COMPETITION ASSESSMENT OF FERTILIZER SECTOR: INDIA

Submitted to Competition Commission of India
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TABLE OF CONTENTS

SUMMARY ........................................................................................................................................................................ 5

AGRICULTURE
Overview ....................................................................................................................................................................... 6

FERTILIZER INDUSTRY
Overview ....................................................................................................................................................................... 7
Present Status of the Industry .................................................................................................................................. 8
Growth of the Industry .............................................................................................................................................. 9
Major Players in the Market ...................................................................................................................................... 10
Map Showing Locations of Different Fertilizer Plants .............................................................................................. 11
India’s foreign Trade .................................................................................................................................................. 12
Fertilizer Demand & Consumption ........................................................................................................................... 14

FERTILIZER’S REGULATION IN INDIA
Recent Changes in the Concession Scheme ................................................................................................................ 15
Nutrient Based Fertilizer Scheme ............................................................................................................................. 16
Central Subsidy on Fertilizer ..................................................................................................................................... 16
Pricing Mechanism ..................................................................................................................................................... 17

COMPETITION ACT, 2002 ........................................................................................................................................... 19

COMPETITION ASSESSMENT OF FERTILIZER SECTOR
Relevant Product Markets ............................................................................................................................................. 19
Fertilizer Supply Chain .............................................................................................................................................. 21
Porter’s Five Forces Model ......................................................................................................................................... 22
Challenges/Problems of Fertilizer Markets ................................................................................................................ 25
Role of CCI ................................................................................................................................................................. 28

CONCLUSION ............................................................................................................................................................ 29

REFERENCES ............................................................................................................................................................ 30
SUMMARY
The Indian Fertilizer Industry has come a long way since its early days post independence. India today is one of the largest producer and consumer of Fertilizers in the world. Fertilizers Industry, given its strategic importance in ensuring self-sufficiency of food grain in the country, has for decades, been under government control. The government has over the years provided subsidies/concessions through the fertilizer companies to farmers and the manufacturers have been compensated through various schemes.

In my report I seek to discuss the challenges and problems faced by the fertilizer sector highlighting on the activities which are anti competitive. Starting with a brief overview of the Agriculture, I take into consideration the Fertilizer sector specifically wherein I discuss about the present status, growth of the industry and foreign trade of fertilizers. The last part of the report brings out the study of the sector under the ambit of Porter’s Five Forces Model followed by the challenges and problems in fertilizer sector. Lastly discussing what can be the role of CCI in solving the issues discussed.

Government has opted new regime of subsidy regime and has also new price policy regime aimed at achieving to total deregulation in the sector. Practice of collusion and abuse of dominance are the cases which this sector can be prone to, reason being the less number of players in this market and also the bargaining power of buyers (here farmers) is low, also lack of monitoring lead to anti competitive at the level of distribution of fertilizers to end consumers.

Since fertilizer sector directly influences in agriculture, impacting prices and making food more expensive, thus the fertilizer study becomes of the utmost importance.
AGRICULTURE: An Overview

Agriculture is defined as the backbone of Indian economy. Agriculture accounts for 22% of India’s GDP, approximately 58% of the population is working in agriculture. Village farming and modern agriculture are two major components of Indian economy. In world output, India ranks first in production of milk, fruits, cashew nuts, coconuts and tea; second in wheat, sugar, vegetables and third in tobacco and rice. Although India has the second greatest area of arable land in the world its agricultural output, particularly in wheat and rice does not reflect its great potential, with rapid population growth and industrialization being contributing factors in low agricultural production vis-à-vis production potential.

As India being one of the largest agrarian economies, the agriculture sector and allied activities in India accounted for 15.7 per cent of the GDP (at constant prices) in 2008-09, compared to 18.9 per cent in 2004-05, and contributed approximately 10.2 per cent of total exports during 2008-09. The performance of agriculture is important as the sector not only contributes to overall growth of the economy but also provides food security to majority of the population in the country and is also a major source of livelihood. Notwithstanding the fact that the share of this sector has been declining over the years, its role remains critical as it provides employment. Other sectors growth is dependent on performance of agriculture to a considerable extent. Because of these reasons agriculture is at the core of socio economic development and progress of Indian Society and thus proper policy is crucial to improve living standards and welfare of masses.

The National Agricultural Policy (NAP) underscores the significance of efficient use of resources in achieving sustainable high growth in agriculture sector. Competitive market structures in each stage of agriculture value chain are a prerequisite for efficient use of resources, which leads to higher productivity and thus greater consumer and farmer welfare. And it is this context that competition analysis of agriculture value chain assumes particular relevance.

Considering the strategic economic importance of agriculture, the government has always provided support to it in various forms such as direct or indirect subsidies, soft credits and R&D support. Though there have been improvement seen in this sector but still government needs to counter production shortfalls which occur time to time. Considering the fiscal side, the rising burden of revenue deficit due to subsidies has created fiscal imbalance at center stage and also the sudden upsurge in food prices was seen recently. An in-depth analysis is necessary to understand the role of subsidies and their impact on raising the general standard of living, in terms of per capita income and consumption. This analysis should reveal if the supposed benefits of these subsidies have been effectively reflected in terms of real per capita income and in bridging gaps within the supply chain. Such an analysis should also provide a preamble for a more transparent, competition-oriented policy that subsumes different market segments within a deregulated, free market framework.

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1 Bonnie Le
The government normally adopts price controls (support prices and subsidies) to manage the phenomena of hoardings, shortages and other such practices. Nevertheless, this phenomenon persists. What is required is a long term policy shift from a focus on price alone to enhancing growth through:

- Better utilization of water;
- Use of improved seeds;
- Balanced use of fertilizer;
- Enhanced agricultural credit;
- Improved agriculture technology;
- Education and awareness of farmers;
- Enhanced farmer protection through crop insurance and mitigation of post harvesting losses; and
- Better administrative controls to prevent smuggling.

It is important to examine how effectively government policies and measures in these areas can be eventually delivered to the farmers.

