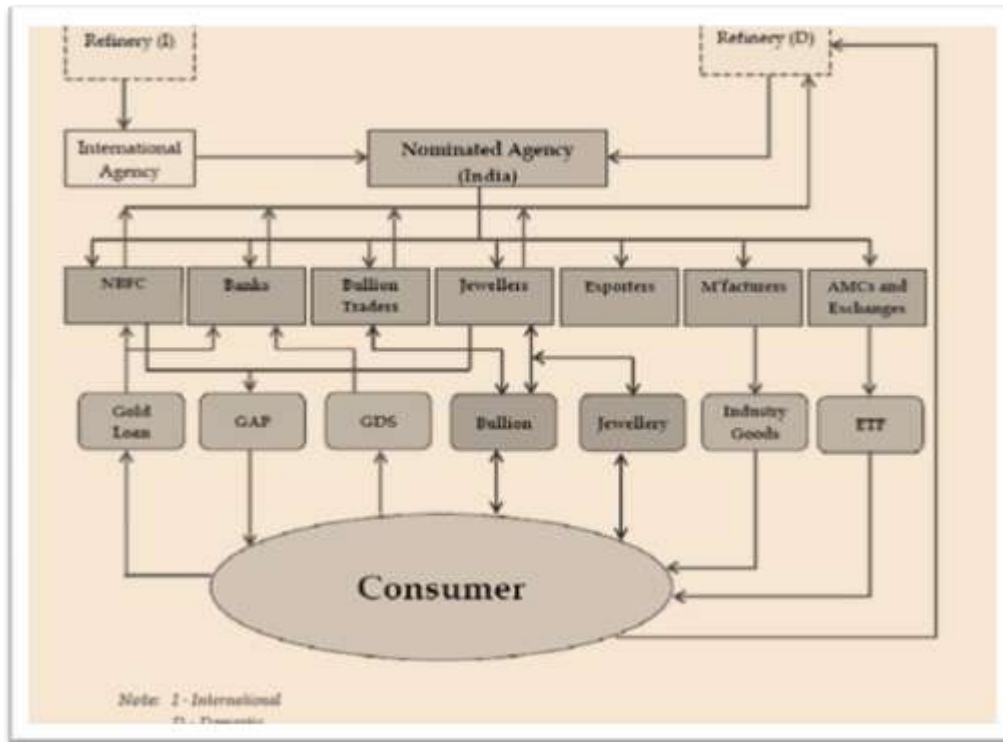
1. Gold is a chemical element with symbol '*Au*' (from Latin: aurum) and atomic number 79. In its purest form, it is a bright, slightly reddish yellow, dense, soft, malleable, and ductile metal. Chemically, gold is a transition metal and a group 11 element. It is one of the least reactive chemical elements and is solid under standard conditions.

Figure 19: Gold Bars



2. Gold often occurs in free elemental (native) form, as nuggets or grains, in rocks, in veins, and in alluvial deposits. It occurs in a solid solution series with the native element silver (as electrum) and also naturally alloyed with copper and palladium. Gold dissolves in mercury, forming amalgam alloys, but this is not a chemical reaction. Gold also dissolves in alkaline solutions of cyanide, which are used in mining and electroplating. A pictorial representation of a typical value chain for gold is as under:

Figure 13: A typical Gold Value Chain



3. India has negligible gold mine production and it is not a major gold exporter in pure bar form. However India does export gold jewellery and medallion. In terms of consumption, India is ranked second and also ranked number two in terms of imports after China.

Table 16: India balance sheet for Gold

<i>Indian supply estimates (tonnes)</i>	2014	2015	2016
Net bullion imports	898.6	913.6	557.7
Scrap	92.5	80.2	89.6
Domestic supply from other sources	9.9	9.2	9.9
Total supply	1001.0	1003.0	657.2

4. India imports Gold (unwrought or semi-manufactured) from countries such as Switzerland, UAE, USA, Ghana and South Africa, while it exports gold jewellery and medallions to countries such as US, Hong Kong, UAE.

