



## FERTILIZER INDUSTRY OF INDIA -AN OVERVIEW

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### Introduction

Indian Agriculture comprises one fifth of gross domestic products of India and provides nourishment to nearly 66% of its population. It also offers vital forward and backward linkages to other sectors of Indian Economy. Every five-year plan has given importance to self-reliance and self-sufficiency in food grains production and synchronized actions in this direction have given tremendous increase in production and productivity of agriculture. This is very much understandable from the logic that from a modest level of production of 52 million MT in 1951-52, food grains production galloped to about 218.20 million MT in 2009-10. Meeting total demand of food grains is not only an indicator of success of fertilizer industry of India but it has also played a significant role in producing exportable surplus. Keeping in mind the crucial role played by fertilizer industry in the victory of India's green uprising and consequent self-sufficiency in food grains production, the Government of India has been constantly adopting practices advantageous to augmenting accessibility and utilization of fertilizers in India. Consequently, the annual utilization of fertilizers in nutrient terms (N, P & K), has grown manifold from mere 0.7 lakh MT in 1951-52 to hopping 264.86 lakh MT 2009-10. Utilization of fertilizers, which was earlier less than 1 Kg per hectare in 1951-52 has risen to the height of 135.27 Kg in 2009-10. These days, the country has achieved near self-reliance in manufacturing capacity of urea with the consequence that India could significantly handle its prerequisite of nitrogenous fertilizers through the home-grown industry. Similarly, sufficient home-grown capacity has been installed relating to phosphatic fertilizers to meet Indian farmers' necessities up to some extent. On the other hand the unprocessed supplies and intermediates for the same are mostly imported. As far as potash, because there are no feasible sources/ reserves in India, its whole necessity is met by imports.

The industry attempted humble start in 1906, when the first production unit of Single Super Phosphate (SSP) was installed in Ranipet near Chennai with an annual capacity of 6000 MT. The Fertilizer & Chemicals Travancore of India Ltd. (FACT) at Cochin in Kerala and the Fertilizers Corporation of India (FCI) in Sindri in Bihar (now Jharkhand) were the first big fertilizer plants installed in the fourth and fifth decade with an attempt to set up an industrial foundation to attain self-reliance in foodgrains. Consequently, green revolt in the sixth decade gave a momentum to the development of fertilizer industry in India and in sixth and eighth decade India saw a noteworthy development in the capacity of fertilizer production. The production capability of fertilizer industry of India as on 31.03.2009 has touched a whopping figure of 120.61 lakh MT of nitrogen and 56.59 lakh MT of phosphatic nutrient, making India the third biggest fertilizer manufacturer in the world. Strong build-up of fertilizer manufacturing capability has been accomplished as an upshot of a sympathetic policy situation leading to hefty investments in the public, co-operative



and private sectors. In these days, there are 56 big size fertilizer units in the country producing an extensive range of nitrogenous, phosphatic and complex fertilizers. Out of these, 30 units manufacture urea, 21 units produce DAP and complex fertilizers, 5 units produce low analysis straight nitrogenous fertilizers and the remaining 9 units produce ammonium sulphate as byproduct. In addition, there are about 85 medium and small-scale plants in action which are engaged in manufacturing SSP. The sector-wise installed capacity is shown in the table No.1

### SECTOR-WISE, NUTRIENT-WISE INSTALLED CAPACITY OF FERTILIZER MANUFACTURING UNITS AS ON 31.03.2010.

Sr. No.	Sector	Capacity (lacs MT)		Percentage Share	
		N	P	N	P
1	Co-op Sector	31.7	17.1	26.3	30.3
2	Public Sector	35	4.33	29	7.65
3	Private Sector	53.9	35.1	44.7	62.1
	<b>Total</b>	<b>121</b>	<b>56.6</b>	<b>100</b>	<b>100</b>

(Source: Fertilizer Department Govt of India)

### DEMAND AND SUPPLY

There are three major nutrients that is to say nitrogen, phosphate and potash, (N, P&K) which are essential for different crops, inland-grown raw materials are obtained generally for nitrogenous fertilizers. Policy of Indian Government in the past aimed at accomplishing the maximum achievable level of self-reliance in the manufacturing of nitrogenous fertilizers based on consumption of inland-grown raw material. Before 1980, nitrogenous fertilizer units were primarily using naphtha fuel stock. A number of fuel oil/LSHS based ammonia-urea units were too installed from 1978 to 1982. During the year 1980, two coal-based units were installed for the first time in India at Talcher, (Orissa) and Ramagundam, (Andhra Pradesh). These coal based units have, on the other hand, been closed by Government w.e.f. 1.4.2002 owing to technical and financial infeasibility. On the other hand, with natural gas becoming accessible from offshore Bombay High and Southern Basin, many natural gas based ammonia and urea plants have been installed from the year 1985. As the utilization of gas augmented and its accessible delivery dwindled, a number of extension plants came up during the last few years with dual feed ability utilizing both naphtha and gas. Viability of providing availability of Liquefied Natural Gas (LNG) to match the demand of present fertilizer units and/or for their extension projects together with the likelihood of consuming gas reserves discovered recently is also being explored by various fertilizer companies in India. In the case of production of phosphate fertilizer, the scarcity of inland raw material has limited the accomplishment of self-reliance in the country. Inland rock phosphate raw materials meet up only 5% to 10% of the entire demand of  $P_2O_5$ . A strategy has consequently been adopted which contains combination of three options, i.e., indigenous production based on domestic/imported rock phosphate, imported sulphur and ammonia; indigenous manufacturing based on intermediates, domestic or imported,



viz. ammonia and phosphoric acid; and third, bringing in of foreign finished fertilizers. During 2009-10 approximately 72% of the demand of phosphatic fertilizers was availed through the first two alternatives.