Though this preamble, the scope and importance of this study can be defined more clearly and an assessment of the current market structure of the fertilizer sector/industry is crucial in this regard. It is therefore important to assess whether the industry participants are passing on the benefits to end-consumers and also assessing the fertilizers sector in general.

**FERTIZERS OVERVIEW**

The fertilizer industry is one of the most energy intensive sector within Indian economy and is therefore of particular interest in the context of both local and global environment discussions. Increase in productivity of this good with the use of cleaner and more efficient technologies in the manufacturing sector will be most effective in merging economic, environment and social development objectives.

Being the backbone of agricultural productivity, the role of fertilizers will always remain crucial. In developing countries like India, with increase in demand for food the demand for fertilizer supply has experienced an upward shift. There is little doubt that improved productivity can only be attained through better management of inputs, including fertilizers.

Fertilizers production in India is nutrient wise. The three main nutrients- Phosphate, Potash and Nitrogen (Urea) are used for fertilizers creation. Urea, ammonium sulphate, calcium ammonium nitrate (CAN) and ammonium chloride are the nitrogenous fertilizers produced in India and single superphosphate (SSP) is the only phosphatic fertiliser that is produced in India. Additionally, nutrients are combined to produce several complex fertilizers. Production of complex fertilizers include DAP (Diammonium Phosphate), several grades of nitrophosphates and NPK complexes. Urea, DAP, SSP and Muriate of Potash (MOP) are the most commonly used fertilizers. Among these, urea and DAP are the main fertilizers that are produced indigenously. Due to the lack of viable resources or reserves of potash
in India, the entire feedstock requirement for potassic fertilisers are imported. Thus, Potash based fertilizer demand is entirely met by imports, for Phosphate fertilizer raw materials are imported and lastly Natural Gas and LNG is being imported for Urea fertilizer production. In India, technical problems, power shortages and stringent government policies lead to problems in production expansion and high import prices is a matter of concern especially for farmers.

Fertilizer in the agricultural process is an important area of concern. Fertilizer industry in India has succeeded in meeting the demand of all chemical fertilizers in the recent years. The Fertilizer Industry in India started its first manufacturing unit of Single Super Phosphate (SSP) in Ranipet near Chennai with a capacity of 6000 MT a year. The Fertilizer & Chemicals Travancore of India Ltd. (FACT) at Cochin in Kerala and The Fertilizer Corporation of India(FCI) in Sindri in Bihar were the first large sized plants set up in forties and fifties with a view to establish industrial base and attain self sufficiency in food grains. An impetus to the growth of fertilizer industry in India was given by Green revolution in Sixties. Further a significant addition to the production was witnessed in seventies and eighties. The fertilizer industry has played an pivotal role in achieving self sufficiency in food grains as well as in rapid and sustained agricultural growth. India is third largest producer and consumer in the world after China and the United States. According to Given Statistics, total capacity of the industry as on 30.01.2003 has reached a level of 121.10 lakh MT of nitrogen (inclusive of an installed capacity of 208.42 lakh MT of urea after reassessment of capacity) and 53.60 lakh MT of phosphate nutrient.

The growth of Indian fertilizer has been largely determined by the policies pursued by the government which mainly confine to controls on the pricing, distribution and movement of fertilizers. The industry is capital intensive and the production process energy intensive with the combined cost of feedstock and fuel accounting for anywhere between 55 and 80 per cent of cost of production, depending on the type of fertilizers.

PRESENT STATUS of FERTILIZER INDUSTRY

India being the third largest producer and consumer of fertilizers in the world with an installed capacity of Nitrogen (N) and Phosphate (P) nutrients at 14 million tones p.a.

Urea, a nitrogenous type of fertilizer, is most widely consumed in India. Currently the urea capacity is 20.2 million tonnes while consumption is 21.7 million tonnes.

Fertilizer production is highly energy intensive with cost of feedstock and fuel alone accounting for between 55 to 80 per cent of the cost of production. Plants in India is based primarily on three feedstock – naphtha, fuel oil and natural gas with a significant proportion of domestic capacity of urea plants based on naphtha or fuel oil which cost more than natural gas. High cost feedstock and increased production/consumption have caused a steady increase in fertilizer subsidy.

Installed capacity is 20.8 million MT in 2003-04.

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\(^2\) The investment in the fertilizer industry witnessed a rapid growth rate over the successive plan periods for creation of new capacities and expansion of the existing units. The amount increased to Rs 154.77 bn by the end of the Eighth Plan and to Rs 256.44 bn by the end of the Ninth Plan.
GROWTH OF THE INDUSTRY
As on 31st January 2008, the country has installed capacity of 120.61 lakh MT of nitrogen and 56.59 lakh MT of Phosphate. Presently, there are 56 large sized fertilizers plants in the country manufacturing a wide range of nitrogenous, phosphate and complex fertilizers. Out of these 30 (as on date 28 are functioning) units produce urea, 21 units produce DAP (Di-ammonium phosphate) and complex fertilizers, 5 units produce low analysis straight nitrogenous fertilizers and the remaining 9 manufacture ammonium sulphate as-product. Besides there are about 72 medium and small scale units in operation producing SSP (Single Super Phosphate). The sector wise installed capacity is given below:

Sector-wise and Nutrient-wise installed capacity of Fertilizer Manufacturing units (as on 1st January 2008)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>SECTOR</th>
<th>Capacity (lakh MT)</th>
<th>Percentage Share</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Nitrogen</td>
<td>Phosphate</td>
</tr>
<tr>
<td>1</td>
<td>Public sector</td>
<td>34.98</td>
<td>4.33</td>
</tr>
<tr>
<td>2</td>
<td>Cooperative sector</td>
<td>31.69</td>
<td>17.13</td>
</tr>
<tr>
<td>3</td>
<td>Private sector</td>
<td>53.94</td>
<td>35.13</td>
</tr>
<tr>
<td>4</td>
<td>Total</td>
<td>120.61</td>
<td>56.59</td>
</tr>
</tbody>
</table>

The fertilizer production increased from 9.04 MMT in FY91 to 14.63 MMT in FY02. However, during the Tenth Plan Period, the fertilizer production registered a moderate growth and along with it the capacity expansion of the industry had also remained by and large stagnant. Fertilizer production grew by an average 2.0% during FY03-FY07 which could be mainly attributed to the absence of fresh investment and non-implementation of a number of projects that were envisaged to be implemented during the Tenth Plan. While the growth in production has been sluggish during the Tenth Plan period, growth in the fertilizer production declined successively during FY08 and FY09; as a result, capacity utilization witnessed moderation over the last few years. Nonetheless, the domestic industry’s capacity utilization was more or less at a par with the global fertilizer industry’s level of capacity utilization.