5. The major countries producing Gold are China, Russia, Australia, United States of America and South Africa. Major consuming countries are China, India, United States of America and Middle East. Major Gold exporting countries are Switzerland, China, Hong Kong, United States of America and UAE.
6. Internationally, prices of gold on Chicago Mercantile Exchange (CME), US are well accepted as global benchmark prices. London (UK) spot gold prices are also referred to as the benchmark price. Gold being a commodity as well as an investment asset class is influenced by various factors such as various economic data releases in major economies particularly US which are having direct impact on US dollar which in turn influences gold prices, US Fed policy decisions on interest rates, Geopolitical tensions which result in safe haven buying, any major shift in policy and demand in top two consuming countries China and India and major shift in production/ disruption in mines producing gold
7. Domestically, spot prices of gold are reflection of the international benchmark prices i.e. CME prices. Rupee movement has direct impact on the prices as most of gold is imported in our country. Government policies and change in taxes also have a bearing on the prices.

Silver

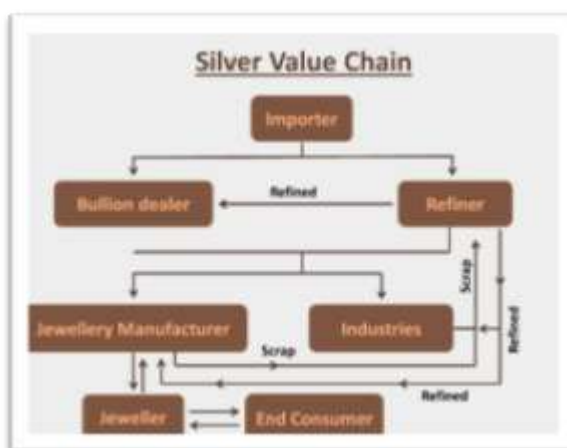
1. Silver has been used for thousands of years for ornaments and utensils, trade, and as the basis for many monetary systems. Its value as a precious metal was long considered second only to gold. Silver is a brilliant grey-white metal that is soft and malleable. Its unique properties include its strength, malleability, ductility, electrical and thermal conductivity, sensitivity, high reflectance of light, and reactivity. Silver is found in native form, as an alloy with gold (electrum), and in ores containing sulphur, arsenic, antimony or chlorine.

Figure 21: Silver



2. Silver's catalytic properties make it ideal for use as a catalyst in oxidation reactions, for example, the production of formaldehyde from methanol and air by means of silver screens or crystallites containing a minimum 99.95 weight-percent silver. Silver is used to make solder and brazing alloys, and as a thin layer on bearing surfaces can provide a significant increase in galling resistance and reduce wear under heavy load, particularly against steel. A pictorial representation of a typical value chain for silver is as under:

Figure 22: A typical Silver Value Chain



3. India is not a major silver exporter in pure form, although it exports silver jewellery. In terms of mine production, India is ranked 14th and is ranked third in terms of demand and imports.

Table 17: India balance sheet for Silver

<i>In Tonnes</i>	<i>2014</i>	<i>2015</i>	<i>2016</i>
Total Supply	6,590	7,702	3,067
Mine Production	261	374	436
Recycling of Scrap	92	79	85
Imports	6,237	7,249	2,546
Silver Fabrication:	6,247	7,374	5,081
Coins & Medals including Scrap	195	278	291
Industrial Applications	1,041	990	993
Electrical And Electronics	501	451	453
Brazing Alloys And Solders	82	77	77
Photographic Use	10	6	6
Jewellery And Silverware	3,058	3,539	2,945
Jewellery	1,936	2,254	1,930
Silverware	1,122	1,285	1,015

4. India imports Silver (unwrought or semi-manufactured) from countries such as China, United Kingdom, Russian Federation, Germany and Rep of Korea, while it exports silver jewellery to countries such as US, Hong Kong, UAE.
5. The major countries producing Silver are Mexico, Peru, China, Chile and Russia. Major consuming countries are United States, China, India, Japan and Russia. Major Silver exporting countries are Mexico, Rep of Korea, Canada, China and Hong Kong.
6. Internationally, prices of silver on CME is well accepted as global benchmark prices. Silver being a commodity as well as an investment asset class is influenced by various factors such as various economic data releases in major economies particularly USA which are having direct impact on US dollar, USA Fed policy decisions on interest rates, geopolitical tensions which result in safe haven buying, any major shift in

policy and demand in top two consuming countries China and India and major shift in production/ disruption in mines producing gold

7. Indian local spot silver prices are reflection of the international benchmark prices i.e. CME prices. Rupee movement has direct impact on the prices as most of silver is imported in our country. Government policies and changes in tax structure also have a bearing on the prices.

