Policy Environment Analysis in Indian Fertiliser Industry

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Introduction

Chemical fertilizers have played a crucial role in the success of Green Revolution of India and the subsequent self-reliance in foodgrains production. Currently, Indian fertiliser industry is the third largest producer of fertilisers in the world. It has come a long way since its inception in 1906 with the establishment of the phosphatic plant in Tamilnadu. The food grains production has increased from 52 million metric tones in 1951-52 to above 208.6 million MT in 2005-06. The installed capacity of fertilisers has reached to a level of 177.20 lakh MT in 2007 from 0.39 lakh MT in 1951-52. Presently, there are 56 large size fertiliser plants in the country manufacturing a wide range of nitrogenous, phosphatic and complex fertilisers[2] (Government of India, 2006-07). Out of three main nutrients namely nitrogen, phosphate and potash (N, P & K), required for various crops, indigenous raw materials are available mainly for nitrogenous fertilizers. Lack of domestic raw material for phosphatic fertilisers

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[2] Chemical fertilisers provide the primary nutrients to the soil in the form of nitrogen (N), phosphorus (P) and Potash (K). These fertilisers are used either individually as "straights" or in combines as "compound" also called "complex" form to provide plant nutrients matched to crop requirements in order to maximize the crop yield.

constrains the attainment of self-sufficiency in the country. Since there is no known source of potash in India, therefore, its entire requirement is met through imports.

Role of Fertilisers in Indian Agriculture

Efforts to improve agriculture in colonial India were directly linked to the needs of British industries. Before independence, as many as 27 food scarcities and famines were recorded between 1770 and 1880 (Sharma 1997). Before independence, only three plants were setup out of which two were nitrogenous and one was phosphatic fertiliser plant (see table 1). The growth of fertiliser industry was constrained in the post-independent era due to the lack of capital and technological resources. During the decade of the 50s only two fertiliser plants were set up. Realizing the disastrous consequences of the growing gap between the rates of growth of population and that of food production, a "grow more food" campaign was launched. Attainment of self-sufficiency was considered as the key goal of economic planning. The First five-year Plan gave maximum importance to the growth of agriculture. Among the measures initiated in the fifties to stimulate foodgrain production, were land reforms, irrigation, fertiliser production, strengthening of research and organization of a national farm extension service. Till 1960's Indian agriculture was not able to meet domestic requirements and the country had to rely on foodgrain imports.

Table 1

Fertiliser Plants in India upto end 60s

Year	Firm	Location	Fertiliser Produced
1906	EID Parry	Tamilnadu (Ranipet)	SSP
1947	Indian Iron and Steel Co. Ltd. (IISCO)	West Bengal (Burnpur Kulti)	AS
1947	Fertilisers and Chemicals Travancore Ltd. (FACT)	Kerela (Alwaye)	AS
1955	Steel Authority of India (SAIL)	Madhya Pradesh (Bhilai)	AS
1967	Gujarat State Fertilisers and Chemicals (GSFC)	Vadodara	Urea

1967	Coromandel Fertilisers Ltd. (CFL)	Vizag (AP)	Urea
1967	Shriram Fertilisers and Chemicals (SFC)	Kota	Urea

Source: D.K. Mittal "Fertiliser Industry" 1994.

SSP: Single Super Phosphate; AS: Ammonium Sulphate

The Sivaraman Committee report (1965) recommended that in order to increase the productivity and profitability of agriculture more and more use of fertilisers should be encouraged. The committee laid particular emphasis on the domestic fertiliser production and their efficient distribution. Successive droughts in 1965-66 and 1966-67 made the Indian government realise the urgent need for self-sufficiency in food, which was possible only by increasing use of HYV, fertiliser and irrigation in agriculture and by giving credit to the farmers at low rates. Since then the productivity of Indian agriculture has increased three fold. The foodgrain productivity has increased from 522 kg/hec to 1715 kg/hec in 2006-06. Table 2 presents a comparative scenario of foodgrains production and productivity levels over the years.

