Chapter - 5

Fertilizer Industry

5.1 Brief History of Fertilizer Industry in India
5.2 Current Status of Fertilizer Industry in India
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References
Fertilizer Industry

Fertilizer Industry in India has grown almost 3 times from 1950 to 2014 in terms of its capacity to provide necessary nutrients to the agriculture sector. Agriculture sector is the backbone of Indian economy. It has almost 14% share in GDP\(^1\). The most important is that the majority of our population gets employment in agriculture sector. Population of India is the second largest in the world. Agriculture sector must produce enough to meet the requirement of food grains of growing population plus the requirements of related industries. Fertilizers have the most important role in increasing agricultural output so as to meet the growing needs of agriculture products. Although the capacity of fertilizer industry has grown tremendously still it is not able to provide all the requirement of nutrients for the agriculture sector. The present study is related to finding the ways for enhancing the organizational effectiveness by better coordination and communication among team members with the help of Groupware. This may help to find out the relevance of group support in this industry and industry may get some benefit out of its result.

5.1 Brief History of Fertilizer Industry in India:

Fertilizer is “A chemical or natural substance added to soil or land to increase its fertility”\(^2\). Fertilizers may be organic or inorganic; it provides one or more of the chemical elements required for the plant growth. Fertilizer industry is one of the vital industries for the Indian economy as it produces one of the most critical raw materials for the agriculture. The fertilizer industry first started in North America, Norway, UK and Germany. The first known natural fertilizer was Sodium Nitrate popularly known as Chilean Nitrate as Chile was the country where its source was found in good quantity which was used for commercial purpose\(^3\).

Development of Phosphate fertilizers was an important milestone in the history of fertilizer industry. Mainly, there were four persons involved in the development of phosphate fertilizers: Liebig of Germany, Lawes and Henslow of UK and Murray of Ireland. Liebig explained in 1840 that sulphuric acid added to ground bones becomes a form of phosphate that was more quickly available to plants than raw bones. He is
considered as the inventor of Single Super Phosphate (SSP) but the same is also
claimed by James Murray of Ireland.

There are mainly three nutrients which are produced by the fertilizer Industry: 
Nitrogen, Phosphate and Potash (N, P, K). Apart from these main nutrients, there are 
number of micronutrients which are produced or provided by the industry. The Indian 
fertilizer industry is a blend of Public, cooperative and private sector production and 
distribution companies. Indian Fertilizer Industry has been under strict control of 
Government since independence in terms of pricing and distribution policies. To 
provide fertilizer to everyone Government of India has been giving subsidy on 
fertilizers. To ensure fair price and justified distribution of fertilizer Government felt it 
necessary to have full control on it. Policy, programs and control decisions on 
fertilizers come under the ambit of Department of Fertilizers under the Ministry of 
Chemicals & Fertilizers, Government of India. There was no distribution control on 
fertilizers and only prices were controlled up to 1970. In 1973 Government 
introduced new policy for fertilizers by which it decided to put strict control over 
prices and distribution of fertilizers and movement of fertilizers was brought under 
Essential Commodity Act. In 1977 Retention Price cum Subsidy Scheme (RPS) was 
introduced. Under this scheme Government fixed the fertilizers price for farmers and 
retention price for manufacturers and the difference between the two was paid to 
manufacturers as subsidy.