Diamond

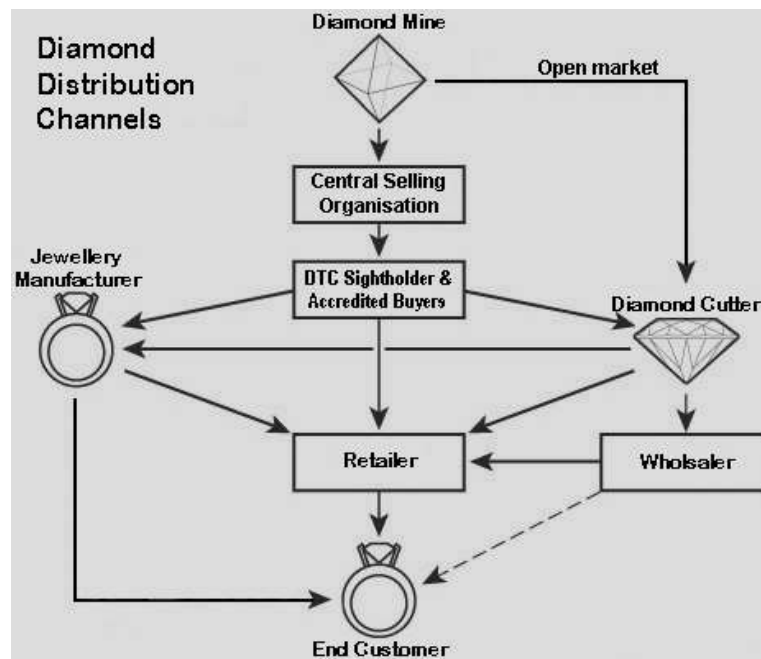
1. Diamond has been the most valuable among gems for more than 2,000 years. Diamond occurs in two types of deposits primarily in igneous rocks of basic or ultrabasic composition and in alluvial deposits derived from the primary sources. Its composition is pure carbon and has cubic crystal system and common form octahedron.

Figure 23: Diamond



2. A pictorial representation of the typical value chain for diamonds is as under:

Figure 24: A typical Diamond value chain



3. Diamond has a high refractive index and strong dispersion which gives it exciting brilliance when cut as a faceted stone. Gem diamonds are transparent and colourless or show faint shades of different colours. The transparent water-clear diamonds are known as "first water" or "blue-white". When yellowish or honey colour tinge is present, they are termed as off-colour stones. The industrial diamonds are dark brown in colour. Diamonds with green, blue or red shades are rare and attract higher price than the common varieties.
4. Diamond trade and industry in India consists of import of rough diamond, cutting and polishing of rough diamond and export of polished diamond/ diamond stud jewellery. Production or mining of rough diamond in India is negligible compared to total mining in the world. Further, with 8% share in demand for polished diamonds, India is now the world's third largest diamond consumer.
5. The principal producers of Diamond are Russia (31%), Botswana (20%), Congo Dem. Rep. (12%), Canada (10%), Australia & Angola (7% each) and South Africa (6%). Natural diamonds are cut in 52 countries. The major diamond cutting centres in the world are Antwerp in Belgium, Ramat Gan in Israel, New York in USA, Surat in India and Guangzhou & Shenzhen in China.
6. The Rapaport price list act as a primary source of diamond price information for the diamond trade and is commonly used by dealers as an approximate guideline for evaluating diamond prices. In India, spot price of diamond is derived mainly in terms of discount to the Rapaport's suggestive price list.