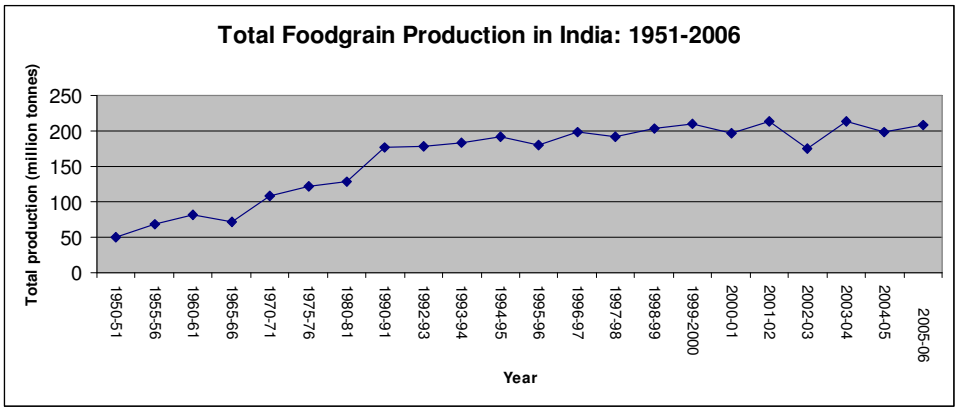
Table 2 Total Foodgrain Production and Average yield per hectare in India

Year	**Production (million tones)**	**Productivity (Kg/hec)**

1950-51	50	522
1955-56	68	605
1960-61	82	710
1965-66	72	629
1970-71	108	872
1975-76	121	944
1980-81	129	1023
1990-91	176	1375
1992-93	179	1457
1993-94	184	1501
1994-95	191	1546
1995-96	180	1491
1996-97	199	1614
1997-98	192	1552
1998-99	203.6	1627
1999-2000	209.8	1704
2000-01	196.8	1626
2001-02	212.85	1734
2002-03	174.77	1535
2003-04	213.46	1727
2004-05	198.36	1652
2005-06	208.59	1715

Source: Handbook of Statistics on Indian Economy, 2007, Reserve Bank of India

Figure 1



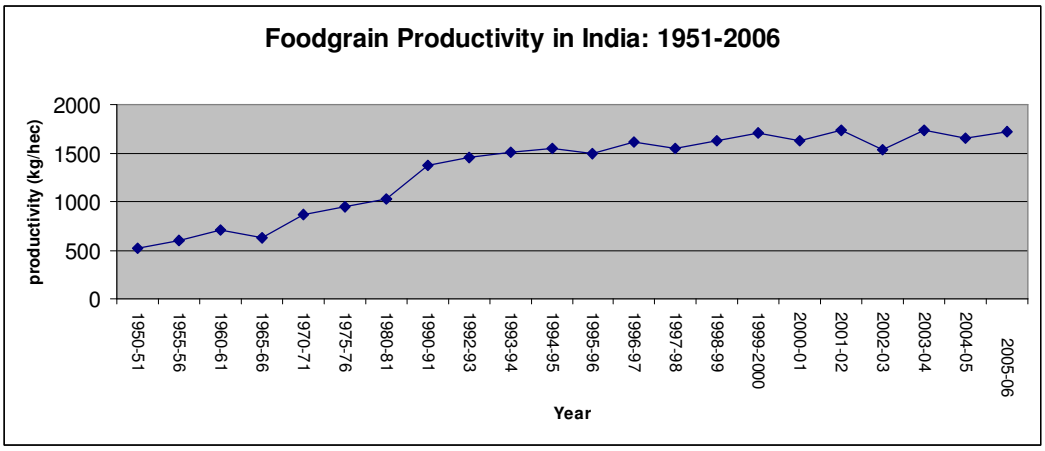


Figure 2

The diagrammatic presentation (see Figure 1) clearly indicates that during the first two decades after independence i.e. during the '50s and the '60s the foodgrain productivity levels were very low. The impact of green revolution can be seen in the decade of '70s in terms of higher productivity. The decade of the '80s witnessed remarkable rise in foodgrain production as well as the productivity level. This spurt can be attributed to Retention Price Scheme (discussed later) that was launched in 1977 to provide fertilser to the farmers at an affordable price. However this rising trend is continued till the mid nineties. In 1995-96, the total foodgrain production and productivity level showed a decline. After this year an erratic pattern has been witnessed in the production as well as the productivity levels with an almost stagnating trend. A large number of reasons have been responsible behind this poor performance of the agriculture sector such as low public investment in irrigation, inadequate credit support, imbalanced use of N, P, K fertilizers, slow growth of urban economy, restriction on exports, lack of land reforms, failure of poverty alleviation schemes and slow growth in rural wages. However out of all these, the reason that is relevant in context to our study is unbalanced use of fertilizers. This was the result of biased decontrol of fertilizer sector in early nineties which led to steep rise in prices of P&K sector. The implications were

in the form of fall in P&K and rise in N consumption levels. Furthermore this led to distortion in NPK ratio, which in turn affected the agricultural productivity of the country.