In the non-existence of commercially utilizable potash sources in India, the whole requirement of potassic fertilizers for straight purpose as well as for manufacturing of complex fertilizers is met from imports. Due to presence of instability in world market for fertilizer in general and urea market in particular, marginal provision through imports could be utilized to India's tactical advantage. This is also advantageous as the world market, mainly in urea fertilizer, is very responsive to demand-supply situation. Under the new pricing system for urea plants effective from 01.04.2003, for providing more domestic supply of urea, cost-effective proficient plants have been allowed to manufacture fertilizer beyond their reassessed capability to alternate/ decrease imports. Year-wise consumption, production and import of fertilizer is shown in table No.2

**TABLE NO.2 YEAR-WISE CONSUMPTION, PRODUCTION AND IMPORTS OF FERTILIZERS (in lacs MT)**

YEAR	CONSUMPTION	PRODUCTION	IMPORT
2000-01	167.02	147.04	20.91
2001-02	173.59	146.28	23.99
2002-03	160.94	144.74	16.74
2003-04	167.98	142.66	20.18
2004-05	183.99	154.05	27.5
2005-06	203.4	155.75	52.53
2006-07	216.51	160.95	60.8
2007-08	225.7	147.07	75.83
2008-09	249.09	143.34	101.51
2009-10	264.86	162.21	91.47

(Source: Department of Fertilizer, Govt of India)

## SUBSIDY

For the sake of continuous agricultural growth and to encourage the utilization of balanced nutrients, it is very important that supply of fertilizer is offered to farmers at reasonable prices. Keeping this motive in mind, urea is being as controlled fertilizer at statutorily notified unvarying sale price, on one hand and decontrolled phosphatic and potassic fertilizers are made available at maximum retail prices (MRPs) is sold on the other. The problems faced by the producers in earning a rational profit on their outlay with reference to administrated prices, are mitigated to certain extent by giving support for urea production units under the new pricing scheme and decontrolled phosphatic and potassic fertilizers under the concession scheme. The sale price notified by the Government and stipulating MRP is normally less than the cost of manufacturing of the respective production plant. The disparity between the cost of manufacturing and the selling price/ MRP is paid as subsidy/concession to the producers. As the sale prices charged from the consumers of both domestic and imported fertilizers are fixed uniformly, provision for financial



assistance is also made on imported urea and decontrolled phosphatic and potassic fertilizers. The financial support in the shape of subsidy on fertilizers is transferred to the farmers in the form of reduced MRPs. The selling rates as declared by Government for the subsidized fertilizers are far lesser than the normative supply cost of these fertilizers at farm gate level. The variation between the normative supply cost at farm gate level and the declared selling rates is paid in the form of subsidy to producers/importers on sale of fertilizers so that they are made available to the farmers at reduced rates. The enhancement in quantum of subsidy on fertilizers along with an increase in consumption of fertilizers has led to a significant increase in necessity of subsidy. In spite of enhancement in cost of fertilizers, the Government has totally insulated the farmers from this increase in cost and has augmented the subsidy allocations to meet the utilization requirements of the farmer at concessional rates. Expenditure on subsidy/concessions has been shown in table No.3.

**TABLE NO.3 EXPENDITURE ON SUBSIDY/CONCESSION ON FERTILIZER BY GOVT OF INDIA (Rupees in crores)**

Period	Phosphate and Potash			Nitrogen			Total
	Indigenous	Imported	Total	Indigenous	Imported	Total	
	P&K	P&K	P&K	Urea	Urea	Urea	
2006-07	6648.17	3649.95	10298.12	12650.37	5071.06	17721.43	28019.55
2007-08	10333.8	6600	16933.8	16450.37	9934.99	26385.36	43319.16
2008-09	32957.1	32597.69	65554.79	17968.74	12971.18	30939.92	96494.71
2009-10	16000	23452.06	39452.06	17580.25	6999.98	24580.23	64032.29
2010-11	13000	15500	28500	15980.73	8360	24340.73	52840.73

source: Dept. of Fertilizer Government of India

Great swell in fertilizer subsidies over the years has mainly been the effect of enhancement of production / use and increase in the expenses of raw material of native fertilizers and rates of imported fertilizers from time to time. The expenses of various inputs/ utilities, such as coal, gas, naphtha, rock phosphate, sulphur, ammonia, phosphoric acid, electricity, etc., as also the freight expenses, went upward considerably during the eighties. The gas- based fertilizer plants installed during this period also necessitated high capital investment per tonne of installed capacity, causing steady increase in the retention prices. The selling rates of fertilizers to the farmers, remained approximately at the same level between July, 1981 and July 1991. The Government affected an increase of 30% in the issue prices of fertilizers in August, 1991 after a gap of almost a decade. The selling rate of urea, which was decreased by 10% in August 1992, was raised by 20% in June 1994 followed by one more increase by 10% w.e.f. 21.2.1997. The rates of urea were amended in February 2002 again by 5% and by Rs. 240 per metric tonne of urea w.e.f. 28.2.2003. Enhanced rates which was implemented from 28.2.2003 was, later taken back w.e.f 12.3.2003. The Maximum Retail Price of urea i.e. @ Rs. 4830 per tonne exclusive of local levies continued up to 31-03-2010. With effect from 1-04-2010, MRP of urea was revised by 10% i.e. from Rs. 4830 per MT to Rs. 5310 per MT. Under the prevalent subsidy



scheme, fertilizers are supplied to the farmers at the Maximum Retail Price, which is considerably below the real cost of fertilizers. Consequently, the farmers pay up to 25-40% of the actual expenditure on fertilizers and rest of the cost is borne by the Government. In the first phase of Nutrient Based Subsidy scheme, the subsidy is paid through the producers/sellers/importers of fertilizer. As far as assessment of the viability of distributing of subsidy straight to the farmers, is concerned Department of Fertilizers has appointed an advisor for accomplishing evidence of perception study for exploring the viability of execution of tracking of fertilizers to the farm gate level and also of investigating the practicability of payment of subsidy direct to the retailer (farm gate/farmer). The evidence of perception is projected to be held in approximately 50-70 blocks in the 7 States of Haryana, Andhra Pradesh, Tamil Nadu, Rajasthan, Madhya Pradesh, Assam and Maharashtra.