Appendix 4 – Brief overview of commodities in Energy Sector

Crude Oil

1. Crude oil or petroleum is a naturally occurring and flammable liquid found in rock formations in the earth. It consists of a complex mixture of hydrocarbons of various molecular weights plus other organic compounds. The main characteristics of crude oil are generally classified according to its sulphur content and density, which the petroleum industry measures by its American Petroleum Institute (API) gravity. Sweet crudes are defined as those with 0.5% sulphur content or less while sour crudes have a sulphur content of 1.5% or more. The area between 0.5-1.5 percent is sometimes referred to medium sweet or medium sour.

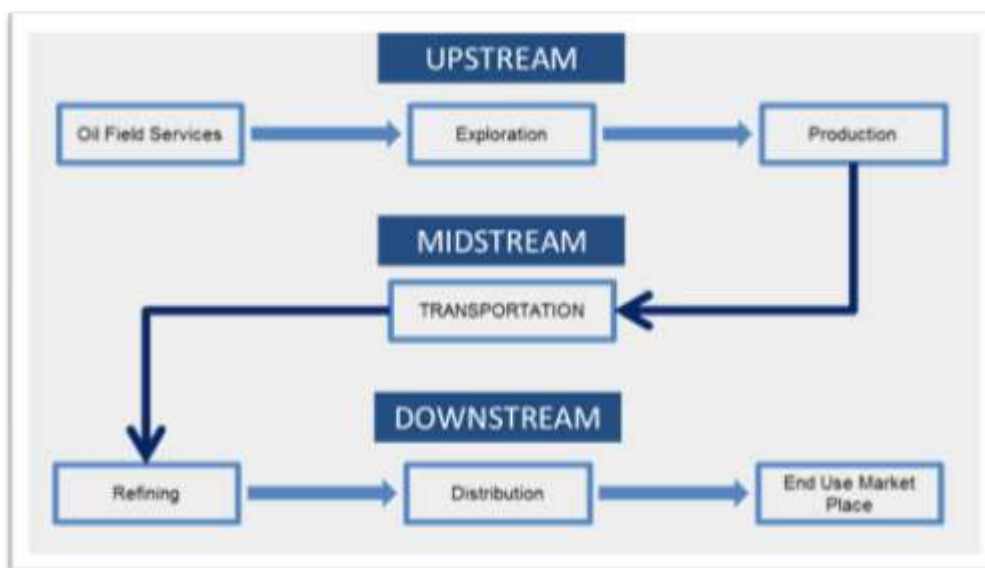
Figure 14: Natural petroleum spring in Korňa, Slovakia



2. Once crude oil is extracted from the ground, it must be transported and sent to an oil refinery. Since crude oil is a highly variable mixture of heavy and light hydrocarbons, it is separated in a refinery to turn them into usable products for industry and consumers like petrol, diesel, kerosene, LPG etc. The different types of oil products contained in a barrel of crude oil each have their own boiling temperature. Oil products are categorised into groups, called fractions, which are determined according to that product's boiling point. Crude oil is one of the most economically mature

commodity markets in the world. Even though most crude oil is produced by a relatively small number of companies, and often in remote locations that are very far from the point of consumption, trade in crude oil is both robust and global. Nearly 80% of international crude oil is transported through waterways in super-tankers. A pictorial representation of the typical value chain for crude oil is as under:

Figure 26: Crude Oil Value Chain



- India imports more than three-fourth of its consumption of crude oil. India is expected to be one of the largest contributors to non-OECD petroleum consumption growth globally.

Table 18: India balance sheet for Crude Oil

<i>In MMT</i>					
<i>Financial Year</i>	<i>2012-13</i>	<i>2013-14</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>
Production	37.90	37.80	37.50	36.95	37.08
Imports	184.80	189.24	189.44	202.85	215.72
Consumption/ Refinery Throughput	218.85	222.45	223.26	232.87	245.37
<i>MMT- Million Metric Tonnes</i>					

- Government-owned Oil and Natural Gas Corporation (ONGC) dominates the upstream segment (exploration and production), and accounted for 57 percent of the country's domestic crude oil production in 2016-17. Refiners are the consumers of crude oil, which gets processed in refineries to make

usable products for consumers like petrol, diesel, kerosene, jet fuel, LPG etc. There exist two broad categories of refiners in India; the public and the private sector. In terms of refining capacity, the Indian refining capacity is approximately 230 MMTPA (Million Metric Tonnes Per Annum). Refiners' supply and distribution network is strategically located across the country linked through a customized supply chain system.