Impact of policy decisions on Fertiliser Industry

The oil crisis in 1974 forced the Indian Government to come out with fundamental changes in policies and programs for the fertiliser sector. At the backdrop of all these conditions, a High Powered Committee was constituted under the chairmanship of S.S. Marthe in 1976 to formulate an appropriate pricing policy to promote the healthy development of the Indian fertiliser industry on one hand and to stimulate the consumption of fertilisers by farmers on the other hand. On the basis of the recommendations of the committee, a unit specific Retention Price Scheme (RPS) was introduced in 1977. This system involved a price to the farmer (sale price) controlled at a low level and a different price to the producer (retention price) to fully cover the reasonable cost of production including a reasonable margin of profit[3].

RPS resulted in more than double the growth in production & consumption of fertilisers. It is evident from Table 3 that production and consumption of N and P showed remarkable increase from 1980-81 to 1990-91. Improved fertiliser consumption augmented the production of food grains (table 2).

Table 3

[3] Under RPS, ex-factory price commonly known as Retention Price (RP) of output of each fertiliser unit is calculated once in 3 years, based on a stipulated level of capacity utilization (which is 90% from the second year of the plant); consumption norms (for raw materials, utilization of Power, water and maintenance costs) and provision for depreciation. The Scheme generates 12% post-tax returns on net worth depending on the extent to which these norms are achieved by the individual fertiliser units. The difference between the sale price and retention price is paid as subsidy to the manufacturer of the fertiliser.

Production and Consumption of Fertilisers in the post RPS period (million tonnes)

Fertiliser	1980-81	1990-91	2000-01	2005-06
Production (N + P)	3.005	9.044	14.67	15.3
Consumption (N + P + K)	4.891	11.32	15.69	17.93

Source: Computed from data in Fertiliser Statistics 2005-06, FAI, New Delhi.

In early '90s, at the macro-economic level major policy changes were made affecting the overall economic structure. Foreign exchange reserves were barely sufficient to meet just about 2 weeks imports and the inflation rate was running into double digits. All this propelled the economy to a stage whereby Government of India had to approach the International Monetary Fund (IMF) for financial assistance. The IMF in turn laid down stiff conditions in terms of economic reforms. Hence the fertiliser subsidies also came under attack. Consequently, all phosphatic and potassic fertilisers were decontrolled[4] on August 25, 1992. However Urea continued to remain under RPS. Keeping in view the farmers' interest, its selling price was reduced by 10 percent. On the other hand, prices of P&K fertilisers increased tremendously. As a

[4] W.e.f. 1st October 1992 i.e. in just about 5 weeks from Aug 25, 1992 however, the subsidy was revived under a new scheme called Adhoc Concession. The difference between the RPS and Adhoc Concession was that, under RPS, each manufacturer was given a unit specific ex-factory price and consequently, differential subsidy (RP minus net realization from sales) to all manufacturers, whereas in case of Adhoc Concession all manufacturers/agencies producing/selling these fertilisers were given a concession support at a uniform rate e.g. Rs. 1000 per tonne of DAP. So the subsidy under Adhoc Concession is fertiliser specific unlike RPS where it is unit specific. However the amount of support was not sufficient enough to boost the production of decontrolled fertilisers. Until the end of 1996-97, these controls were exercised by state Governments. Since 1996-97, Central Government has been fixing the selling prices.

result, consumption of phosphatic and potassic fertilisers declined drastically. This in turn distorted the NPK ratio in the country (see Table 4).