As per fertilizer policy of Indian Government, Urea is the only controlled 
fertilizer in terms of price and it is sold at statutory price and other two nutrients 
Phosphates and Potash fertilizers are kept uncontrolled which are sold at indicative 
MRPs. Union Government introduced New Pricing Scheme for the support of Urea 
units and Concession Scheme for decontrolled fertilizers such as phosphate and 
potash. The statutory price and indicative MRP are less than the production cost. The 
Government provides subsidy / concession to manufacturers for the difference 
between the statutory price / MRP and manufacturing cost. Potash fertilizers are 
imported as it is not produced in India. Apart from Potash, other fertilizers are also 
imported. Urea is also imported in good quantity. Government fixes same price for 
both indigenous and imported fertilizers for the consumers.
Subsidy Policy for Urea: As far as pricing policy for Urea is concerned the subsidy for Urea was decided as per the provisions of RPS up to 31 March 2003 and with effect from 01 April 2003, New Pricing Scheme for Urea was introduced. NPS worked in three stages: the Stage-I was applicable from 01 April 2003 to 31 March 2004; Stage –II from 01April 2004 to 30 September 2006 and Stage – III was implemented with effect from 01 October 2006. On 5th January 2011 it was decided by the Group of Minister reviewing fertilizer policy to constitute a committee under the chairmanship of Mr. Saumitra Chaudhary to study the proposal for Nutrient Based Subsidy (NBS) in Urea and provide suggestions for the same.8

Concession Policy and NBS for Phosphorus and Potash Fertilizers: On the recommendations of JPC (Joint parliament committee), GOI decontrolled the Phosphatic and Potassic (P &K) fertilizers with effect from 25th August 1992. Due to this decision, there was a sharp increase in the prices of these fertilizers. This led to the imbalance in use of Nitrogen, Phosphates and Potash fertilizers and resulting in risk of productivity of soil. To find a solution for this problem Government introduced Concession Scheme for the decontrolled P & K fertilizers on ad-hoc basis, which continued up to 31 March 2010. Government introduced Nutrient Bases Subsidy Policy with effect from 01 April 2010 in continuation with the concession Scheme for this category of fertilizers. The objective of such subsidy policies is to provide the fertilizers to farmers at lower rates without any loss to producers.9

In independent India, a policy made by Government seems to be working well in terms of availability and consumption of fertilizers. Production of Nitrogen (N) and Phosphorus (P2O5) together has increased from mere 38.7 thousand tons in 1951-52 to about 14.6 million tons in 2007-0810. Despite the fact that share of Agriculture Sector in GDP in our country is decreasing due to shifting of economy from traditional agrarian economy to Industrial and service sector focused economy, production of food grains has increased continuously. In Reply to a query Former Minister of State Mr. Tariq Anwar said in a written reply to the Rajya Sabha on 30 August 2013 that “the production of food grains has increased from 230.8 million tons in 2007-08 to 255.4 million tons in 2013-14 (fourth advance estimates).”11 Productivity of food grains per hectare has also been increasing. This is apparent from the data as provided
by the Minister on the same day to the Rajya Sabha that 1860 Kg per hectare in 2007-08 has increased to 2,125 Kg per hectare in 2012-13.\textsuperscript{12}

5.2 Current Status of Fertilizer Industry in India:

The effectiveness of any industry can be understood with analysis of Demand and Supply situation of the output produced by the Industry. Fertilizer Industry, in India, is a blend of Public, Private and Cooperative sector units producing different kind of nutrients for the agriculture sector. The fertilizer products include nutrients mainly Nitrogen, Phosphate and Potash in varied percentage. Other secondary or micro nutrients are also included in the products of the Industry such as Sulphur (S), Iron (FE), Aluminum (AI), Calcium (Ca), Magnesium (Mg), Copper (Cu) and Zink (Zn) etc. The current status of the fertilizer industry can be better understood with the supply and demand situation. Apart from the demand and supply situation, the production of fertilizer by various units under the Industry against their targeted quantity can also present the current status of the Industry. In the following paragraph, the demand and supply situation of fertilizers and actual production against the targeted output by production units is given in detail.