### **DEVELOPMENT AND GROWTH**

Currently, there are 56 big size fertilizer plants in India producing various nitrogenous, phosphatic and complex fertilizers. Of these, 30 plants (as on date 29 plants are in operation) manufacturing urea, 21 plants manufacture DAP and complex fertilizers, 5 plants produce low analysis straight nitrogenous fertilizers and 9 manufacture ammonium sulphate as by-product. In addition, there are about 72 small and medium scale plants in operation manufacturing single super phosphate (SSP). The total installed capacity of fertilizer plants which was 119.60 lakh MT of nitrogen and 53.60 lakh MT of phosphate as on 31.03.2004, increased slightly to 120.61 lakh MT of nitrogen and 56.59 lakh MT of phosphate as on 01.04.2010.

### **Production Capacity versus Capacity Utilization**

The manufacturing of fertilizers during 2009-10 was 119.00 lakh MT of nitrogen and 43.21 lakh MT of phosphate. The manufacturing target for 2010-11 was 125.16 Lakh MT of nitrogen and 48.70 Lakh MT of Phosphate, showing a perceptible increase of 5.2% in nitrogen and 12.7% in Phosphate as compared to manufacturing in 2009-10. While manufacturing target for nitrogenous fertilizer is more than the installed capacity, for phosphatic fertilizer it is less than installed capacity due to constraints in accessibility to raw materials/ intermediates which are to a large extent imported. On the other hand, taken together, the manufacturing of 'N' and 'P' during the year taken together is higher than in the consequent period of last year. The manufacturing performance of both nitrogenous and phosphatic fertilizers during the year 2009-10 was satisfactory. Manufacturing of nitrogenous fertilizers was less than target by 1.84 Lakh MT, as there was no manufacturing by SPIC. The manufacturing of phosphatic fertilizers was more than the target by 1.90 Lakh MT.

The native fertilizer industry has normally attained the levels of capacity utilization comparable with others in the world. The capacity utilisation during 2009-10 was 98.8% for nitrogen and 76.8% for phosphate. As for phosphate fertilizers, apart from the limitations mentioned earlier, the actual manufacturing capacity utilisation has also been prejudiced by trends of the demand. The capacity utilisation of the fertilizer industry, mostly in respect of urea, is likely to get further better



through revamping/ modernisation/renovation of the existing fertilizer plants. Capacity utilization of fertilizer plants has been shown in table NO.4

**TABLE NO. 4 SECTOR-WISE CAPACITY UTILIZATION OF FERTILIZERS PLANTS**

Nutrient	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
<b>Nitrogen(N)</b>									
Co-op Sector	101	101	99.5	102	93.3	94.8	95.6	98.9	107.4
Public Sector	74.1	78.9	86.7	87.2	84.6	87.1	82.5	83.6	89.2
Private Sector	95	85.8	89.7	94.1	100.8	102.5	92.4	89.5	100
<b>Total</b>	<b>89.6</b>	<b>87.2</b>	<b>91.1</b>	<b>94</b>	<b>94.1</b>	<b>96</b>	<b>90.4</b>	<b>90.2</b>	<b>98.8</b>
<b>Phosphoric(P&amp;K)</b>									
Co-op Sector	141.4	131	94.4	103.1	60.5	60.5	60.5	53.5	69.7
Public Sector	58.3	64.8	81.7	61.6	68.2	53.8	37.3	44.3	56.6
Private Sector	69.6	63.6	64.1	66.3	82.3	89.8	76.2	67.1	82.5
<b>Total</b>	<b>75.7</b>	<b>72.8</b>	<b>70.1</b>	<b>71.9</b>	<b>74.6</b>	<b>79.8</b>	<b>67.3</b>	<b>61.2</b>	<b>76.8</b>

Nine urea manufacturing units of the companies have been closed or shutdown due to a several reasons, inter-alia, on account of technological obsolescence, feedstock constraints, non-viability of plants/company and serious monetary losses details of which has been given in table No. 5.

**TABLE NO.5 FERTILIZER PLANTS CLOSED**

S.NO	Name of the company	Unit	Date of closure	Annual installed capacity (in MT)
1	FCI	Gorakhpur	10.6.90	2.85
2	FCI	Ramgundam	01.4.99	4.95
3	FCI	Talcher	01.4.99	4.95
4	FCI	Sindri	16.3.02	3.3
5	HFC	Durgapur	01.7.97	3.3
6	HFC	Barauni	01.1.99	3.3
7	RCF	Trombay-1	01.5.95	0.98
8	NLC	Neyveli	31.3.02	1.53
9	FACT	Cochin-1	15.5.01	3.3
	<b>Total</b>			<b>28.46</b>

(Source: Fertilizer Department Govt of India)

### New projects

Indian Government announced a pricing scheme on 29.1.2004 for installing new urea plants and extension of present plants for increasing the domestic manufacturing capability to face the rising requirement for increasing the agricultural production in India. The objective of new scheme was focused at enabling the producers to make a decision about their outlay plans in the fertilizer industry. The



new scheme emerges as a big hope to persuade producers to install units with global competence standards for new units and extension of present units. The scheme was based on the logic of Long Run Average Cost (LRAC). The aforesaid scheme was not doing well in attracting outlays to this industry. The non accessibility of natural gas, which is the significant input for manufacturing of urea, has also been one of the most important constraints in further accumulation of indigenous capability for manufacture of urea. On the other hand with the anticipated enhanced accessibility of gas from 2009 onwards, it is predictable that outlay in fertilizer industry will also be affected. The Government announced a new investment scheme on 4th September 2008 for urea sector to appeal the much demanded outlay in this industry.

