Indian Fertilizer Sector – Gearing for Future

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India is the 2nd largest populated country in the world and is likely to become the most populous country by 2027 surpassing China. Nearly 50% of Indian population still depends directly or indirectly on agriculture for their livelihood. Hence, ensuring food and nutritional security for its ever-growing population on the one hand and gainful employment from farming activities on the other, still remains an important objective of Indian policy framework. Ensuring sustainability in agriculture activities is crucial for coping with environmental challenges. Agricultural practices, including fertilizer production & application should align with India's overall climate commitments. Production and use of fertilizers are integral part of modern agriculture. Hence, making fertilizer production and application sustainable is equally important for sustainable food and nutritional security.

There has been rapid progress in agriculture practices world-wide including efficient use of plant nutrients. There has to be a paradigm shift in India as well in the field of nutrient management for agriculture including production and application. Use of nitrogen remains the backbone of agriculture productivity. Its use in agriculture is one of the major sources of emission of greenhouse gases. It comes from both nitrogen production and its use due to low nitrogen use efficiency. To reduce this emission substantially, India has to adopt multipronged strategy. This should include reduction of nitrogen production from traditional technologies by substituting it with use of green ammonia, improving the efficiency of nitrogen use, and increasing contribution of organic sources like bio-fertilizers and organic manures to reduce dependence on mineral fertilizers. At present nitrogen use efficiency in India is only 35-40%, which can be improved to 50% in next 10 years by adopting better farm practices and use of innovative and more efficient nitrogen fertilizer products like coated urea and nano urea. In addition to improving economy of operation, this would also avoid equivalent quantity of nitrogen production. Use of green ammonia in DAP and complex fertilizer manufacturing can replace the current use of 2.5-3 million tonnes of grey ammonia.

Government has been incentivizing production and use of bio-fertilizers for a long time. This needs further expansion of facilities for production, analysis and research on bio-fertilizers. These facilities need to be equipped sufficiently with manpower and equipment in order to ensure the quality and suitability of bio-fertilizers for particular crops and soils.

Urea remains the major nitrogenous fertilizer in India accounting for more than 80% N application. Urea is popular amongst farmers because of its ease of handling, storage and application in the field. The price of urea for farmers remains controlled at artificially low level giving rise to its imprudent use. The present urea pricing and subsidy policy for urea is legacy of 1977 Retention Price Scheme (RPS). RPS served its purpose of increasing urea consumption and building of large domestic production capacity. But the policy has out lived its utility and is one of the causes of imbalanced use of primary nutrients nitrogen (N), phosphorus (P) and potassium (K). Industry also finds the policy very cumbersome for compliance and in ensuring viability of operation. After dealing with unprecedented crisis due to COVID-19 and geopolitical conflict, Government of India has now rightly turned its attention to reform the policies related to urea.

Government of India has now rightly turned its attention to reform the policies related to urea. The government should also facilitate more joint ventures abroad both for phosphate and potash.

Phosphate and potash (P&K) are governed under Nutrient Based Subsidy (NBS) policy since 2010 with fixed amount of subsidy and free MRP. As an exception, MRP of P&K fertilizers was also regulated due to recent global crisis. This policy has by and large been operating successfully. Urea also needs to be brought under the ambit of this policy in the interest of agriculture productivity, environment and viable indigenous production. But transition to new policy has to be managed so as not to disturb either the production or use of urea because nitrogen use remains crucial to fragile food security.

Due to heavy dependence on imports for phosphate and potash, India remains vulnerable to volatility in the international markets. We are almost 95% dependent on import for phosphates, either as raw materials/intermediates or finished fertilizers. In the case of potash, we are 100% import dependent. The government and industry together need to work out a strategy to ensure uninterrupted supply of P&K fertilizers at relatively stable prices.

Indian fertilizer industry has already set up a number of joint ventures in phosphate rich countries like Jordan, Senegal, South Africa, Tunisia and Morocco. Similar joint ventures are needed for potash as well. The government should facilitate more such joint ventures abroad both for phosphate and potash. In recent times, government has facilitated long-term purchase agreements with major exporters of phosphate and potash, which will ensure sustained supply of these plant nutrients. Simultaneously, there is a need for exploiting our domestic resources of P&K. Technologies need to be developed to make use of domestic low-grade minerals in economically viable manner.

In FAI Annual Seminar 2022 with the theme 'Fertilizer Sector by 2030', these and many other issues related to fertilizer and agriculture sectors were discussed in a very comprehensive manner. The Seminar attracted participation from policy makers, scientists, administrators and business operators both from India and abroad. The Seminar was inaugurated by the Hon'ble Union Minister of Chemicals & Fertilizers and Health & Family Welfare on 7th December, 2022. Senior officials of the Department of Fertilizers, Ministry of Chemicals and Fertilizers and the Ministry of Agriculture and Farmers Welfare also participated in the Seminar. More than 1300 delegates participated in the three-day event. In all 16 papers were presented by eminent speakers from India and abroad. These presentations covered subjects like world-wide developments for sustainable agriculture, use of green hydrogen and green ammonia in fertilizer sector, decarbonizing the existing production facilities, improving nitrogen use efficiency for reduction in nitrous oxide emission, ESG financing and reducing the cost of logistics through use of coastal shipping and inland waterways for transportation of fertilizers.

The Seminar generated extremely useful conclusions and recommendations. Current issue of 'Indian Journal of Fertilisers' contains the proceedings of inaugural function, resume of technical sessions and major conclusions & recommendations emanating from this Seminar. We hope that all those concerned with development of agriculture and fertilizer sectors will find this wealth of information highly useful. ■