Demand Supply status of Fertilizers in India: The demand of nutrients for agriculture sector has been kept on increasing ever since independence due to the increasing needs of food grains for growing population and reducing agricultural land. Indian fertilizer Industry has grown over the years not only in terms of number of production Units but also in the number of nutrients and quantity produced by it. Indian fertilizer Industry is capable of meeting the demands of the fertilizers in India. During the budget session in Lok Sabha on 12 Aug 2014, Minister of Chemicals and Fertilizers informed on response to a question regarding the current status of fertilizers demand and supply in India. More or less the Industry has been successful in meeting the demands of the fertilizers. This is apparent from the data given by the Minister in Lok Sabha:
| Major Chemical Fertilizers viz UREA,DAP,MOP & NPK(Fig. in LMT) |
|-------------------------------|-----------------|-----------------|-----------------|
| Year                          | Assessed Requirement | Availability  | Sales           |
| 2011-12                       | 569.46           | 570.55         | 550.64          |
| 2012-13                       | 598.36           | 505.70         | 492.58          |
| 2013-14                       | 569.25           | 482.62         | 470.65          |
| 2014-15                       | 170.73           | 155.82         | 138.73          |

Exhibit 5.1: Demand Supply Status of Fertilizers from the year 2011-12

Achievement of Target set for the production of Fertilizers during Last Three years: Indian Fertilizer companies are working under the policies set by the Ministry of Chemical and Fertilizers, Government of India. There are three kinds of fertilizer production Units in India: Public Sector Units, Cooperative Units and Private Sector units. There are major three categories of fertilizers produced in India: Urea, DAP and NPK. On response to the same question asked in Lok Sabha on 12 Aug 2014, as mentioned above, Minister of Chemical & Fertilizers provided the data on production of the different categories of fertilizers by different units against their targeted quantity. The same data in given below in three different tables:

(i) Production Status of Urea by Different Production Units: Indian fertilizer industry is able to produce nitrogenous fertilizer in the form of Urea 98.5% in 2011-12, 100% in 2012-13, 97% in 2013-14 and 97.6% in 2014-15 (up to July 14) against the targets in these years. The following table provides the details of target and actual production in these years, unit wise:

<table>
<thead>
<tr>
<th>Name of the Plants</th>
<th>2011-12</th>
<th>2012-13</th>
<th>2013-14</th>
<th>2014-15 (Upto July 14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFL:Nangal-II</td>
<td>478.4</td>
<td>503.5</td>
<td>433.6</td>
<td>471.3</td>
</tr>
<tr>
<td>NFL:Bhatinda</td>
<td>511.5</td>
<td>482.8</td>
<td>395</td>
<td>394.3</td>
</tr>
<tr>
<td>NFL:Panipat</td>
<td>511.4</td>
<td>500.3</td>
<td>426.1</td>
<td>414</td>
</tr>
<tr>
<td>NFL:Vijaipur</td>
<td>870.8</td>
<td>902.1</td>
<td>1014.6</td>
<td>966.5</td>
</tr>
</tbody>
</table>

Unit-Wise, Target and Actual Production of UREA for the Year 2011-12 To 2014-15 (From April 14 to July 14)
<table>
<thead>
<tr>
<th>Company</th>
<th>Fiscal Year</th>
<th>Target</th>
<th>Actual</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFL: Vijaipur Expn.</td>
<td>2011-12</td>
<td>927.8</td>
<td>1011.9</td>
<td>1034.5</td>
</tr>
<tr>
<td>NFL: Vijaipur Expn.</td>
<td>2012-13</td>
<td>1035.9</td>
<td>1078</td>
<td>1162.5</td>
</tr>
</tbody>
</table>
| NFL: Vijaipur Expn. | 2013-14 | 318.1 | 325.4 | 4.6%