5. Fuel products constitute the vast majority of demand for petroleum. Petrol is used to power automobiles, light trucks, boats, recreational vehicles and farm equipment. Jet Fuel is used for commercial aircraft, while diesel is used to power buses, trucks, trains and machinery, and fire industrial boilers. Liquefied petroleum gases (LPGs) such as ethane, propane, and butane are used for petrochemical feedstock's, domestic heating and cooking, farming and as a gasoline alternative. Petroleum is also used to create solvents, lubricating oils, waxes, asphalt, fertilizers, pesticides, synthetic rubber and plastics and therefore used in these industries. Taking into account the energy security concerns of India, the Government is setting up Strategic Crude Oil Storage of 5.33 MMT of crude oil.
6. Globally, the United States continues to be the top crude oil producer in the world for three consecutive years now, after surpassing Saudi Arabia in 2014. Following US, the Kingdom of Saudi Arabia contributed to 13% of the total world production. Russia currently positions third among the top producers, although it has fallen in its ranks over the years. The United States is the largest consumer of crude oil and accounted for 20 percent of the total world consumption, followed by China, India and Japan. Together, they account for 41 percent of oil consumed in 2016.
7. Crude oil futures and options are traded primarily on the New York Mercantile Exchange (Nymex) and the Intercontinental Exchange (ICE). In the US, the West Texas Intermediate (WTI) crude oil is the benchmark. Brent crude from the North Sea is now generally accepted to be the world benchmark as it is used to price a significant proportion of the world's internationally traded crude oil supplies.
8. Domestically, since crude oil benchmarks are priced in US dollars, and therefore the USD-INR exchange rate plays a major role in establishing the local price of oil. The refining margin of a region impacts demand of the local crude and therefore has a hand in the movement of crude prices.

Natural Gas

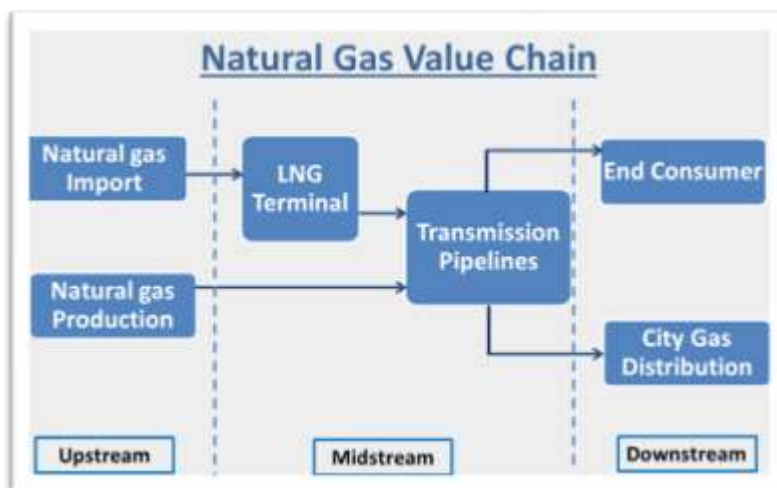
1. Natural gas is a colourless, odourless, highly flammable gaseous hydrocarbon which gives off a great deal of energy when burned. Although it consists primarily of methane, it can also contain ethane, propane, butane and pentane. These co-products, once removed from the gas stream, are called natural gas liquids (NGLs). Natural gas is relatively clean burning, emitting relatively low levels of harmful combustion by-products. Like oil, natural gas is described as sweet or sour depending on, in the case of gas, its hydrogen sulphide content. Hydrogen sulphide is highly poisonous and is removed during processing.