The scheme is based on IPP yardstick and has been finalized in discussion with the industry. The scheme is likely to lead to savings to the Government in the shape of accessibility of Urea at a price below IPP and will also escort to indirect savings by bringing the import rates down due to decrease in imports. As already discussed that objective of new outlay scheme was to refurbish, extend and revitalize existing urea plants and set up of Greenfield/ Brownfield projects. The scheme is expected to significantly bridge the gap in next five years between the utilization and inland production subject to established and sufficient accessibility of gas at reasonable rates. The most important facets of the new investment scheme are mentioned below:

**Import Parity Price:** The scheme is based on Import Parity Price (IPP) at suitable floor and ceiling prices of USD 250/MT and USD 425/MT respectively.

**Revamp project:** Any development in capacity of existing units through investment up to Rs.1000 crore, in the existing plants of ammonia-urea production will help in refurbishment of existing plants. The additional urea produced after the refurbishment of existing plants will be accepted at 85% of IPP with the floor and ceiling price as mentioned above.

**Extension of plants:** Installation of a new ammonia-urea plant in the precincts of the existing fertilizer units, using some of the general utilities will meet the criteria for being taken as extension project. The outlay is supposed to go beyond a bare minimum limit of Rs.3000 crore. The urea from the extension of present plants will be accepted with floor and ceiling price at 90% of IPP.

**Revival/Brownfield projects:** The urea from the revived units of Hindustan Fertilizer Corporation Limited (HFCL) and Fertilizer Corporation of India Limited (FCIL) will be acknowledged at 95% of IPP with agreed floor and ceiling price, if the re-establishment of closed plants takes place in public sector.

**Greenfield projects:** The pricing of Greenfield units will be decided on the basis of a bidding process which will be for a decrease over IPP, after finalizing the location (States) of the projected new plant.



**Gas transportation charges:** Supplementary gas transportation charges will be paid to plants for execution, extension and revitalization on the basis of real (up to 5.2 Gcal per MT of urea) as determined by the Regulator (Gas) subject to a maximum ceiling of USD 25 per MT of urea.

**Allocation of Gas:** Only non-APM gas will be measured for the new investment in urea sector.

**Coal gasification based Urea Projects:** The Coal gasification based urea plants will also be taken at par with revitalization or a Greenfield plant as the case may be. In addition, any other incentives or tax benefits as accorded by Government for motivating coal gasification know-how will also be provided to these plants.

**Joint Ventures abroad:** The Joint Venture projects in other gas rich nations are also planned to be motivated through solid off take agreements with pricing determined on the basis of current market environment and in reciprocated discussion with the joint venture company. On the other hand, the rule for deciding upon the maximum price will be the price achieved under Greenfield projects or 95% of IPP as projected for revitalization projects (in absence of any Greenfield projects) with a cap of USD 405 CIF India per MT and a floor of USD 225 CIF India per MT.

**Time period for proposed investment policy:**

Only those refurbished plants which start manufacturing of additional capacities within four years of announcement of the new scheme would meet the criteria for the dispensation suggested above. Similarly manufacturing from extension and revitalization (brown field) plants that come about within five years of announcement of the new scheme would meet the criteria for dispensation provided in the policy. However if the production does not come through within the predetermined time period, such brown field projects will be taken as parallel to a Greenfield projects and their price will be determined by limited bidding options. The time period for setting up of new Joint Ventures would also be five years under the new investment policy.

**Impact of new investment policy**

The fertilizer Industry of India has shown a positive interest towards the New Investment Policy by taking investment resolution for refurbishing present capacities of plants. The fertilizer plants similar to IFFCO-Aonla – I & II, IFFCO-Phulpur – I & II, Chambal Fertilizers and Chemicals Limited (CFCL) – Gadepan – I&II, Nagarjuna Fertilizers and Chemicals Limited (NFCL) –Kakinada – I & II and the plant of Tata Chemicals Limited - Babrala have increased the manufacturing of urea after refurbishing by taking the benefit of new policy of the Government. Moreover, RCF, Thal; KRIBHCO- Hazira and NFL, Vijaipur have also started refurbishing their respective plants. The fertilizer entrepreneurs have been repeatedly requesting the Government of India for either compact allotment of gas at predestined unchanging rates from indigenous gas resources or protect industry from any extra burden arising due to enhancement in delivery rates of gas in the same way inflating the floor prices



and in the nonexistence of assurance on allotment of natural gas at predetermined prices. The investment decisions worth more than Rs.30, 000 crore are under hold. The revitalization and closed units are not envisaged in public sector and bidding is not a practicable choice in Green Field investment. Keeping in mind the aforesaid restrictions imposed by the Government concerning pricing policy and solid accessibility of gas, the EGOM has determined that the demand emanating ahead of 2008- 09 from de bottlenecking of the extension of fertilizer units, switching of naphtha-based and fuel oil-based fertilizer units, and revitalization of closed and bunked fertilizer units would be given the uppermost precedence and they would be delivered natural gas as and when they are prepared to make use of the same.

**Strategy for Growth** The following strategies have been adopted by Indian Government to increase fertilizer availability in India:

Extension and capacity add-ons/effectiveness augmentation all the way through retrofitting and revamping of present fertilizer units.

Creation of joint venture projects in nations having plentiful and cheaper raw material resources. Totaling the prospect of utilizing different sources like liquefied natural gas, coal gasification etc., to surmount the difficulties faced in the domestic accessibility of cheap and fresh feedstock, mainly for the manufacturing of urea.

Exploring potentiality of revitalization of some of the defunct and closed up plants by installing Brownfield plants subject to the availability of gas.

