

Fertiliser Subsidies - A Boon or A Bane?

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ABSTRACT

Accelerating rate of progress in agriculture sector for any economy serves as powerful engine of growth. A progressive agriculture acts as a strong and sustaining base for progress and development of other sectors of the country. In order to accelerate and boost economic growth after independence, the Government of India adopted various methods and policies, the provision of 'Subsidies' being one of them. The genesis of input subsidies in Indian agriculture can be traced from the philosophy and objectives of agriculture development strategy launched during the mid-sixties. The Government of India adopted agriculture input subsidies as agriculture continues to be mainstay for livelihood of rural people. Also, the input subsidies helped in balancing the conflicting interests of farmers and consumers, which further help achieving various macro and micro objectives. Chemical fertilisers bear a direct relationship with food grain production, along with a number of supporting factors like High Yielding Varieties (HYVs) of seeds, irrigation, access to credit, etc. Studies have shown that around 50 to 60 per cent of the enhanced food grains production during 1960s and 1970s could be attributed to increase use of fertilisers. Agriculture input subsidies, particularly the fertiliser subsidy, have led to significant increase in agriculture production and productivity, which in turn has contributed to increase in food availability, higher real wages, wider economic growth and poverty reduction. Green revolution, with simultaneous application of fertilisers, HYVs, irrigation, etc., transformed India into a nation could feed itself. However, in recent years, it has been seen that agriculture production has declined, despite of increase in fertiliser subsidy. Even the Economic Survey 2013-14 points towards the higher subsidy burden leading to higher food prices while having "zero or negative" impact on agricultural output. NBS subsidy regime has made soil imbalances in its nutrients as this policy is skewed heavily in favour of Urea, leading to its imprudent and unabated use. Moreover, continuous use, in fact the overuse, of fertilisers has resulted in declining crop yields, and has led to the deleterious effect on soil fertility as well as on sustainability of agriculture system and subsequent degradation of environment. This paper aims to highlight whether fertiliser subsidy is a boon or a bane in the present era.

1. Introduction

Accelerating rate of progress in agriculture sector for any economy serves as a powerful engine. A progressive agriculture acts as a strong and sustaining base for progress and development of another sectors of the country. In order to accelerate and boost economic growth after independence, the Government of India adopted various methods and policies.

Subsidy was one of the methods, which Government of India adopted for progressive development of its various sectors. Subsidies play a vital role in economy of the country. The country has various recourses, which should be gainfully deployed for benefit of the population of the country. Therefore, subsidies are one of the ways, which ensure equitable utilisation of the resources.

Government of India adopted agriculture input subsidies in agriculture sector as agriculture continues to be mainstay for livelihood of rural people. The genesis of input subsidies in Indian agriculture can be traced from the philosophy and objectives of agriculture development strategy launched during the mid 1960's. Input subsidies helped in balancing the conflict

interest of farmers and consumers, which further help achieving macro & micro security.

Fertiliser subsidy is one of major agriculture input subsidies. This subsidy played vital role for development and progress of Indian agriculture production as fertilisers have been considered as an essential input to Indian agriculture for meeting the food grain requirements of the growing population of the country. Chemical fertilisers bear a direct relationship with food grain production along with a number of supporting factors like High Yielding Varieties (HYVs), irrigation, access to credit, enhanced total factors of productivity, size of the product market and prices they face both for inputs and the outputs etc. Studies have shown that around 50 to 60% of the enhanced food production during 1960-77, particular as during green revolution period could be attributed to increased use of fertilisers.

Moreover, the fertiliser subsidy is often seemed as mode, which promotes fertiliser consumption; increase agriculture productivity and maintaining food security. However, in recent years, it has been seen that agriculture production has declined despite of increase in fertiliser subsidy. Even Economic Survey 2013-14 points out that subsidies burden leads to higher food

prices while having “zero or negative” impact on agricultural output.