**Exhibit 5.2: Target & Actual Production of Urea from 2011 -12 to July 2014**
(ii) Production Status of DAP by Different Production Units: Production of DAP by units of Indian fertilizer Industry is below the targeted production. All units could produce 86.14% in 2011-12, 84.58% in 2012-13, 67.11% in 2013-14, and 67.44% in 2014-15 (up to July 14) against the target in the respective years for the DAP production. The details are given in the following table:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Total</td>
<td>Total</td>
<td>(`000’ MT)</td>
</tr>
<tr>
<td>Cooperative Sector</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IFFCO: Kandla</td>
<td>500</td>
<td>496.8</td>
<td>500</td>
<td>1000</td>
</tr>
<tr>
<td>IFFCO: Paradeep</td>
<td>930</td>
<td>995.2</td>
<td>800</td>
<td>1159.9</td>
</tr>
<tr>
<td>Total (Co-op.)</td>
<td>980</td>
<td>1492</td>
<td>850</td>
<td>1942.8</td>
</tr>
<tr>
<td>Private Sector</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GSFC: Vadodara</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>GSFC: Sikka-I</td>
<td>514</td>
<td>249.8</td>
<td>514</td>
<td>412</td>
</tr>
<tr>
<td>GSFC: Sikka-II</td>
<td>436</td>
<td>284.3</td>
<td>436</td>
<td>399</td>
</tr>
<tr>
<td>ZIL: Goa</td>
<td>200</td>
<td>180.2</td>
<td>200</td>
<td>56.3</td>
</tr>
<tr>
<td>SPIC: Taturcorin</td>
<td>300</td>
<td>180.5</td>
<td>230</td>
<td>154.7</td>
</tr>
<tr>
<td>MCF: Mangalore</td>
<td>200</td>
<td>128.2</td>
<td>120</td>
<td>119.4</td>
</tr>
<tr>
<td>TCL: Haldia</td>
<td>248</td>
<td>269.3</td>
<td>242.3</td>
<td>204.9</td>
</tr>
<tr>
<td>Hindalcol Indus: Dahej</td>
<td>241.4</td>
<td>209.8</td>
<td>250</td>
<td>209.1</td>
</tr>
<tr>
<td>CIL: Kakinada</td>
<td>680</td>
<td>360</td>
<td>600</td>
<td>224.8</td>
</tr>
<tr>
<td>CIL: VIZAG</td>
<td>51</td>
<td>6.6</td>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td>PPL: Paradeep</td>
<td>750</td>
<td>602.3</td>
<td>820</td>
<td>310.7</td>
</tr>
<tr>
<td>Total (Private Sector):</td>
<td>3620.5</td>
<td>2471</td>
<td>3462.3</td>
<td>1704.6</td>
</tr>
<tr>
<td>Grand Total :</td>
<td>4600.5</td>
<td>3963</td>
<td>4312.3</td>
<td>3647.4</td>
</tr>
<tr>
<td>PRODUCTION %</td>
<td>86.14</td>
<td>84.58</td>
<td>67.11</td>
<td>67.44</td>
</tr>
</tbody>
</table>

Exhibit 5.3: Target & Actual Production of DAP from 2011 -12 to July 2014

(iii) Production Status of NPK by Different Production Units: The actual production of NPK fertilizers by the Indian Fertilizer Industry in the years 2011-12, 2012-13, 2013-14 & 2014-15 (up to July) was 80.5%, 61.9%, 82.6% & 69.7% respectively against the targeted quantity. The details of production unit wise is given below:
5.3 Major Companies in Fertilizer Industry in India:

India’s self-sufficiency in food grains was the major objective of Indian Government after independence. Green revolution was proved to be a milestone in this direction. The role of Indian fertilizer industry was vital in making the green revolution
successful. There are 57 large fertilizer plants producing urea, DAP, Complex fertilizer, Ammonium Sulphate (AS) and Calcium Ammonium Nitrate (CAN). The Indian Fertilizer Industry can be classified into three major sectors:

(a) **Public Sector**

(b) **Cooperative Sector**

(c) **Private Sector**

**Public Sector Companies:** Some of the public sector companies in Indian fertilizer industry:

(i) **National Fertilizers Limited:** NFL was incorporated on 23rd August 1974 with its registered office in New Delhi. It is under the administrative control of Department of Fertilizers, Ministry of Chemicals & Fertilizers. It has five gas based plants: Nangal & Bathinda in Punjab, Panipat in Haryana and two plants at Vijapur in MP. NFL mainly produces Urea. Total annual Urea installed capacity of the company is 35.68 LMT. 17