Figure 27: Natural Gas



2. The major use for gas is in homes, businesses and factories for heating, cooking and cooling. Natural gas is increasingly used as a source of energy for electricity generation via gas turbines and steam turbines. Compressed natural gas (CNG) is used as a vehicle fuel for public transport buses. In addition, natural gas is used as a base ingredient in the manufacture of ammonia, anti-freeze, fabrics, glass, steel, plastics and paint. A pictorial representation of the typical value chain for natural gas is as under:

Figure 28: Natural Gas Value Chain



3. Domestic Natural Gas demand far exceeds domestic supply with additional demand being catered through imported R-LNG. India has four LNG terminals at a combined capacity of 27 million tonnes per annum with Dahej housing the biggest 15 million tonnes terminal. The country has about 16,000 km of gas pipeline.

Table 19: India balance sheet for Natural Gas

<i>Particulars</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17(P)</i>
Gross Production	92.91	88.11	87.39
Net production (net of flare and loss)	89.57	85.08	84.51
LNG Import	50.78	58.22	67.63
Total consumption including internal use (Net production + LNG import)	140.35	143.3	152.14
Total consumption (BCM)	51.2	52.4	55.4
Total consumption (MMSCM)	51229	52448	55534
<i>MMSCM - Million Metric Standard Cubic Meters</i>			
<i>BCM- Billion Cubic Meters</i>			

4. India is the fourth-largest Liquefied Natural Gas (LNG) importer and accounts for 5.8 per cent of the total global trade. Major countries from which India imports Natural Gas are Qatar and Nigeria. However, the current natural gas market in the country is not having as flexible LNG supply than is currently in place in other countries that would require a continued expansion of shipping availability.
5. ONGC and Oil India Ltd. (OIL) are the leading companies with respect to production volume, private fields also contribute to production. The major consumption in India is in the fertilizer and power sectors. The demand for fertilizer sector is met through domestic gas and imported LNG. Gas Transmission and Marketing in India is majorly handled by GAIL that has adopted a Gas Management System to handle multiple sources of supply and delivery of gas in a co-mingled form and provide a seamless interface between shippers, customers, transporters and suppliers. GAIL is actively pursuing opportunities in inter-regional gas trade both in the form of Pipeline gas and LNG.

6. Globally, major producers of Natural Gas are USA, Russian Federation, Iran and Qatar while the major consumers of Natural Gas are US, Russian Federation, Iran and China.
7. Natural gas market hubs have been a key feature of competitive gas markets in the United States, the United Kingdom, and Europe. Henry Hub in the United States is the most successful gas market hub with a large, liquid futures market linked to the price index at the hub, which serves as a benchmark indicator of the value of gas in the United States. Benchmark pricing is also provided in the United Kingdom at the National Balancing Point (NBP) and the Netherlands at the Title Transfer Facility (TTF), although neither has a forward price curve as liquid as Henry Hub. Several price indexes have been developed to track LNG trade in Asia. These include the Japan Monthly LNG Spot index tallied by METI, the East Asian Index (EAX) tracked by ICIS Heren, the Platts Japan and South Korea Index tracking the price of LNG delivered to these two countries (JKMTM), and the Singapore Exchange LNG Index (SLInG) compiled by SGX.
8. Domestically, from April 1, 2014, India agreed on a pricing formula for gas supply contracts with producers. The new formula would be valid for five years and applies only to new contracts or renewals when existing ones expire. It does not apply to contracts which contain a specific formula for natural gas price indexation or fixing.
9. The price of long term LNG imported from Qatar has been linked to Japanese Custom Cleared prices and varies on a monthly basis for Petronet LNG. India has recently reformed its upstream sector by introducing its new Hydrocarbon Exploration and Licensing Policy, which provides full freedom for Marketing and Pricing.