FIGURE: PRODUCTION OF FERTILIZERS (MMT)

Source: Annual Report - Department of Fertilizers 2008-09
### MAJOR PLAYERS IN FERTILIZER MARKET

<table>
<thead>
<tr>
<th>PUBLIC SECTOR</th>
<th>PRIVATE SECTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertilizer Corporation of India Limited (FCIL)</td>
<td>The Scientific Fertilizer Co Pvt Ltd.</td>
</tr>
<tr>
<td>Hindustan fertilizer Corporation Limited (HFC)</td>
<td>Coromandel Fertilizers</td>
</tr>
<tr>
<td>Pyrites, Phosphates &amp; Chemicals Limited</td>
<td>Deepak Fertilizers and Petrochemicals Corporation Limited</td>
</tr>
<tr>
<td>Rashtriya Chemicals and Fertilizers Limited (RCF)</td>
<td>Apratim International</td>
</tr>
<tr>
<td>National Fertilizers Limited (NFL)</td>
<td>Devidayal Agro Chemicals</td>
</tr>
<tr>
<td>Projects and Development India Limited (PDIL)</td>
<td>Aries Agro Vet</td>
</tr>
<tr>
<td>The Fertilizers and Chemicals Travancore Limited (FACT)</td>
<td>DSCL</td>
</tr>
<tr>
<td>Madras Fertilizers Limited (MFL)</td>
<td>Gujarat State Fertilizers &amp; Chemicals Limited</td>
</tr>
<tr>
<td>FCI Aravali Gypsum &amp; Minerals India Limited, Jodhpur</td>
<td>Tata Chemicals Limited</td>
</tr>
<tr>
<td></td>
<td>Chambal Fertilizers</td>
</tr>
<tr>
<td></td>
<td>Nagarjuna Fertilizers and Chemicals Limited</td>
</tr>
<tr>
<td></td>
<td>Godavari Fertilizers and Chemicals Limited</td>
</tr>
<tr>
<td></td>
<td>Zuari industries Ltd.</td>
</tr>
</tbody>
</table>
MAP SHOWING LOCATIONS OF DIFFERENT FERTILIZER PLANTS
INDIA’S FOREIGN TRADE

The Department of fertilizer has always tried to maintain the required fertilizers stock for farmers through timely imports of fertilizers and raw materials such as urea, ammonia, phosphoric acid, rock phosphate, sulphur, DAP and MOP.

FIGURE: IMPORTS OF FERTILIZERS

Over the past few years, the import dependence for the supply of urea, phosphatic fertilizers and DAP has increased as the domestic production has not been sufficient to meet the demand, thus leaving a gap between demand and supply. The entire demand for potassium fertilizer is met through imports as the domestic sources of potash are of low-quality and are uneconomical for exploitation.

The raw materials needed for phosphatic and potassic fertilisers (high-grade rock phosphate and phosphoric acid, sulphur etc) are also not available in India, and are imported by manufacturers in substantial quantities to meet domestic demand and the manufacturers are thus subject to the exchange rate and international price volatility. International prices of both intermediates and finished fertilisers have shown a rising trend during the last few years. This has also led to an increase in the subsidy outgo. To support the domestic fertiliser production, the government has announced a cutback in the customs duty on crude and unrefined sulphur from 5% to 2% during FY09 and has exempted naphtha from the import duty. The DAP imports of India primarily comes from the US, apart from Jordan and CIS countries. During FY08, India imported large quantities of DAP from China as well.

India is capable of attaining self-sufficiency in urea production considering the current availability and projected availability of hydrocarbon (natural gas) resources in India; natural gas is an important feedstock for urea. In the past years, the import dependence has increased in the sector due to the lack...
of significant investments and rising demand and supply gap. India has been importing urea from the UAE and the CIS countries continuously over the years, however, currently China has been emerging as the largest-importing country.

**FIGURE: IMPORT OF UREA, DAP & MOP (in qty terms)**

Over the years, near stagnation in capacity expansion and lack of investments in the fertiliser sector increased the demand-supply gap, and therefore, the imports. Unless, sufficient capacity expansion and exploitation of new sources of raw material does not take place, the burden of subsidy is not likely to come down.

**FIGURE: EXPORT OF FERTILIZERS**

The exports of finished fertilizers from India are significantly lower than imports. India exports its fertilizer products mainly to Nepal and Oman.
FERTILIZERS DEMAND & CONSUMPTION

Growing population and shrinking land resources have led to vertical expansion of agriculture, that is, have increased the number of crop cycles. Fertilizers play an important role in increasing the fertility of the soil and thus productivity. However, fertilizer consumption also depends on various agriculture-related factors such as soil quality, farming methods, cropping pattern, rainfall and irrigation patterns, different geographical aspects, calamities, availability of technology and information, varieties and quality of seeds as well as access to capital and credit and other inputs. Moreover, macro oriented factors such as crop-related market forces and fertilizer pricing policies also influence fertilizer consumption.\(^3\)

The average annual growth of fertilizer consumption achieved at the end of the Tenth Plan was about 4%. During the start of the Tenth Plan Period, that is, FY03, the country was drought affected, and therefore, its consumption of fertilizers fell by about 7.30% over the previous year. However, the growth in consumption started picking up during the following years. In fact, the increase in consumption was higher than the growth in production and the balance was met with imports.