### **Joint Ventures**

Owing to limitations in the accessibility of gas in India, which is the favoured feed stock for manufacturing of nitrogenous fertilizers, a close to entire reliance of the country on imported raw inputs for manufacturing of Phosphatic fertilizers and complete import reliance for MOP, the Government has been cheering Indian entrepreneurs to set up Joint ventures manufacturing conveniences with exchange agreement in other nations, which are prosperous in fertilizer raw inputs. Present joint ventures, that is to say Oman India Fertilizer Company (OMIFCO), Oman in Urea and Industries Chimiques du Senegal (ICS), Senegal and Indo-Maroc Phosphor (IMACID), Morocco in Phosphate have given the Country guaranteed sources of deliveries of Urea and Phos acid, a significant raw material for manufacturing of Phosphatic fertilizers. Further two more projects, namely JIFCO Jordan and TIFERT Tunisia are about to be installed. The particulars of the present joint venture in the fertilizer industry are as under:

#### **(i) OMIFCO Oman:**

Krishak Bharati Cooperative Ltd. (KRIBHCO), Indian Farmers Fertilizers Cooperatives Ltd. (IFFCO) and Oman Oil Company with individual share holding of 25%, 25% and 50% have collaborated and installed an international class urea-ammonia fertilizer plant by forming a company "Oman India Fertilizer Company (OMIFCO)", in Oman at a cost of US \$ 892 million. It comprises 5060 MTPD



granular urea and 3500 MTPD Ammonia plants together with utilities in the coastal town of Sur in Oman. The annual capacity of the fertilizer complex is 16.52 lakh MT of granular Urea. The whole quantity of Urea is off taken by the Government of India as per Urea Off-Take Agreement (UOTA) at pre decided prices. Government of India also off takes leftover quantity of Urea, if any, as per price settled for the extra quantity. In addition, 2.5 lakh MT of extra Ammonia per year is also manufactured by the Plant for which IFFCO has Ammonia Off-Take Agreement (AOTA). OMIFCO is exploring the prospect of expansion and enhancement in production of Urea and Ammonia.

### **(ii) ICS Senegal**

The Government of India (GOI), Indian Farmers Fertilizer Cooperative Ltd. (IFFCO) and Southern Petrochemicals Industries Corporation Ltd. (SPIC) created a joint venture company in Senegal named Industries Chimiques du Senegal (ICS). Afterwards, SPIC withdrew from the project. In recent past, the company suffered monetary losses. On the other hand, ICS Senegal has been reorganized in 2008 with Government of India, IFFCO and other Indian conglomerate partners having 85% and Government of Senegal having 15% share. The reorganization plan after having been agreed on by the Regional High Court of Dakar (Senegal) on 27.3.2008 has come into existence and ICS Senegal, as reorganization is in action. ICS Senegal has a capacity to produce 6.60 lakh tonnes of phosphoric acid per annum and also finished phosphate fertilizer such as DAP and Complex fertilizers. The foremost segment of the phosphoric acid, about 5.5 LMT manufactured in the ICS plant is off-taken by IFFCO as per a long term buy back agreement and utilized for manufacturing of phosphate fertilizers in India. The finished fertilizers DAP and complex fertilizers, manufactured by ICS Senegal are for domestic use in Senegal.

**(iii) IJC Jordan** SPIC, Jordan Phosphates Mines Company Ltd. (JPMC) and Arab Investment Company (AIC) established a joint venture project, Indo-Jordan Chemicals Company Limited (IJC) in Jordan in May 1997 with a capacity of 2.24 lakh tonne of phosphoric acid production per annum. 52.17% of the equity of the joint venture is held by SPIC, 34.86% by JPMC and 12.97% by AIC. Phosphoric Acid produced by IJC is off-taken by SPIC and other fertilizer plants in India.

**(iv) IMACID Morocco** IMACID, a joint venture involving Office Cherifien des Phosphates (OCP), Morocco, and Chambal Fertilizers & Chemicals Ltd. (CFCL), India to manufacture 3.60 lakh MT of phosphoric acid per annum was installed in Morocco in October 1999. After successive joining of Tata Chemicals Limited (TCL), capacity of the plant has been enhanced to 4.30 LMT per annum. Initially, equity of US\$ 65 million in the venture was held by OCP & CFCL equally. Subsequently, in May 2005, both OCP & CFCL sold one-third of their equity stake in IMACID to TATA Chemicals Limited.

**Joint Ventures under completion / Consideration: (A) JIFCO Jordan** Indian farmers Fertilizers Cooperative Ltd (IFFCO) and Jordan Phosphate Mining Company (JPMC) have decided for installation of a joint-venture Phosphoric Acid



manufacturing plant in Jordan, called Jordan India Fertilizer Company (JIFCO) with an installed capacity of 1500 MT of phosphoric acid per day (MTPD). Equity holding in the plant is 52:48 between IFFCO and JPMC, respectively.

**(B) TIFERT Tunisia** Gujarat State Fertilizers & Chemicals Ltd (GSFC) and Coromandel International Ltd (CIL), previously Coromandel Fertilizers Ltd. (CFL) mutually Indian entities along with Groupe Chimique Tunisien (GCT) & Compagnie Des Phosphates De Gafsa (CPG), both Tunisian entities, are creating a joint venture project, Tunisian Indian Fertilisers S.A. (TIFERT) at Skhira in Tunisia for manufacturing 3.6 lakh MT of Phosphoric Acid per annum. The whole production of phosphoric acid would be for off take by GSFC and CIL. A MoU to this effect was inked in October, 2005 between parties. Expected cost of the project is approx. US \$ 165 million + 5% with equity of US\$66 million and borrowings of US \$99 million.