For the Urea sector rising cost of production, over the years, has led to ever-growing subsidy bill. The costs of feedstocks (Naptha, fuel oil, natural gas), intermediate inputs (Phosphoric acid, ammonia, rock phosphate, sulphur etc.) and utilities (Power, water and services e.g., railway freight, road transport etc.) have increased continuously and steeply during the '80s and the '90s. The corresponding increase in the cost of production has further led to mounting subsidies due to increasing difference between the retention price and the selling price. Study of the fertiliser subsidies (Table 5, Figure. 3) reveals that there has been a significant rise in fertiliser subsidies on from the early '80s onwards. This tendency needed to be checked as subsidies lead to inefficient allocation of resources. It is important to note that the rate of growth of subsidies in the post decontrol era of nineties has been relatively less.

Table 4

N.P.K. ratio of Fertilizer Consumption

Year	**Ratio**
Ideal	**4:2:1**
1991-92	5.9:2.4:1
1992-93	9.5:3:2:1
1994-95	9.7:2.9:1
1995-96	8.5:2.6:1
1996-97	10:2.9:1
1997-98	7.9:2.9:1
1998-99	8.5:3.1:1
1999-2000	6.9:2.9:1
2000-01	7.0:2.7:1
2001-02	6.7:2.6:1
2001-03	6.5:2.5:1
2003-04	6.9:2.6:1
2004-05	5.7:2.2:1

2005-06	5.3:2.2:1

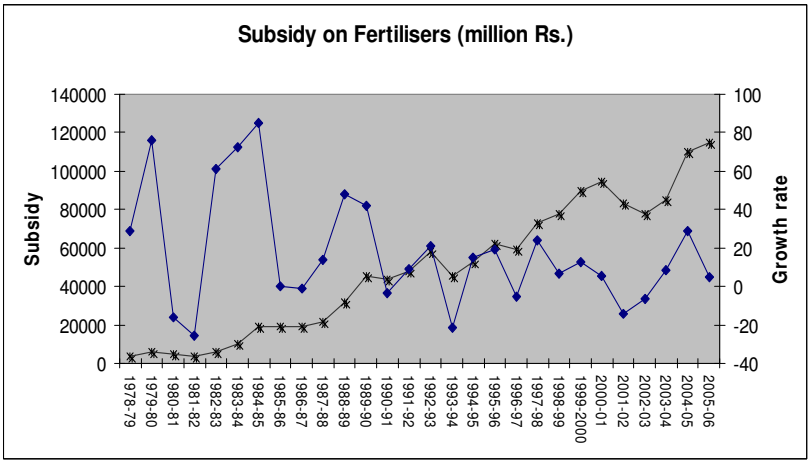
Source: Computed from data on fertiliser consumption in Fertiliser Statistics 2006-07.

Table 5

Central Subsidy on Fertilisers (million Rs.)

Year	Subsidy	Annual Growth Rate (%)
1977-78	2660	--
1978-79	3432	29.02
1979-80	6038	75.93
1980-81	5050	-16.36
1981-82	3750	-25.74
1982-83	6050	61.33
1983-84	10420	72.23
1984-85	19273	84.96
1985-86	19237	-0.18
1986-87	18971	-1.38
1987-88	21640	14.06
1988-89	32007	47.90
1989-90	45421	41.90
1990-91	43890	-3.37
1991-92	47996	9.35
1992-93	57961	20.76
1993-94	45620	-21.29
1994-95	52410	14.88
1995-96	62350	18.96
1996-97	59060	-5.27
1997-98	73220	23.97
1998-99	78060	6.61
1999-2000	89630	12.82
2000-01	94810	5.4
2001-02	83049	-14
2002-03	77900	-6.6
2003-04	85210	8.5
2004-05	109850	28.9
2005-06	115040	4.7