FIGURE: TOTAL FERTILIZER CONSUMPTION (NPK)

\[\text{Source: Fertiliser Association of India}\]

\(^3\) There should be appropriate balance in the consumption of different fertilizer nutrients. The appropriate NPK ratio under Indian soil conditions is 4:2:1.
FERTILIZERS REGULATIONS IN INDIA

In response to the oil price shock in 1973, which led to an overshooting of the prices of imported naptha and oil, the Government of India introduced the Retention Price Scheme (RPS) in 1977 for indigenous nitrogenous fertilizer units, to provide fertilizers to the farmers at affordable rates without harming the interests of the manufacturers. Under the RPS, the difference between retention price (cost of production as assessed by the government plus 12% post tax return on net worth) and the statutorily notified sale price was paid as subsidy to each urea unit. The retention price used to be determined unit wise, which differed from unit to unit, depending upon the technology, the level of capacity utilization, energy consumption, feedstock used, distance from the source of feedstock/raw materials etc. The policy not only ensured reasonable return on investments for the manufacturers but also aided the healthy development of the fertilizer industry. The RPS was later extended to phosphatic and other complex fertilizers in February 1979 and to SSP in 1982.

The MRP of the P&K fertilizers is fixed by the government uniformly across the states and the total delivered cost of fertilizer was computed according to the methodology recommended by the Tariff Commission and was implemented from FY03 onwards. The difference between the total delivered costs of the fertilizer at the farm gate and the MRP payable by the farmers is given by the Central Government as concession / subsidy to the manufacturers.

Recent Changes in the Concession Scheme

Based on the Tariff Commission Report and the long-term approach suggested by the Expert Group under the Chairmanship of Prof. Abhijit Sen, the government approved the new concession scheme with effect from April 1, 2008 for DAP/MOP/ NPK Complexes/MAP. Under the policy, the final rates of concession which was to be worked out on a monthly basis for indigenous DAP would be the same as that of imported DAP.

Further, the concession on complex fertilisers was determined according to the methodology recommended by the Tariff Commission with certain modifications. Accordingly, the complex fertiliser industry was divided into 4 groups depending on the source of nitrogen and a separate cost was instituted for complex fertilisers that contained sulphur. TSP and Ammonium Sulphate were also included in the concession scheme. Thus, currently the P and K fertilisers covered under the concession scheme are DAP/MOP/NPK Complexes/MAP /Ammonium Sulphate, TSP and SSP.

The DoF also revised the concession scheme for SSP with effect from May 1, 2008 based on the report by Department of Expenditure. According to the revised policy on SSP, the fertilizer will be sold by manufacturers at a uniform MRP throughout the country. Previously, the MRP of SSP was indicated by the state governments. The policy also provides a monthly revision in the concession rates to reflect the variation in prices of raw materials vis-à-vis indigenous and imported rock phosphate and imported sulphur. The policy thus recognized sulphur content in SSP for the first time while fixing its MRP.

On the basis of price trends of various raw materials, intermediates and finished fertilizers in the previous month and expected trend in the current month, the Government of India computes the base
concession rates for each of the P & K fertilizers covered under the concession scheme which are announced at the start of each financial year. This would ensure that the manufacturers / importers are able to receive 'on account' payment on sale of fertilizers without any delay. The final concession rates are announced after some time lag due to process involved in finalization of prices. The manufacturers / importers can then claim the final concession based on the final rates announced by the DOF. However, the MRP of P and K fertilizers indicated by the Indian government has remained largely unchanged from FY03 till FY08. In the meantime, the DoF introduced nutrient-based subsidy in June 2007 and accordingly, revised the MRP of NPK complex fertilizers downwards with effect from June 2008.

**Nutrient-Based Fertilizer Scheme**

To promote balanced use of fertilizers the Department of Fertilizers has notified on June 17, 2008 a nutrient based pricing regime for all subsidized fertilizers. According to this scheme, per unit price of nutrients N, P, K and S will be the same in all complex grade fertilizers. The nutrient prices of urea, DAP and MOP would be the standard for determining the prices for nutrient prices of N, P and K. Consequently, MRPs of complex fertilizers were significantly reduced with effect from June 2008.

The usage of straight fertilizers was higher than complex fertilizers as a result of the previous pricing regime where the nutrients in the straight fertilizers like urea, SSP, DAP and MOP were cheaper as compared with the same nutrients for the complex fertilizers that were priced higher. The nutrient-based pricing will ensure a balanced use of fertilizers as it will bring parity in prices of complex fertilizers and straight fertilizers.

**Central Subsidy on Fertilizers**

Increase in consumption of fertilizers and increase in cost of fertilizers has led to a sharp increase in allocation of subsidy over the last few years. As India is almost fully-dependent on imported raw material/intermediates (rock phosphate, sulphur, phosphoric acid, MOP) for the production of phosphatic and potassic fertilizers, rising international prices for both finished fertilizers and intermediates have pushed up the fertilizer subsidy provided by the government.
The fertilizer subsidy allocated by the government increased from Rs 129.34 bn during FY08 to Rs 759.42 bn (revised estimates) during FY09, by six folds, as high raw material prices and supply constraints led to a sharp rise in fertilizer costs. The government has allocated Rs 103.06 bn as fertilizer subsidy for FY10.

**PRICING MECHANISM**

The pricing of fertilizers, like for any other product, is based on various fundamental demand and supply side factors. The demand side in this case is influenced by seasonality and affordability of the relevant fertilizers during the cropping seasons. Meanwhile, affordability is a function of prices experienced by farmers during the preceding crop period. For instance, better prices realized by the farmer on cotton and rice crops will enhance their purchasing power for input procurement (including seeds and fertilizers) requirements for the wheat crop. Another means to improve farmers’ purchasing power is through fixation of an attractive procurement/support price by the government, alongside assigning a procurement quota on such prices through an agency.