(ii) **Fertilizers and Chemicals Travancore Limited:** FACT has its two divisions-Udyogmandal and Cochin. The oldest plant of FACT is Udyogmandal Plant which started its production of Ammonium Sulphate in 1947. The Cochin division of FACT was set up in 1970. The main fertilizer products of FACT are Ammonium Sulphate (nitrogenous fertilizer), FACTAMFOS (Ammonium Phosphate Sulphate), FACTMIX (NPK) and Gypsum. It imports Urea and Potash from Gulf countries and Russia for the consumption in all the 4 southern states. 18

(iii) **Rashtriya Chemicals & Fertilizers Limited:** RCF has its corporate and Administrative office in Mumbai. It was established in 1978. Govt. of Indian holds 80% of its shares. RCF produces mainly fertilizers under the brand name Suphala (NPK), Ujwala Urea, Sujala (all three nutrients-Nitrogen, Phosphorus and Potash), Biola (bio fertilizers) and Microla (Micronutrients). It has two manufacturing units-Trombay and Thal both in Mumbai. 19
(iv) **Madras Fertilizers Limited:** MFL was incorporated in Dec 1966. It started its commercial production in 1971. It mainly produces Ammonia, Urea and NPK. The company suffered huge loss and in year 2003-04 the accumulated loss eroded the total net worth and then the case was referred to BIFR. But from 2009-10 onwards the company started earning profits.\(^{20}\)

(v) **Paradeep Phosphates Limited:** Paradeep Phosphates Limited was incorporated in 1981. Initially it was established as a joint venture between Govt. of India and Republic of Nauru, subsequently in 1993 it became a wholly Government of India company. The company was disinvested by the GOI in February 2002. The management of the company is presently with the Zuari- Chambal Group and OCP of Morocco. Per annum production of this company is about 1.2 million metric tonnes of DAP and other complex fertilizers. It is located in Jagatsingpur district of Orissa. It is one of the largest DAP producing plants in India. Its products are marketed under the NAVRATNA brand.\(^{21}\)

(vi) **Hindustan Fertilizer Corporation Limited:** HFCL was incorporated as separate company in 1978. The Govt. of India declared closure of HFCL in September 2002 and was referred to BIFR.\(^{22}\)

(vii) **The Fertilizer Corporation of India Limited (FCIL):** FCIL has its plants at Sindri in Jharkhand, Gorakhpur in Uttar Pradesh, Ramagundam in Andhra Pradesh and Talcher in Orissa. The corporation was declared sick in November 1992 by the BIFR.\(^{23}\)

(viii) **Brahmaputra Valley Fertilizer Corporation Limited (BVFCL):** BVFCL was incorporated on 5\(^{th}\) April 2002. It has two units producing Ammonia – Urea namely Namrup-II &Namrup-III; both are situated at Namrup, Assam.\(^{24}\)

(ix) **FCI Aravali Gypsum & Minerals India Limited (FAGMIL):** FAGMIL was incorporated as a public Sector undertaking on 14.2.2003.\(^{25}\)
(b) **Cooperative Sector Companies:** Some of the Cooperative sector companies in Indian fertilizer industry:

(i) **IFFCO:** Indian Farmers Fertilizer Co-operative Limited (IFFCO) was registered as a multi-unit cooperative society on 03 November 1967. The Society is primarily a fertilizer production and distribution company. It has five fertilizer production units:

- Kayol, Gandhinagar, Gujrat: Ammonia – Urea Complex
- KandlaGujrat: NPK/DAP
- Phulpur, Allahabad, UP: Ammonia – Urea Complex
- Aonla, Bareilly, UP: Ammonia – Urea Complex
- Paradeep, Jagatsinghpur, Orissa: NPK/DAP

(ii) **KRIBHCO:** Krishak Bharti Cooperative Ltd was incorporated on 17th April 1980 as a multi-state cooperative society. It produces nitrogenous fertilizers through its plants at Hazira, District – Surat, Gujrat. Its plants are based on natural gas from Bombay High/South Bassein. The Hazira fertilizer plant was revamped in 2013 which made it the largest single location urea plant in India.