2. Reason why Fertiliser subsidy is bane in this era

▪ Decline in share and growth of agriculture and allied sector in GDP

Though, in the past it has been seen that the fertiliser subsidies has lead India to be self sufficiency in food grains production but to some extent, its overuse has adversely effected its production these days. It can be seen from below table, as in 2002-03 total subsidy released on Urea and P&K was Rs 7788 crores and Rs 3225 crores respectively and share of agriculture and allied sector to total GDP was 20.13% and growth rate of GDP agriculture and allied sector was -6.60% respectively. In 2005-06 subsidies released on Urea and P&K was further increased, as it was Rs11749 crores and Rs 6550 crores but share of agriculture and allied sector to total

GDP got reduced to 18.27% but growth rate of GDP agriculture and allied sector increased to 5.14% at constant price. Further, in 2008-09 the both share of agriculture and allied sector to total GDP and growth rate of GDP agriculture and allied sector declined to 12.75% and .09% at constant prices respectively despite of increase in total subsidies released on Urea and P&K which was Rs 33940 crores and Rs 65555 crores respectively. In 2012-13 total subsidies released on Urea and P&K further got increased to Rs 40016 crores on Urea and Rs 30576 crores on P&K and share of agriculture and allied sector to total GDP got reduced to 13.95% but growth rate of GDP agriculture and allied sector was 1.42% at constant prices. All these trends show that fertiliser subsidies has negatively impacted agriculture growth rate. Rather it has lead to increase in burden on Government in terms of fiscal deficits, as it is third largest subsidies in total subsidy bill.

Table 1

Years	Total Subsidies Released (Rs in crores)		% Share of Agriculture & Allied Sector to total GDP (at constant 2004-05 prices)	%Growth Rate of GDP Agriculture & Allied Sector (at constant 2004-05 prices)
	Urea	P&K		
2002-2003	7788	3225	20.13	-6.60
2003-2004	8509	3326	20.32	9.05
2004-2005	10637	5142	19.03	0.18
2005-2006	11749	6550	18.27	5.14
2006-2007	15354	10598	17.37	4.16
2007-2008	23204	171734	16.81	5.80
2008-2009	33940	65555	15.77	0.09
2009-2010	24580	39452	14.64	0.81
2010-2011	24336	41500	14.59	8.60
2011-2012	37760	36809	14.37	5.02
2012-2013	40016	30576	13.95	1.42

Sources:- Various Issues of Indian Fertilizers Scenario by Department of Fertilizers, Ministry of Chemical and Fertilizers and 2014 Data book of Planning Commission

▪ Imbalanced fertiliser scheme :

In April 2010, the Government introduced the nutrient-based subsidy (NBS) regime to release the industry from stifling controls, but implemented the scheme selectively only on non-urea fertilisers. Under this policy, the market price is determined based on supply and demand factors and the Government pays a fixed subsidy. This has made P&K (phosphatic and potassic) fertilisers commercially viable, resulting in increased production and availability. On the other hand, urea, accounting for almost 50 per cent of fertiliser application was left out of the NBS regime. As a result, production costs for P&K fertilisers have soared in the last four years due to high global input prices. Economic survey 2013-

14 also pointed that after NBS regime availability as well as consumption has been skewed towards N or urea which is seen in below Table2 where comparison of the production, imports, and consumption of NPK fertilizers has been done between 2009-10 and 2012-13. Thus the skewed subsidy regime, resulting in farmers paying lesser for urea compared to phosphorus and potassium, had led to urea overuse. As a result, fertiliser use in India is taking place in the NPK ratio 8.2:3.2:1, instead national recommended NPK ration 4:2:1. For each unit of K, instead of 4 units of N, which are required, 8.2 units of N are being put into the soil. The incremental output of the excessive 4.2 units of N is zero or somewhat negative.