It was further established by Quddus et al. (2008) that demand for nitrogen and phosphate fertilizer is relatively inelastic in relation to price movements while potash appears to be more elastic. The statistical inference drawn by the study revealed that a 10% increase in the relative price of fertilizer may lead to less than 2 to 3.5% decrease in the short run and about 4 to 7% decrease in the long run in the per hectare consumption of nitrogen and phosphorus fertilizers. The study further revealed that a shift in production technology also had a strong positive impact on the off-take of fertilizers. (Quddus et al)

On the supply side, raw material and fuel costs are the key components which drive the producer’s overall manufacturing costs, which eventually determine the prices of the final product. In terms of products, urea pricing is primarily dependent upon the cost of natural gas. Since domestic gas prices are regulated in India and are fixed by the government on a periodic basis, urea prices that manufacturers can charge can be deemed to be regulated indirectly, even though they are not directly determined by the government. In this manner, the government tends to control and keep urea prices lower than international prices so as to provide relief to domestic consumers. This is done typically by providing concessionary rates at which gas is utilized by fertilizer manufacturers for ammonia production. While domestic manufacturers tend to pass the impact of any gas price hike in their urea prices, they tend to keep it at uniform rates while maintaining their margins, independent of seasonal demand hikes.

**Evolution of pricing and policy in India**

India is a country of vast resources. Having a population of 1.1 billion people and nearly 50% of its area being arable land, the country is one of the leading producers and consumers of agriculture outputs. Despite having ample water and land resources, the country has lagged somewhat when it comes to capacity increases in the fertilizer sector. With additional capacities in the Middle East, West Asia and Pakistan due to come online during 2008-2012 and India expected to remain in deficit due to lack of increase in its fertilizer capacity, it would remain an attractive market for surplus economies to export their excess output. This, however, exposes the country to an enormous price risk.

While there are strong reasons which have kept domestic supplies subdued, such as lack of availability of raw material and an emphasis on energy rather than on food, an equally important area has been that of government policy and active interventions, which have suppressed market forces and thereby restricted private sector investment. Though the offsetting factor from the government’s standpoint
would clearly have been the assurance of greater food security through firm price controls and subsidies, this practice however has hampered fertilizer supply growth in the long run and also put a significant fiscal burden year after year.

A new fertilizer policy was devised and came into effect from 1st April, 2003. The aim of this policy is to encourage usage efficiency in line with international standards, induce investment in better technology and also ensure viable returns for investors. The pricing framework is more market driven and is focused to be keeping controls through efficiency measures and through economies of scale. The framework was designed to be implemented in three distinct phases and the phase-wise implementation itself indicated that there was a strong need to provide a smooth transition from the previous system to the new regime.

The Stage I of the new scheme was put in effect from 1st April, 2003 to 31st March, 2004. Under this, the focus was on initial measures to improve efficiencies. A concession was given to existing urea manufacturing units whereas units having low efficiency faced the challenge of sharply improving their production efficiencies. For units which had retention prices higher than their respective group, a one year adjustment phase was granted to address this issue. Stage II was put in place from 18th April, 2004 to 31st September, 2006. This stage was an extension of Stage I where decontrolling of urea was carried out, while the focus remained on improving efficiencies through tighter energy consumption practices. This stage was designed to induce consolidation in the sector so that weaker players could be phased out either by divestitures or through mergers.

Stage III was put into effect on 1st October, 2006 with a longer term view. The policy framework under this stage put forth a definite plan for conversion of non-gas based units to natural gas. A switching period of three years was devised for plants that were operating on FO/LSHS or naphtha while at the expiry of this term, non-gas units would not be entitled to the same level of subsidy. Moreover, prices are to be determined on Competition assessment study of the fertilizer sector in Pakistan 45 Import parity basis while units which could not convert to natural gas would have to resort to alternative sources such as coal gas.

The challenge for the implementation of this initiative remains the limited availability of natural gas. This is expected to improve post 2008/09 as additional supplies come on stream. High cost of conversion for plants operating on FO/LSHS is another major hurdle. To overcome this, the policy provided a onetime capital investment assistance for a period of three years from implementation. Additionally, Stage III puts forth a package of other incentives, including benefits to units that operate at higher capacity utilization, subsidizing bagging costs and incentives in distribution. While the incentive system is attractive and the overall framework broad-based, the best part is possibly linking the mechanism with import parity and inducing a free market mechanism. How the country benefits from this change remains to be seen. The previous era of controlled prices, however, did not help in improving supplies in the country.

Source: Ministry of Fertilizers, India
COMPETITION ACT, 2002
The Competition Act, 2002 which replaced MRTPA, 1969 in its preamble highlights the idea of promoting competition and also ensures to protect anti-competitive practices in Indian market. The Act prohibits anti-competitive agreements, abuse of dominant position by enterprises, and regulates combinations (consisting of acquisition, acquiring of control and M&A) wherever such agreements, abuse or combinations cause, or is likely to cause, appreciable adverse effect on competition in markets in India.

The preamble also mandates that the economic development of the country needs to be kept in view, in implementing the objectives of the Act.

COMPETITION ASSESSMENT OF FERTILIZER SECTOR
Relevant product Markets
A distinction is important to draw at this point and mention about the product profile prevailing in the Indian Market for fertilizers.
The four major fertilizers in the fertilizers industry in India are:

- Urea
- Diammonium Phosphate
- Single Super Phosphate
- Muriate of Potash

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<thead>
<tr>
<th>FERTILIZERS</th>
<th>MAJOR MANUFACTURERS</th>
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<tbody>
<tr>
<td>Diammonium Phosphate(DAP)</td>
<td>Gujarat State Fertilizer &amp; Chemicals Ltd, Indian Farmers Fertiliser Cooperative Ltd, Zuari Industries Ltd, Mangalore Chemicals &amp; Fertilizers, Godavari Fertilizers &amp; Chemicals Ltd, Tata Chemicals Ltd IFFCO</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Muriate of Potash (MOP)</td>
<td>As there are no commercially viable sources of potash in the country the entire demand is met through imports.</td>
</tr>
</tbody>
</table>

Source: D&B Research

**FIGURE**

**Sectoral Share in Nitrogenous Fertilizer Industry**

| 29.00 | 44.73 | 26.27 |

**Sectoral Share in Phosphatic Fertilizer Industry**

| 7.65  | 30.27 | 62.08 |

Source: Annual Report - Department of fertilisers 2008-09
FERTILIZER SUPPLY CHAIN
While an assessment of fertilizer manufacturers appears relatively straightforward, it is important to assess how fertilizer distribution channels operate in order to fully grasp the impact on end-consumers with respect to fertilizer supplies and pricing.