### **(C) Cooperation in Syria**

The India-Syrian Joint Commission in its meeting held in January 2008 took note of the reciprocated interest of both nations in the field of Phosphatic raw-inputs and products. It was decided that both stakeholders would work for collaboration in the fertilizer sector in Syria. Consequently, an association of Indian companies including MECON, RITES and PDIL (All central Government PSUs), having proficiency in the fields of mining, beneficiation, processing, setting-up and running the phosphatic plants and logistic aspects are undertaking capacity enhancement consultancy study with GECOPHAM in Syria. As per the MoU signed between Government of India and GECOPHAM in May 2009, the Indian consortium carried out the viability studies, which have now been finished and the Pre-Feasibility Report has been submitted to the Syrian Authorities. A Government level MoU spelling out broad framework of cooperation in Phosphate sector between the Countries has also been signed in Oct'2010. A delegation from DOF and the syndicate has visited Syria in February'2011 for discussion relating to the Draft Feasibility Report and other modalities to proceed further, with the Syrian Authorities.

**(D) Cooperation with Russia** On 12.03.2010 another MoU has been signed between the Government of India and the Government of Russia, during the visit of Prime Minister of Russia to India, envisaging inter-alia motivating alliance in the areas of trade, production, likely establishment of Joint Ventures, investment and R&D activities, exchange of information and holding of consultations on the issues of production and consumption of mineral fertilizers, exchange experience encourage contacts between the specialists, organization of Joint Conferences, symposia and business events on the issues of Co-operations in the sector of mineral fertilizers.

**(E) Cooperation in Indonesia** A group led by the Secretary (F) visited Indonesia during 30.10.2010 to 02.11.2010 to undertake groundwork negotiations with the Indonesian Authority to determine the technological practicability of setting up of an Ammonia Urea plant based on Coal Gasification Technology. During the visit of the President of Indonesia Chief Guest on occasion of the Republic Day 26th Jan'2011 following two papers have been signed:- (a) MoU for setting up an Ammonia Urea



Plant in Indonesia and contract for off take of leftover urea manufactured in the plant.  
(b) Contract for supply of 3 lakh MT of Urea and 2.5 LMT of NPK Complex fertilizers in designated grades.

**(F) Cooperation in Australia** Indian Farmers Fertilizer Cooperative Ltd (IFFCO) has signed 'Principles of Off take Agreement' with Legend International Holdings of Australia to carry out joint mining of rock phosphate in Lady Annie mines (Georgina Basins in Queensland) along with an guaranteed three million MT annual off-take. A total of US \$800 million investment has been expected for starting rock phosphate pulling out in Australia. IFFCO will take delivery of 30 million options in Legend International Holdings. IFFCO would give both technological and monetary facilities to Legend International Holdings in the expansion of its phosphate mining and consignment of its produce to India. In Ammonia-Urea sector, KRIBHCO and NWCF, a private company in Australia are in the route of installing of a coal base ammonia-urea plant in Australia. The project cost is around US \$ 2.6 billion and KRIBHCO's equity will be around US \$ 165 million. The Australian company planned to enter into a 20 years accord for supply of urea. Agreement on joint Terms & Conditions together with the price on which the urea will be made, has been finalized.

#### **(G) Cooperation in Ghana**

Ghana is treated as a well-off source of nitrogenous feedstock due to its gas reserves. Chairman of Ghana National Petroleum Corporation (GNPC), Ghana during his trip to India, in Sep'2009, discussed with the Secretary (F) the option of collaboration in fertilizer industry. It was planned to install an Ammonia-Urea plant (Gas based) in Ghana. To give appropriate form to the project proposal, an MoU has been signed in July, 2010 between the Countries at the Government level. As per MoU, a technological team involving Officers from RCF & PDIL visited Ghana to proceed further. Location choice report and the pre-viability statements were provided by RCF and PDIL, which were made available to Ghanaian Authorities. In January'2011 a group led by Secretary (F) visited Ghana to talk about further modalities in the process. Ghanaian Authorities have been requested for a rapid conclusion on pricing of Gas.



## QUALITY

India Government has declared fertilizer as an indispensable product under the Essential Commodities Act, 1955 (ECA) and has declared Fertilizer Control Order, 1985 (FCO) under this Act. Consequently, it is the accountability of the State Governments to guarantee the supply of excellent fertilizers by the producers/importers of fertilizers as approved under the FCO under the ECA. As per the stipulation of the FCO, the fertilizers, which meet the norms of excellence laid down in the order, can only be sold to the farmers. There are 71 fertilizer testing laboratories including four laboratories of the Government of India at Faridabad, Kalyani, Mumbai and Chennai with an annual analyzing capacity of 1.34 lakh samples. The quality of the imported fertilizers in the Country is regularly inspected by the quality control laboratories involved in this task. The State Governments are sufficiently authorized to take samples of the fertilizers at any place in the Country and take suitable action not in favor of the sellers of Non- Standard fertilizers. The punishing stipulation includes trial of offenders and punishment up to seven years imprisonment, if convicted under the ECA, 1955 besides termination of approval certificate and other managerial actions. The Department of Fertilizers makes deductions along with punitive interest on the quantity of the fertilizers for which the State Governments have reported to be Non- Standard. During the year 2006-07, 2007-08 and 2008-09, the percentage of samples of fertilizers which were confirmed Non- Standard at all India level were 6.0%, 6.2% and 5.5% respectively. Payment of concession for P&K fertilizers and for Single Super Phosphate (SSP) is made by the Department taking into account the certificate of quality given by the respective State Governments in Proforma 'B' for the fertilizers received and sold there. Further, SSP units are required to produce month-wise 'Quality Certificates' issued by States in which the units are located. The units are required to have well equipped laboratory to test the sample of its SSP. The SSP plants are also obliged to print 'Quality Certified' on each bag released in the market. DOF also deposes PDIL to perform first time technical appraisal of the new SSP units. PDIL undertakes six monthly inspections of the SSP units to confirm the quantity and superiority of the fertilizers for which the units are claiming payment of subsidy. It is also obligatory on the part of units to use only those grades of Rock Phosphate as raw material for production of SSP under the NBS, which is declared by DOF from time to time. DOF has also directed the State Governments to make up groups with that of PDIL to test samples of Single Super Phosphate (SSP) at the retailer level. The marketers of the SSP are also accountable for the superiority of the fertilizer marketed by them. Department of Fertilizers has also constituted vigilance groups of the Officers of the Department to make sure the accessibility and superiority of the fertilizers in the States.