Coal

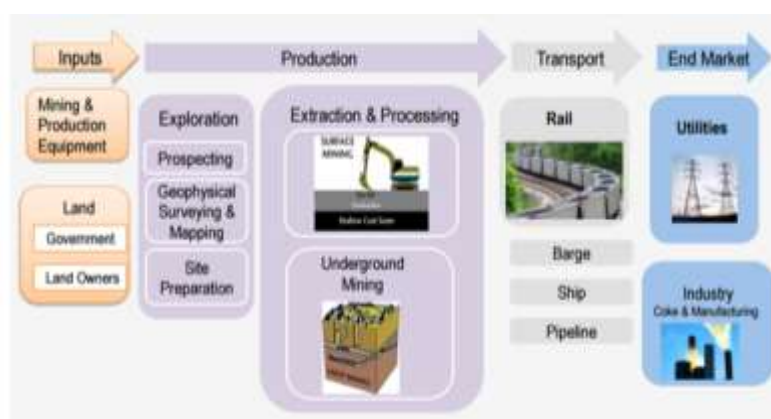
1. Coal is a combustible black or brownish-black sedimentary rock usually occurring in rock strata in layers or veins called coal beds or coal seams. Coal is composed primarily of carbon, along with variable quantities of other elements such as hydrogen, sulphur, oxygen, and nitrogen. Coal is a fossil fuel that forms when dead plant matter is converted into lignite, then sub-bituminous coal, after that bituminous coal, and lastly anthracite. This involves biological and geological processes which take place over millions of years.

Figure 29: Coal Rocks



2. Coal is the most widely used energy source for electricity generation and an essential input for steel production. In addition, other industries like cement, fertilizer, chemical, paper and thousands of medium and small-scale industries are dependent on coal for their process and energy requirements. A pictorial representation of the typical value chain for coal is as under:

Figure 30: A typical coal value chain



3. India is the third-largest producer of coal after China and the US and has 299 billion tonnes of resources and 123 billion tonnes of proven reserves, which may last for over 100 years. Further there has been a continuous increase in overall consumption of coal in India over the years with power, fertiliser and cement sector constituting bulk of demand for non-coking coal while the steel sector accounting for demand for coking coal.

Table 20: India balance sheet for Coal

			(MT)
<i>Financial Year</i>	<i>Production</i>	<i>Import</i>	<i>Consumption</i>
12-13	556.4	145.8	713.4
13-14	565.8	166.9	739.4
14-15	609.2	217.8	822.2
15-16	639.2	204	832.4
16-17	659.3	192	884.9

4. The bulk of coal production in India is done by the public sector with Coal India accounting to ~80% of the total coal production of the country. India imports coal primarily from Australia, Indonesia and South Africa.
5. Globally, largest producer of coal is China followed by USA, India, Australia, Indonesia and Russia. China is also the largest consumer of coal followed by USA and India. Coal is also traded all over the world with the Atlantic Market primarily made of Western Europe countries and the Pacific market by the Asian countries.
6. Internationally, various coal price indices are used across the world with Australian Newcastle Coal Index used primarily in the Pacific Market. Domestically, post the deregulation of the pricing of coal in 2000, coal producing companies were entitled to fix the coal prices on their own and revise the same periodically. The pricing of coal is based on factors such as the type of coal, its net calorific value, the content level of impurities and such price would be revised considering the escalation in input cost, inflation and landed cost of imported coal. The final customer price includes freight and other charges (royalties and sales tax). Coal is typically sold under the long-term fuel supply agreements ("FSAs") or the E-Auction scheme.

Abbreviations

APMC	:	<i>Agricultural Produce Market Committees</i>
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BCM	:	<i>Billion Cubic Meters</i>
CBOT	:	<i>Chicago Board of Trade</i>
CIL	:	<i>Coal India Limited</i>
CME	:	<i>Chicago Mercantile Exchange</i>
CNG	:	<i>Compressed natural gas</i>
COMEX	:	<i>Commodity Exchange Inc.</i>
DCCC	:	<i>Dubai Commodities Clearing Corporation</i>
DCE	:	<i>Dalian Commodity Exchange</i>
DGCX	:	<i>Dubai Gold & Commodities Exchange</i>
DGFT	:	<i>Directorate General of Foreign trade</i>
DMCC	:	<i>Dubai Multi Commodities Centre</i>
DME	:	<i>Dubai Mercantile Exchange</i>
e-NWR	:	<i>Electronic negotiable warehouse receipt</i>
ETF	:	<i>Exchange Traded Fund</i>
FCI	:	<i>Food Corporation of India</i>
FCRA	:	<i>Forward Contracts (Regulation) Act, 1952</i>
FMC	:	<i>Forward Markets Commission</i>
FTA	:	<i>Free trade Agreement</i>
FTP	:	<i>Free Trade Policy</i>
FTZ	:	<i>Free trade Zone</i>
FY	:	<i>Financial year</i>
GAIL	:	<i>GAIL (India) Ltd</i>
GAP	:	<i>Gold Accumulation Plan</i>
GDS	:	<i>Gold Deposit Scheme</i>
GMS	:	<i>Gold Monetisation Scheme</i>
GoI	:	<i>Government of India</i>
GST	:	<i>Goods and Services Tax</i>
HCL	:	<i>Hindustan Copper Limited</i>
HZL	:	<i>Hindustan Zinc Limited</i>
ICE	:	<i>Intercontinental Exchange</i>
ICEX	:	<i>Indian Commodity Exchange Limited</i>