DISTRIBUTION CHANNEL

While a competition assessment for larger players and producers is critical, the same is equally important for distribution channels. Notice that the farmer, who is the ultimate consumer and the prime factor subject to government protection and sole element responsible for agriculture output, is not in fact a customer of fertilizer producers, but rather a customer of fertilizer distributors. Even though supply policies and market practices of producers can be perceived to have a massive impact on distributors, the degree to which market practices of distribution firms influence and impact individual farmers is in principle equally important. However, the assessment in this area suffers from limitations due to lack of data availability, for example available data only reflects fertilizer off-take from the company to its distributors.
PORTER’s FIVE FORCES MODEL

Once the above discussion regarding manufacturers is clear, we now apply Porter’s five forces model. This is a framework for industrial analysis, determines the competitive intensity and therefore attractiveness of market.

Fertilizer Producers:

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4 Porter’s Five Forces is a framework for industry analysis and business strategy development formed by Michael E. Porter of Harvard Business School in 1979. It draws upon Industrial Organization (IO) economics to derive five forces that determine the competitive intensity.
Fertilizers Distributors:

- Bargaining power of the suppliers: HIGH
- Threats of Substitutes: LOW
- Rivalry among players: LOW
- Barriers to entry: HIGH
- Bargaining power of the buyers: LOW

Fertilizer Producers

Here, Suppliers are Raw materials Suppliers; Buyers are Distributors.

- Bargaining power of suppliers-LOW: Price and supply of key inputs like natural gas is regulated in India. As far as raw materials are concerned, both pricing and supply of them are highly regulated by the government.

- Bargaining power of buyers-LOW: Each company has adequate numbers of distributors under them. Some of the bigger players like NFL have nationwide coverage as far as distribution is concerned. Other producers like Gujarat State Fertilizer Ltd. tend to restrict themselves in certain areas. Thus only few producers having control over total supply and hence bargaining power of distributors is low. Switching costs for distributors are still low, given the generic nature of fertilizer products and a lack of differentiation thereby. Still, a large number of distributors compared to only a few producers keep the bargaining power of customers at a low level.

- Barriers to entry – HIGH: Highly capital extensive nature and stringent government policies restricts induction of new players.
Consumer Base-HIGH: Demand certainty in market and

Rivalry among players – LOW: Producers prices for urea are generally set with mutual consensus, as is evident by uniform prices across the sector. Factors such as hike in input prices play an important role in setting up of the prices and therefore mutual consensus over the pricing. The domestic price remains lower than the international prices mainly because of the direct subsidy given by government to manufacturers.

Fertilizer Distributors
Here Suppliers are the producer; Buyers are the farmers.

Threats of substitutes – LOW: Urea remains the dominant nitrogen-based fertilizer while DAP is the leading phosphate fertilizer in India. The tendency of others fertilizers to substitute these main products is limited. Nitrogen, phosphate and potash cater for different nutrition needs. Therefore these should appropriately be considered as complementary products rather than substitutes. Meanwhile, chemical fertilizers themselves have a far wider appeal worldwide and are considered to be a key component in crop cultivation and growth.

Bargaining Power of Suppliers- HIGH: As there are few suppliers of fertilizers in every region.

After applying Porter’s five forces model on fertilizer producers, it can be rightly inferred that industry is highly concentrated and industry participants enjoy great influence on other factors. The circumstances thereby certainly favor domestic fertilizer producers as far as Porter’s five forces model is concerned. The situation is the opposite for fertilizer distributors. Unfavorable factors include high bargaining power of suppliers. Distributors remain under the heavy influence of a few large producers for products like urea. Meanwhile, producers reserve and exercise the right to induce their market practices over distributors and also the right to expel non-compliant distributors from their network.

Aspects which favor distributors include high barriers to entry due to an already saturated market. Low level of rivalry among distributors also prevails due to the limited area covered by each player. Fertilizer producers also provide prescribed retail prices to their distributors which further restrain the tendency of any rivalry. Lastly, the only factor which favors both producers and distributors is that of the low bargaining power of the ultimate end consumer, the farmer. Although government provides heavy support to this consumer through a variety of budgetary and regulatory measures, it should be noted that adverse market practices exercised either by the producers or distributors potentially result in offsetting the massive government support. Therefore, it is imperative for the regulatory bodies to fully ensure that unfavorable practices be curtailed. As was pointed out at the beginning of this chapter, the profit maximization motive is part and parcel of the free market mechanism. Therefore, the regulators should strike a balance in terms of intervention. Another important element that should be pointed out here is that the domestic fertilizer sector does not and rightfully cannot function completely on a free market mechanism, owing to the active and persistent government intervention that is undertaken with the aim of eventually providing relief to the farmer. That being said, the sector should be assessed differently than other sectors which operate or should operate through the mechanism of free markets.
CHALLENGES/PROBLEMS OF FERTILIZER MARKETS

The competition in a market is said to be hampered when there are entry barriers for new firms to enter, that may be because of high cost of production, stringent government policies, and low incentive to enter into the market. Fertilizer Sector being a crucial one for the country’s food security has been controlled by The Fertilizer (control) order 1985. Government also controls pricing and distribution along with decision to import fertilizers.

1) The fertilizer subsidy was launched in India to ensure adequate availability of fertilizers at affordable prices to farmers and to promote a balanced fertilizer application to enhance farm productivity and food security. However, the fertilizer subsidy policy that places regulatory controls over production, distribution and prices has eliminated market forces, encouraged imports of fertilizers and thus led to burgeoning of the subsidy provided by the government. Moreover, since the government grants subsidy on only 15 fertilizers namely urea, DAP, MoP, SSP and 11 complexes, in practice only these 15 types of fertilizers are effectively sold and consumed. Thus, the intention with which the subsidy scheme was started remains unaccomplished. The existence of subsidy for only these types of fertilizers was resulting in lack of innovation as the manufacturer were able to price their product in a better manner only in respect of these products. Moreover the farmer was also using these fertilizers only because of price preferences irrespective of the requirement of soil. Not only has the above mentioned fertilizer scheme promoted skewed fertilizer consumption resulting in nutrient deficiency in soil but also it has also rendered the fertilizer industry uncompetitive. The fertilizer companies do not have the incentive to launch niche fertilizers or incorporate micronutrients and other improvisations to existing ones.