Table 2

Item	2009-10	2010-11	2011-12	2012-13
Nitrogenous Fertiliser (N)				
Availability	15347	16650	17499	16995
Consumption	15580	16558	17300	16820
Phosphatic Fertiliser (P)				
Availability	7077	8025	8531	6338
Consumption	7274	8050	7914	6653
Potassic Fertiliser (K)				
Imports	2945	4069	3335	1559
Consumption	3632	3514	2576	2061

All Fertilisers (NPK)				
Availability	25369	28744	29365	24892
Consumption	26486	28122	27790	25536

(thousand tonnes of nutrients)

Sources:- Chapter 8 Economic Survey 2013-14

▪ Stagnant Investments

A highly regulated and controlled regime over a long period has made the fertiliser industry practically unviable. The current mechanism does not incentivise efficiency and new investments. In fact, since 1999, no new plant has been commissioned to manufacture urea. In some cases, this regime resulted in the shutdown of some plants leading to a reduction in capacity. Due to negligible capacity additions, dependence on imports has increased significantly. The fertiliser industry plays an important role in ensuring food security of the country. To ensure food security, there is need for self-sufficiency in domestic production of fertilisers, particularly, urea.

▪ Impact on environment

A number of studies have shown that overuse of fertilisers has led to degradation of environment. It is been argued that skewed subsidy policy is causing long term damage to soil health locally and environment at a large scale. The overuse and continuous of fertilisers particularly synthetic nitrogen i.e. Urea has resulted in declining yield and has deleterious effect on long-term soil fertility and sustainability of agriculture system. Fertilisers effects soil health through soil degradation. Soil degradation problems such as soil acidification and alkalization, as well as deterioration of soil's physical properties such as infiltration, soil aeration soil structure and bulk density have all been linked to overuse and over emphasis on synthetic fertilisers and neglect organic fertilisation. Thus, soil degradation has reduced soil organic matter in both quality and quantity, which is one of the reasons for stagnation, and decline in yields in most intensive agriculture areas in India. Further, overdose of fertilisers particularly chemical has been associated for high level of water consumption and deficiency of micro- nutrient has lead decline in water table, which further degraded soil. Also when fertilizers are misused, irrigation water or rain can carry excess nitrogen away from the landscape, and potentially into nearby water bodies. Too much nitrogen in lakes and streams can cause an overgrowth of algae and other plants, which leads to depletion of oxygen in water. As when fertilisers enter surface water, the nutrients they release stimulate microorganism growth. The growth and reproduction of this microorganism reduces the dissolved oxygen content of water body. Overgrowth of algae in water particularly blue-green algae can causes rashes, nausea and respiratory problems in humans and has been documented to kill livestock that drink from affected water storages. Nitrogen fertiliser has lead to high concentrations of nitrates in drinking water as nitrates are not adsorbed to soil materials and they leach through the soil, and may ultimately end up in ground water. The high level of nitrates in drinking water causes methemoglobinemia (blue-baby syndrome) in human infants and other warm-blooded animals. Lastly, manufacture and use of synthetic fertilisers also contributes significantly to emission of greenhouse gases that has impact on climate changes.

The above stated points depicts that fertiliser subsidy is becoming bane in this period. There is no doubt that the subsidy has been a significant success in the past. It has led to significant increases in agriculture production and productivity particularly during green revolution, which in turn has contributed to increased food availability, higher real wages, wider economic growth and poverty reduction. In another words, fertiliser subsidy was boom for agriculture sector in past, which has lost its mission in present times.