(c) **Private Sector Companies:** Some of the Private sector companies in Indian Fertilizer Industry are as given below:

(i) **Tata Chemicals Limited:** It is global company with 3 plants in India apart from its global presence in USA, UK, and Kenya. Indian plants are at Mithapur in Gujrat, Babrala in UP and Haldia in West Bengal. It produces Urea, DAP and NPK. Its Babrala plant produces almost 12% of total Urea produced by the private sector in India.

(ii) **Gujarat State Fertilizers & Chemicals Limited:** GSFC was incorporated in 1962. Its plants started fertilizers production in 1967. It produces Urea (two plants), Ammonium Sulphate, DAP (two plants), NPK, Gypsum etc. It markets its fertilizer product under its brand name “Sardar”. It has its marketing offices almost all over the India.
(iii) **Chambal Fertilizers & Chemicals Limited**: It is one of the largest private sector fertilizer producers in India. It is promoted by Zuari Industries Limited in 1985. It has two Nitrogenous plants at Gadepan in Kota, Rajasthan. It caters the need of fertilizers in 10 Indian states. “Uttam” is the brand name for marketing the products by the company.\(^3\)\(^0\)

(iv) **Coromandal International Limited**: An Indian Corporation set up in 1960. Its products are popularly known as “Gromor”. It is a leading manufacturer in phosphoric fertilizers. It has its plants in Andhra Pradesh, Karnataka and Tamilnadu.\(^3\)\(^1\)

(v) **Gujarat Narmada Valley Fertilizer Co. Limited**: GNFC is a joint sector enterprise by Govt. of Gujrat and GSFC. It was set up in 1976 at Bharuch, Gujrat. It brand name is “Narmada”. For more than two decades it has 100% capacity utilization. Its main products are Urea and complex fertilizers.\(^3\)\(^2\)

(vi) **Indo-Gulf Fertilizers & Chemicals Corporation Limited**: Indo – Gulf Fertilizers is a unit of Aditya Birla Nuvo which is engaged in manufacturing and marketing of fertilizers, seeds and other agrochemicals. “Birla Shaktiman” is the brand name of the products of this company. Its fertilizers include Urea, DAP, MOP, SSP etc.\(^3\)\(^3\)

Some other private sector fertilizer companies are listed below:

- Ajay Farm-Chem Private Limited
- Balaji Fertilizers Private Limited
- Deepak Fertilizer and Petrochemicals Corporation Limited
- Bharat Fertilizer Industries Limited
- Meerut Agro Chemicals Private Limited
- Duncans Industries Limited
- Karnataka Agro Chemicals
- Godavari Fertilizers & Chemical Limited
- ShriAmba Fertilizers (I) Private Limited
- Tuticorin Alkali Chemi& Fertilizer Limited
This chapter has briefly introduced the Indian Fertilizer Industry mainly for the purpose of this research. The importance of fertilizer industry is ever increasing as it supplies necessary nutrients to the agriculture sector. If the fertilizer companies are effective in their business, the agriculture sector of the country will be able to produce sufficient food grains for the increasing population. The data for examining the role of groupware in enhancing the organisational effectiveness has been collected from the fertilizer companies. Therefore, this chapter has provided the necessary insights of the fertilizer industry for the purpose of data collection and analysis.

References

4 Ibid
8 Ibid.
9 Ibid.


Ibid.

Ibid.

Ibid.