Another concern is the fact that there has been a delay in the release of subsidy to the fertilizer companies over a period of several months which has even sometimes extended to several years. This was because of undue delay in the issue of sales certification by the state government against which the manufacturers or importers selling decontrolled P or K fertilizers are able to settle their subsidy claims. Moreover, the government’s decision to issue bonds in lieu of cash payments has further delayed realization of subsidy and has worsened the woes of companies through the losses incurred on disposal of these bonds. This has imposed liquidity constraints on the manufacturers. The need of the hour for the fertilizer industry is a policy that ensures timely payment of concessions and subsidy in cash instead of part payment by way of bonds.

TRANSITION TO NUTRIENT BASED SUBSIDY

The last fertilizer subsidy policy is such that it entails consumption of only a few fertilizers especially urea as it is highly subsidized; as a result, a imbalance has developed in the use of nutrients. The decision of the government to move to a nutrient-based price and subsidy bodes not only for the industry but is also expected to promote balanced use of fertilizer. The nutrient based pricing and subsidy would enable to transparently link prices and subsidy to the composition of a product thus giving fertilizer manufacturers more flexibility to come up with a wide range of products as required by different soil conditions and different crops and also enable environment for new innovative products. This is pro-competitive. Further, it would also facilitate a more equitable subsidy as pricing of the nutrients can now be linked to the IPP of raw materials.

In the past, for all non urea fertilizers, MRP was fixed by the government for sale of fertilizers to farmers and fertilizer companies were compensated for the difference between the cost of production and MRP. However under the NBS, fertilizer companies can decide the selling prices as the subsidy portion is fixed. The government recently revised nutrient subsidy rates to mitigate the effects
of increase in feedstock prices. We believe, revision in subsidy rates would be beneficial to complex fertilizer manufacturers as it would help them to maintain their profitability. The policy aims at increasing the efficiency in procurement of raw materials and operations which would result in higher margins. With this policy, we believe there would be gradual reduction in subsidy outflow as there would be an increase of farm gate fertilizer prices. The revision in 2011-12 rates is higher than the rates notified in November 2010 and also higher as compared to 2010-11, as shown below.

<table>
<thead>
<tr>
<th>Nutrients</th>
<th>2011-12</th>
<th>2010-11</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen (N)</td>
<td>27.5</td>
<td>23.2</td>
<td>18.3</td>
</tr>
<tr>
<td>Phosphorous (P)</td>
<td>29.4</td>
<td>26.3</td>
<td>11.9</td>
</tr>
<tr>
<td>Potassium (K)</td>
<td>24.6</td>
<td>24.5</td>
<td>0.6</td>
</tr>
<tr>
<td>Sulphur (S)</td>
<td>1.7</td>
<td>1.8</td>
<td>(5.2)</td>
</tr>
</tbody>
</table>

*Source: Department of Fertilizers*

With the current revision in nutrient rates (and comparative benchmark rates), it would be difficult for players to contract import volumes as the new rates are at a discount to current landed prices. Thus the supply reduction problem can be addressed.

In the Budget FY10, the government announced its intentions to gradually move to a system of direct transfer of subsidy to farmers. This initiative is seen as a good move as the domestic industry has long suffered due to under-recovery of cost and delay in disbursement of subsidy. However, concerns are rife over the new mechanism of disbursement.

Considering the fact that farmers are not always the owner of the land they cultivate, it will be quite difficult to ensure that the subsidy reaches to each and every farmer who uses fertilizers. Moreover, the task of monitoring the usage of fertilizers by the huge population of farmers in India appears to be a daunting task and poses a challenge to policymakers. Nonetheless, the government will have to ensure that the domestic manufacturing unit is not adversely affected due to the implementation of the new mechanism of subsidy disbursement.

Under the new regime of subsidy the issue of concern is the distortion that it may create if the subsidy is provided to retailers or fertilizer producers. As the subsidy is calculated on the basis of difference between the cost of production and selling price per unit, this can lead them to inflate their cost of production in order to get more subsidies from the government. And this amounts to distortion in competition and will consequently reduce government expenditures in other areas. Even though the cost levels of the most efficient producers are used to calculate the level of subsidy, there might be collusion among producers to maximize subsidy accruing from the government. If there is no major government player in the market then it becomes very easy for the players to set a selling price at a particular level above the floor selling price and then inflate the cost of production. The main reason for such practice to take place is the lack of cost monitoring by government. **Thus we can say the distortion caused by the subsidy regime is with the mechanism of subsidy provision.**

After the implementation of Nutrient Based subsidy the problem which can arise is the allocation of market by the players for different products on the basis of the nutrients, which is clearly an anti-competitive practice. A similar case was seen in 2003 in South Africa which is mentioned in the box below.
2) As we have gathered from above discussion that Potash based fertilizer need is entirely met by imports. The GOI estimates the demand of the fertilizer and then import. We know that international cartels are not regulated thus there are cases which are not in favor of Indian Markets. Recently a case was seen when Potash exporters from Russia and Canada practiced price differentiation between India and China, in order to exploit Indian market. Wherein, more prices were charged from India rather than China, knowing the fact that India has bulk demand and is a big market. Surety of demand from India gave the confidence to the cartels abroad to hike the prices. Thus we should not portray bulk demand. Rather with a bit of government intervention the imports of fertilizers should be allowed by the Private Players through open general license, it would result in not only market to take care of the import decisions but would also result in reduction of subsidy bill of the Government subsidizing the domestic production. Also this year Government of India has declared holiday for Potash purchase from abroad as Indian soil is not so much deficit of Potash Nutrient and we have last year stock for the time being. India has also set its price for imports at $470. International cartels and imports in India have been further discussed in the last part of the report.