3. Reason why fertiliser subsidy is boon in this era

- Green revolution, with simultaneous application of fertilisers, High Yielding Varieties (HYVs), irrigation, tractors, etc., transformed India into a nation that could feed itself. There was a phenomenal increase in production of agricultural production, especially in food grains. Among the food grains, it is wheat crop, which drew maximum benefit. Average wheat productively increased from 851 kg/hectare in 1960-61 to 1307 kg/hectare in 1970-71. In other words, fertilisers contributed tremendously to the success of Green revolution.
- Due to increase in production of food grains, India has become self sufficient in food gains and have sufficient stock in the central pool. Moreover, India has become exporter of agriculture products. According to Economic Survey 2013-14, there has been significant growth in agricultural exports by 132 percent in 2013-14 over 2008-09.
- Another benefit through fertiliser subsidy via Green revolution is creation of rural employment opportunities. There was an appreciable increase in the demand for labour force due to multiple cropping system and use of fertilisers. It not only created employment in agricultural sector but also in manufacturing sector. As fertiliser subsidy led to hike in consumption of fertilisers, which further promoted fertiliser industry by setting up new units.
- There has been change in attitude of farmers, interns of method of cultivation. With introduction of agriculture subsidies, farmers were able to adopt capitalistic farming and better farming methods, which not only raised their levels of income but also increased their living standards. Wiser farmers ploughed back their surplus income for improving agricultural productively.
- Fertiliser subsidy not only promoted agriculture growth but also facilitated industry growth. With induction of fertiliser subsidy, demand for chemical fertilisers, pesticides, insecticides, weedicides, etc., increased significantly. Consequently, industries producing these

items progressed by leaps and bounds. Moreover, several agricultural products are used as raw materials in various industries, particularly agro based industries. There was increased in production of these industries also, because availability of sufficient agricultural raw materials.

- There are few suggestions that might help fertiliser subsidy to regain its glory again and become boom for agriculture sector Government should promote production and more use of bio-fertilisers or organic fertilisers. As organic fertilisers would help to correct imbalances in the soil 'Ph' and also improve the content and quality of soil, which would help in increasing agricultural productively. Moreover, this fertiliser is cost effective, as it can be made at home.
- The most alarming aspect of the surging subsidies is not the size, but the manner and purpose of spending on them. Subsidies provided in India suffer from both inclusion error (wrong kind of people benefiting) and exclusion error (deserving people left out of subsidies). Efficient subsidies must be transparent, targeted and-in many cases-temporary. These three Ts are missing from this subsidy in India. The issue is not about removing subsidies but about how to make them effective so that they reach the target consumers and people are benefited from it. The policy- makers should try out new- mechanisms to reach the target consumers more effectively.
- Availability of subsidised fertiliser should be restricted to farmers who grow staple food and cereals as they need it the most and those farmers, who produce cash crops, do extensive horticulture or produce farm goods for direct exports should be kept outside the purview of subsidy regime.
- There is a need for rationale for subsidizing fertilizers in case of small and marginal farmers as well as less developed regions. Targeting and rationing are important tools to contain the subsidies and ensure that these are largely provided to those farmers/regions/crops, where fertilizer use is constrained by high prices, insufficient institutional

credit support, low productivity levels, etc. as it will provide proportionately greater benefits of fertilizer subsidy to small and marginal farmers compared to large farmers and promote fertilizer consumption on small and marginal farms .

- The present subsidy regime is skewed heavily in favour of urea, leading to its imprudent and unabated use. Therefore, there is a need to increase urea prices and bring parity with P&K fertiliser prices to maintain NPK balance. There should be a phased increase in urea prices and compensation for a raise in fixed costs should follow promptly to de-control farm gate price eventually. Frequent revision of urea tariffs should be proposed by the Government to close the wide gap between urea and P&K fertilisers to enable efficient usage and better agricultural productivity. Moreover, the subsidy under the NBS should be extended to organic manures and all encompassing, instead of restricting it to a few micronutrients.
- Government should also encourage and promote sustainable ecological practice in agriculture and organic fertilisers. Along with this, Government should promote scientific research on ecology alternative, to identify agro-ecological practices that ensure future food security in changing climate change.

To conclude, the use of fertilisers has played a significant role in raising the productivity of Indian agriculture. It is common knowledge that the Green Revolution was based on a package of agricultural inputs, which included fertilisers, water, high-yielding varieties of seeds, etc. Fertilisers are gaining prominence as an important agricultural input in our quest for attaining consistent surplus in the agricultural sector. Subsidies undoubtedly have played a significant role in promoting fertilisers and agriculture production, but they have been questioned in recent years due to their declining contribution, inequity and government's expanding budget deficit. The need of the hour is to move towards an environment for holistic development of the sector with the goal of achieving efficiency and self-sufficiency.

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