## EXPORT

The Government of India has received complaints of smuggling of subsidized fertilizers to the neighboring countries. Keeping in mind the accessibility of the fertilizers in the country and the subsidy paid thereon, in addition to urea, the Government has determined to put the sale of DAP/MOP abroad in the restricted category in order to dishearten the exports and smuggling. The DGFT has been requested to place all other subsidized fertilizers also in the restricted category.



## **FERTILIZER INDUSTRY -A CHALLENGE**

The progress route of the Indian fertilizer industry has been obstructed considerably by the prevailing challenges. Growth and development of agriculture in India derives a significant motivation from the fertilizer industry. Agricultural situation in India could be jeopardized by the worries in the fertilizer industry. The Government is facing a serious situation, which requires a balance between the requirements of the farmers and the fertilizer companies. With the rapid increase in population and continuous decline in land availability for cultivation, the need for food grains is rising quickly and continuously. The challenges of the Indian fertilizer industry those lie ahead are linked intricately to the inadequate supply of fertilizers. There has been a rush for the requirement of fertilizers in the past few years. Excellent monsoon rains have led to the development in agriculture, escalating the utilization of fertilizers inadvertently. On the other hand, the strong increase in use propensity has not been met with the necessary rush in fertilizer manufacturing. This has widened the space between the requirement and availability of fertilizers, which has led to a boost in the reliance on imports.

This also depicts the lack of realizing of the domestic capacity exploitation of the reserves in India. One more significant aspect that has led to the undersized development of the fertilizer industry is the increase in prices of the raw materials. The fertilizer industry is reliant on gas for the manufacturing of urea and phosphoric acid for the manufacturing of phosphatic fertilizers and DAP. India imports its raw material from foreign countries which understand the quandary of the Indian fertilizer industry and have started exploiting the scarcity through exorbitant pricing. In current years, some of the private companies, manufacturing fertilizers have effectively taken stakes in the foreign sources of raw materials. Though this has helped the industry, it has yet not been able to decrease the Government's load of subsidizing the rates. The Government has introduced policies to decontrol the prices but has delayed the execution of the constraints that do not augur well in support of the industry, consequently the fertilizer subsidies keep on rising.

Immediate challenge that the industry faces today is that of being exposed to global struggle in the more open WTO system. Due to the WTO obligations, quantitative limitations have been detached. Cheaper imports could make threats to the indigenous industry particularly the plants which do not make use of gas as input. Due to such inane inefficiencies and cost drawback, non-gas-based plants manufacturing over 30 per cent of the indigenous fertilizer would not be capable to contend in an internationally cut throat competitive environment. Yet the gas-based units would have to work out considerable monetary control to be able to participate. Phosphatic fertilizer manufacturers would also face parallel threats as the prices at which the industry procures inputs almost match the prices of imported fertilizers. In the short run, indigenous companies may have the benefit of the shield of differential subsidy in some form or the other. But in the long run they will have to struggle on a stand-alone basis. One of the biggest challenges to the fertilizers industry is expected to come from chemical fertilizers themselves. Continual use of chemical fertilizers



without working methods of organic farming can damage productiveness of the land. Some research in this field points out that the organic substances of the land have been registering a continuous decrease. Too much utilization of chemical fertilizers also decreases the water and nutrient preservation capability of the land. This could affect increase in insoluble nutrients in the land, creating pollution and contamination of ground water. Farmers need to be well-informed on supplementing the use of chemical fertilizers with conventional manures such as countryside or city compost and green manure. Use of bio- fertilizers has also been motivated to help formulate insoluble nutrients available to the plants. Promoting incorporated nutrient administration method therefore, should turn out to be an essential part of company's marketing efforts.

This is also a challenge for the policy makers to increase the productivity of soil at a time when soil health is fast deteriorating due to imbalance in fertilizer use. In order to increase the productivity of land, holistic approach is needed to address areas of concern like bringing more land under irrigation, educating farmers to shift towards more efficient like drip irrigation/fertigation etc. The fertilizer industry is faced with other challenges inter alia infrastructural bottlenecks and the uncertainties in government policies. The hold up in judgment making and non clarity in setting parameters are among some of the major drawbacks of the Government policies directed towards the industry. To rescue the wellbeing and development of the fertilizer industry, the Government of India is in need of long term reasonable policies that would facilitate the industry to overcome the challenges and stay relevant in the present deadlock. The coming times will be a tough for the industry. Future outlook will rely mainly upon how well it is capable of becoming accustomed to rapidly changing atmosphere. A vibrant fertilizer industry is the basic requirement to accomplish security of India. The whole fertilizer sector, as well as the Government, industry and the owners must do their bit to see that the industry measures up to these challenges.

## **CONCLUSIONS:**

On the basis of analysis of data gathered in the course of this research, following are the conclusions relating to the evaluation of management of working capital in ten fertilizer companies under study:

### **IFFCO :**

Inventory constituted 37.79%, the second highest proportion. A very high level of inventory was mainly attributed to the volume of manufacturing done by the company. The inventory to total CA was higher than the industry average 31.25%. Consequently, the ITR was 5.94 times but it was slightly higher than the industry average of 5.38 times.

Receivables constituted only 11.72% of total current assets on an average indicating tighter and stricter credit policy of the company along with efficiency in collection of debts. While comparing with the industry average of 28.60% it was observed that percentage of debtors to total current assets was less than that of the



industry. As a result, the RTR and ACP were also better than the industry average i.e. 25.90 times and 18.22 days respectively as compared to 7.51 times and 52.06 days for the industry respectively.