3) Captive markets are markets where the potential consumers face a severely limited amount of competitive suppliers and their only choices are to purchase what is available or to make no purchase at all. Captive markets result in higher prices and less diversity for consumers. And we can say that fertilizer sector is a captive market in India.

The farmer remains the ultimate buyer and user of fertilizer products. The role of distributors is clearly that of middlemen in the chain. The size of the producer and their market power is sufficient to indicate that farmers are directly and largely influenced by the producers rather than the distributors. However, distributors play a part in influencing farmers which should be assessed separately and independently.

There few distributors in every region and fertilizer being a crucial commodity used in agriculture become very important for farmers to purchase at whatever price available. The above stages of distribution channels are highly regulated like the import of fertilizers, government purchase and setting up of the prices (Pricing policy discussed below). But the channel where fertilizer directly reaches the end consumer has poor state of control. Local distributors indulge in anti competitive practices by creating artificial shortage by hoarding to make massive profits at the cost of the domestic agriculture sector.
4) **Public Policies restricting Competition:** Policies are introduced by different departments which unduly favor specific segment of producers at the expense of others or prevent competition in market. Actual Example: Zinc sulphate – a micro nutrient fertilizer, is entirely manufactured by MSEs. A nutrient based scheme is launched recently to subsidize large fertilizer producers for fortifying their fertilizers with Zinc. It has suddenly rendered large MSMEs uncompetitive.

5) **Indian fertilizer industry has high barriers to entry** in the form of
   a) High capital costs,
   b) Delays in Subsidy payments,
   c) High working capital requirement and
   d) Government approval for setting up a urea plant.

**Role of CCI**
Fertilizers contribute a large part of the cost of agriculture and the exchequer’s subsidy burden, yet there is little thought being given to why the prices of imported fertilizers are scrambling up. It is well known that the artificially high prices of fertilizers are maintained by handful of companies operating as a cartel, which is not illegal under the home country laws. Especially as India is a very large consumer, the government could bargain for lower prices rather than asking taxpayers to a party to more subsidies that end up unjustly enriching foreign companies. For years the government has been increasing the subsidies allocated to fertilizers to enhance fertilizer use to boost agriculture production and provide food security. What complicate the fertilizer subsidy-food-inflation dilemma are the market distortions in the international fertilizer market. The world fertilizer market as we gather is not perfectly competitive market where prices are competitively determined on the basis of demand and supply. Instead, they are reflective of the high monopoly rents of the concentrated market power of a few players.

About 70% of the world trade in two key fertilizers, potash and phosphate, is controlled by three transnational companies, Cantopex, Belarusian Potash Co and Phoschem. The International cartel problem comes into picture mainly because of bulk and certain demand projection by the country. In case of India, this can be said because the requirement of imports is assessed by GOI in relation to the estimated demand and designates three agencies, namely, MMTC Ltd., IPL, and STC to canalize the imports. High degree of centralization of this sector and also projection of certain demand encourages few international producers to enter into cartelization. Now in this case Competition Commission of India should play an Advocacy Role, in coordination with Department of Fertilizer, Ministry of Chemicals to project uncertain demand. We can do it by maintaining buffer stock in order to meet sudden supply shortages and also by allowing more players through open general licensing to import fertilizers.

**BOX: Example of Anti competitive practice in fertilizer sector in distribution**

Case: In Islamabad, the fertilizer dealer mafia created an artificial shortage to make massive profits which led to the emergence of gap between supply and demand, also price hike and the burden was borne by the farmers. It was said that the government’s inability to import required quantity of urea on time was "fully exploited by fertilizer dealers". During that period, the country had to spend more than Rs200 billion on import of wheat to meet its domestic requirements and then there was hike in wheat price.

Source: An article Published in The Express Tribune, February 7th, 2011.
The other major problem where CCI can play an important role is in case of distribution bottlenecks and black marketing whose main cause is distribution set up with few distributors. Here, CCI should step forward and investigate into the issues of artificial shortage wherever seen. Reducing the asymmetry in information among end consumers and this can be done by direct marketing wherein the producer is in direct contact with end consumers through e-services.

CONCLUSION
There is little doubt that competitive markets make a vital contribution to economic growth, poverty alleviation and employment generation. They do this by driving innovation, productivity and increased efficiency in the economy. Competition itself could be defined as the process of rivalry between firms, as means to gain market share, improved sales and higher profits by using innovation and greater efficiency to this end. However, the fact remains that competitive markets do not, by and large, exist in reality. Market failures, inefficiencies and structural weaknesses in this regard often lead to anti-competitive practices by the participating firms. Even then, a part of the problem lies with how effectively the government copes with such situations and whether its policy framework adequately prevents such practices. This issue is further underlined when considering the case of developing economies such as India. Since economic cycles tend to be more erratic and external shocks often have a deeper impact on fiscal and trade balances, the room for inefficient markets to thrive is thereby ever-present in the economy. Even when markets are reasonably competitive, this may not be reflected in outcomes.

Privatization and deregulation can be considered as the means to remove state-backed barriers to competition but monopolization by private enterprises can re-emerge, as not only cartels but market dominance could become widespread in many sectors where the minimum scale of production is large. The fertilizer sector was deregulated and state-owned companies were handed over to private enterprise. However, the fruits of deregulation have not been forthcoming as a high degree of concentration in the sector prevails and could potentially intensify once additional capacities of existing players come on stream.

Since fertilizers are key inputs in improving crop yields, the regulators should ensure that supplies are not disrupted and the process of capacity addition is carried out through appropriate investment-oriented policies. Furthermore, food security is a fundamental issue in India and policy-makers should ascertain that farmers’ interests are well-protected while meeting food security challenges in the long run. This makes the structure of the fertilizer sector critical in combating food and related development challenges. The need to ensure competition and monitor it from a regulatory perspective is heightened and a well-argued competition assessment of the fertilizer sector is not only justified but is critical.
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