Source: FAI, Fertiliser Statistics (various issues), New Delhi



Against this background, a High Powered Fertiliser Pricing Policy Review Committee (HPC) under the Chairmanship of Professor C.H. Hanumantha Rao, former Member, Planning Commission, was set up in 1997 to review the existing system of subsidisation of urea and suggest an alternative broad-based scientific and transparent methodology. The HPC in its report, submitted to the Government in 1998, has recommended the dismantling of RPS and adoption of a uniform Normative Referral Price (NRP) based on Long Run Marginal Cost (LRMC) methodology. LRMC will be calculated with reference to the natural gas based units. The naphtha based and fuel oil based units would get a feedstock cost differential reimbursement on account of their higher feedstock prices for a period of 5 years during which they would be expected to switch over to LNG (Liquefied Natural Gas) (which is the cheapest and most efficient feedstock). However, this could not become the premise to announce a more stable and clear-cut policy for the fertiliser sector. The issue of rationalisation of fertilizer subsidies was also examined by the Expenditure Reforms Commission (ERC) headed by Shri K.P. Geethakrishnan which submitted its report on 20th September 2000. It recommended inter-alia, dismantling of existing RPS and in its place introduction of a Concession Scheme for urea units based on feedstock used and the vintage of plants in respect of gas based units.

The New Pricing Scheme (NPS) was launched in 2003 with an objective of gradual decontrol of the urea sector. The primary goal of the new pricing policy, to be implemented in three stages, is to encourage efficiency parameters to international standards based on the usage of the most efficient feedstock and state-of-the-art technology. The unit based Retention Price & Subsidy Scheme (RPS) is replaced with the Group Concession Scheme (GCS) in Stage-I which was of one year duration from 1.4.2003 to 31.3.2004. However this scheme could not prove to be a significant improvement over the RPS since the methodological framework for calculating the concession eventually leads to unit specific concession situation. Stage-II was completed in two and half years from 1.4.2004 to 31.9.2006. It focused on tightening of energy consumption norms and increasing the efficiency levels. The time span for the stage-III has been kept from 1.10.2006 to 31.3.2010 with an aim to, inter alia, a changeover from naphtha / fuel oil to natural gas/LNG. Use of the most efficient feedstock i.e. will bring bring down the cost of production and hence higher productivity levels in the industry. This is expected to lead to increased competition. However, the implementation of the policy depends upon the availability of natural gas. Present supply of gas is not sufficient to meet the demand of the existing gas based plants in India and in future its demand is likely to go up steeply. Currently there are nine urea units that are based on naphtha or fuel oil. All these units are required to switchover to natural gas by 2010 sine beyond this time limit they will not be entitled for subsidy. Therefore, the issue of availability of gas at competitive prices needs to be addressed with high priority. Therefore, a more rationale policy framework is required to ensure the gradual decontrol of urea sector. The policy should also aim at protecting the farmers and benefit the community at large. Specifically, any contemplated move towards a free market economy has to be gradual so as to prevent adverse impact on consumption of fertilisers and productivity of foodgrains.

Conclusion

The fertiliser sector in India draws immense importance due to its backward and forward linkages in the economy. Productivity of foodgrains and other agricultural crops is directly related to the use of fertiliser. Therefore, growth of fertiliser industry is essential for feeding the ever increasing population in India. The objective of this paper is to study the impact of Government policy decisions on the fertilizer industry. Indian Government has taken two strategic decisions in this industry viz., introduction

of RPS in 1976 and the decontrol of phosphatic (P) and potassic (K) fertilisers in 1992. The first decision was taken to achieve the twin objective of development of the industry on one hand and the increase in fertiliser consumption on the other hand by using two tier price policy. Though this scheme has led to the mounting Government subsidies, it has done well on production and consumption account. The second policy decision to decontrol P&K fetilisers was an attempt to introduce liberlalisation in fertiliser sector. But the decision to keep Urea under control led to a drastic imbalance between the application of the urea and the P&K fertilisers, which became expensive after the decontrol. This growing distortion in the NPK balance in Indian agriculture is a threat to agricultural productivity growth. On the P&K fertiliser production front, Government was able to control the subsidies but the producers of these fertilisers started having big losses making the production unviable for them. Hence the gap between the cost of production and the price fixed for P&K fertilisers is at the root of all the problems faced by the fertiliser industry. The situation calls for an urgent effort on Government side to come out with an economically sound and sustainable policy which will not only improve the NPK balance in the economy but also improve the health of Indian fertiliser industry by ensuring profits to the producers. fertiliser sector is in need of reforms to be in line with the rest of the economy, the total decontrol will have to be the long-term goal for this sector. But at the same time it is necessary to ensure that the transition to the era of total decontrol is achieved in a phased manner since the rise in the prices of fertilisers may make farmers vulnerable.

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