IGE	: <i>Istanbul Gold Exchange</i>
IME	: <i>Iran Mercantile Exchange</i>
KCE	: <i>Konya Commodity Exchange</i>
KRX	: <i>Korea Exchange</i>
KYC	: <i>Know Your Client</i>
LBMA	: <i>London Bullion Market Association</i>
LME	: <i>London Metal Exchange</i>
LNG	: <i>Liquefied Natural Gas</i>
LPG	: <i>Liquefied petroleum gas</i>
MCX	: <i>Multi Commodity Exchange of India Ltd.</i>
MMSCM	: <i>Million Metric Standard Cubic Meters</i>
MMT	: <i>Million Metric Tonne</i>
MoF	: <i>Ministry of Finance</i>
MSME	: <i>Medium, Small and Micro enterprises</i>
NAFED	: <i>National Agricultural Cooperative Marketing Federation of India Ltd.</i>
NALCO	: <i>National Aluminium Company Limited</i>
NBFC	: <i>Non-Banking Financial Company</i>
NCDEX	: <i>National Commodity & Derivatives Exchange Limited</i>
NMCE	: <i>National Multi Commodity Exchange</i>
NMDC	: <i>National Mineral Development Corporation</i>
NYMEX	: <i>New York Mercantile exchange</i>
OIL	: <i>Oil India Ltd.</i>
ONGC	: <i>Oil and Natural Gas Corporation</i>
OTC	: <i>Over the Counter</i>
PBOC	: <i>People's Bank of China</i>
RBI	: <i>Reserve Bank of India</i>
RBT	: <i>Rosario Board of Trade</i>
SAIL	: <i>Steel Authority of India Limited</i>
SAMB	: <i>State Agricultural Marketing Board</i>
SCRA	: <i>Securities Contracts (Regulation) Act, 1956</i>
SDiX	: <i>Singapore Diamond Investment Exchange</i>
SEBI	: <i>Securities and Exchange Board of India</i>
SGE	: <i>Shanghai Gold Exchange</i>
SGX	: <i>Singapore Exchange Ltd.</i>

<i>SHFE</i>	<i>:</i>	<i>Shanghai Futures Exchange</i>
<i>SPCB</i>	<i>:</i>	<i>State Pollution Control board</i>
<i>SWFs</i>	<i>:</i>	<i>Sovereign Wealth Funds</i>
<i>TOCOM</i>	<i>:</i>	<i>Tokyo Commodity Exchange</i>
<i>ToR</i>	<i>:</i>	<i>Terms of Reference</i>
<i>UAE</i>	<i>:</i>	<i>United Arab emirates</i>
<i>UK</i>	<i>:</i>	<i>United Kingdom</i>
<i>USA</i>	<i>:</i>	<i>United States of America</i>
<i>UT</i>	<i>:</i>	<i>Union Territory</i>
<i>WDRA</i>	<i>:</i>	<i>Warehousing Development and Regulatory Authority</i>
<i>WSP</i>	<i>:</i>	<i>Warehouse Service Provider</i>
<i>ZCE</i>	<i>:</i>	<i>Zhengzhou Commodity Exchange</i>

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