Cash and bank balance were also below average, forming, just 4.90% of the total current assets. This leads to the conclusion that the company believed in investing excess cash in profitable ventures or avenues. It also indicated that the company had better creditworthiness and lending terms with their bankers so as to meet their monetary requirement as and when required. The CTR of IFFCO was 7.81 times also which was higher than the industry average of 2.85 times. Consequently the average age of cash was less i.e. 55.56 days as compared to 134.64 days of industry average.

Loans and advances formed the highest portion of total current assets i.e. 45.62%. A majority of the funds were blocked in Loans & Advances in the form of advances to suppliers, salary advances & loans to employees etc. The ratio of Loans & Advances to current assets was almost double of the industry average of 26.01%.

PTR of 8.70 times and APP of 45.90 days were better than the industry average of PTR 5.54 times and APP 71.56 respectively which means that IFFCO disposes of its payables well in time. In case of IFFCO, a moderate negative correlation -0.45 was found between CR and PBTR. However, a higher moderate negative correlation of -0.62 was observed between QR and ROTA. There is also an inverse relationship -0.22 between NWC and profit. Besides inverse relation between NWC & profitability and NWC & profit, slope of trend line relating to net working capital is going upward.

It has been observed that STBB/L of 63.90% formed the major source for financing the working capital requirements in IFFCO followed by 31.51% creditors as against the industry average of 51.77% and 38.93% respectively.

### KRIBHCO

Cash & Bank balances comprised the maximum portion of total CA i.e. 65 % of the total CA which was almost 5 times more than the industry average of 14.03%, consequent to this the CTR & AAC was also not commendable as compared to the industry average. The CTR for KRIBHCO was 0.32 times leading to high AAC of 1355.03 days while the same variable for the industry was 2.85 times & 134.64 days respectively. This clearly indicated that the company had blocked massive liquidity in cash & bank balances.

Receivables formed the second highest component of total CA i.e. 12.74% against the industry average of 28.60%. The receivables turnover ratio was 7.74 times for the company which was higher than the industry average of 7.51 times while the ACP of 51.57 days was almost equal to the industry average of 52.06 days.



The loan & advances were 12.66% of total CA which was half the industry average of 26.01% indicating a reasonable level of control of company over its advances and loans.

Inventory as a percentage of total CA was 9.60% which was lowest among all the companies of the sample of study. The industry average of inventory to total CA was 31.25% which was almost 3.5 times of KRIBHCO. The company kept low levels of inventory. ITR was 6.15 times against the industry average 5.38 and AIP was 64.38 days against the industry average of 78.56 days.

Negative correlation of -0.03 was found between CR and PBTR. However, a higher negative correlation was observed between QR and ROTA i.e. -0.50. There is also an inverse relationship of -0.56 between NWC and profit. Besides inverse relation between NWC & profitability and NWC & profit, the slope of trend line is going downward.

PTR 7.48 times and APP 58.58 days were better than the industry average PTR 5.54 times and APP 71.56 days which means KRIBHCO disposes of its payable well in time. It has been observed that 54.57% of Creditors formed the major source for financing the working capital requirements followed by 45.43% of other sources, against the industry average 38.93% and 9.30% respectively. It was also observed that KRIBHCO did not have any short term bank borrowings and loans and it is assumed that the company is basically relying on its huge cash and bank balances and ploughing back profits for meeting its working capital requirements.

## FACT

Inventory formed the highest chunk of total current assets i.e. 46.65% on an average basis. This is comparable to the industry average of 31.25% which was considerably high. This resulted in low inventory turnover ratio of 4.28 times as compared to the industry average of 5.38 times and high average inventory period of 89.47 days against the industry average inventory period of 70.57 days. Almost half of the working capital funds were engaged in high levels of inventory. This in turn resulted in high inventory carrying cost and hence adversely effecting profitability of the company.

Second major component of TCA was receivables. These constituted 33.22% while the same percentage for the industry was 28.60%. The high level of receivables was not justified by turnover as reflected by low RTR of 6.98 times which was slightly lower than 7.51 times of the industry average and ACP was 60.29 days against industry ACP of 52.06 days.

Loans and advances were 11.85% of total CA as compared to the industry average of 26.01% indicating company's control over its advances.

Cash and Bank balances comprised 8.27% of the total current assets which was again lower than the industry average of 14.03%. The CTR was moderate at 8.10



times which was higher than the industry average of 2.85 times. The company's cash was lying idle for 68.66 days on an average against the industry average of Another area for further study might be to contrast the effectiveness in management of working capital in fertilizer companies of developing countries like India in comparison to the peer companies of developed countries.

As present study is restricted to the selected companies of Indian fertilizer industry only, it can also be undertaken to weigh against the efficiency of management of working capital with the other industries of India so that consequential evaluation should indicate the best industry in India.

A larger sample of companies from fertilizer industry of India may be taken for further in-depth study on the working capital management.

The researcher may extend the period of study to analyse the impact of liberalization on efficiency in management of working capital in fertilizer industry.

#### References:

1. Bora Sawathi, Roy Devesh and Tandley Sridevi, 2006, vertical coordination in Shrimp exports from India: How has contract farming helped farmers access rich markets? Proceedings of the paper presented at IFPRI-IEG workshop on from plate to plough: Agricultural diversification and its implications for the smallholders. ICAR, New Delhi, pp: 1-28.
2. Chinnappa and Reddy, T.R.K., 1999, An empirical analysis of growth and instability in sugar industry. *Agricultural Banker* , 23 (2): 27-28
3. Glover, D., 1990, Contract farming and out grower schemes in east and southern Africa. *Journal of Agricultural Economics*, 41(3): 303-315.
4. Nagaraj. N., Chandrakanth M.G and Prathima. R. 2006, Impact of Contract Farming in Vegetable Seed Production on Farmers' Income, Employment, Socio-Economics and Rural Development. *Rural Development and Social Change*, Discovery Publishing House, New Delhi-110002. PP: 451-464.