

# CHAPTER 4: TRENDS AND PATTERNS OF FERTILIZER SUBSIDY IN INDIA

## 4.1 History of Subsidy Disbursement.

Governments across the world have used subsidies as a tool to boost different economic sectors for a long time. This is a synopsis of the history of subsidy payments:

**Ancient Civilizations:** To encourage agricultural output and trade, ancient civilizations like Rome, Greece, and Egypt gave subsidies to farmers and merchants. This practice dates back to the ancient world.

**19th century:** To stimulate industrialization and shield home businesses from foreign competition, governments in Europe and the US started utilizing subsidies in the 19th century.

**20th Century:** Governments all around the world employed subsidies in the 20th century to encourage economic growth and development, with a concentration on social welfare, infrastructure, and agriculture.

**Post-World War II:** To rebuild their economies, numerous nations implemented subsidies after World War II, concentrating on sectors like steel, energy, and transportation.

**Recent Years:** Subsidies have been employed recently to boost a number of industries, including healthcare, education, and renewable energy. The usage of subsidies has also been a topic of discussion, with some contending that they can cause market distortions and result in inefficiencies and others contending that they are essential to support economic growth and development.

Generally, the distribution of subsidies has been a crucial instrument for governments to encourage economic growth, development, and welfare. It has changed over time to reflect shifting priorities and economic situations. *Bhatia, M. S. (2009)*

## 4.2 History of Fertilizer Subsidy Disbursement in India

The distribution of fertilizer subsidies in India dates to the 1950s. Below is a synopsis of India's history of fertilizer subsidy distribution:

1950s: Following India's independence in 1947, the government implemented many programs to encourage the development of agriculture, including the introduction of fertilizer subsidies. Chemical fertilizers were imported with government assistance; these were primarily employed by large farmers.

1960s: The government began the Green Revolution in the 1960s with the goal of boosting agricultural output and lowering food poverty. The government boosted the fertilizer subsidy to encourage the use of chemical fertilizers, which was a key element of the Green Revolution.

1970s: In the 1970s, the government launched a new fertilizer subsidy program with the goal of giving small and marginal farmers access to subsidized fertilizers. To provide farmers with subsidized fertilizers, the government established a nationwide network of fertilizer distribution centers.

1980s and 1990s: The government continued to offer fertilizer subsidies during this time, regularly raising the subsidy rate. Also, the government implemented policies to encourage the balanced application of fertilizers and limit the usage of urea.

The introduction of direct cash transfers to farmers, the digitization of the distribution system, and the promotion of neem-coated urea to reduce diversion and increase efficiency were just a few of the government's initiatives to increase the effectiveness of fertilizer subsidy disbursement launched in the 2000s.

Despite these attempts, India's system for subsidizing fertilizer has run into a number of problems, such as leaks, inefficiencies, and pricing distortions. To overcome these difficulties and guarantee the effective and efficient distribution of fertilizer subsidies, the government has been putting numerous measures into place. *Bhatia, M. (2009)*

## 4.3 Direct Benefit Transfer (DBT)

In March 2018, the Indian Government (GoI) implemented a new Direct Benefit Transfer (DBT) mechanism. According to this method, retailers can only sell fertilizer to farmers following a successful Aadhaar-based biometric authentication. Only then do fertilizer manufacturers receive subsidy payments. Real-time tracking of fertilizer transportation, demand forecasting, and supply availability have all been made possible through DBT dashboards. The GoI was able to save USD 1.54 billion in fertilizer using DBT in the first year. Yet, there are still several issues with fertilizer distribution in India. Each retailer shop has Point of Sale (PoS) devices installed, and these are used to sell all subsidised fertilizers to farmers and customers. The beneficiaries are recognised via Aadhar Cards, KCCs, Voter Identification Cards, etc. Since September 1, 2017, many States and U.T.s have been in "Go-Live" mode, and by March 2018, the Pan-India Rollout was complete.

The government has been thinking about changing its programme so that farmers' bank accounts would receive the subsidy money directly rather than fertilizer businesses. This action should increase the effectiveness of nutrient utilisation and ensure that the subsidy is delivered directly to end users. The draught report of a team led by NITI Aayog member Ramesh Chand highlighted the potential of implementing DBT for farmers. The report also highlighted the criteria for estimating the amount of subsidy, frequency of subsidy transfers, and the procedure of fund transfer using data on recipients and their landholdings from the PM-Kisan programme. To ensure a seamless implementation of the new policy, beneficiaries must be made aware of it. *Ministry of Chemicals and Fertilizers, Government of India. (n.d.)*

### 4.3.1 Objectives of DBT Scheme

- Based on the actual sales made to the recipient by the merchants, 100% of the subsidy is paid to the fertilizer making and importing enterprises.
- POS device-based buyer identification based on KCC, Voter ID, or Aadhaar validation.
- Processing of funds for assistance every week.

*Ministry of Chemicals and Fertilizers, Government of India. (n.d.)*

### 4.3.2 DBT Dashboards.

With the DBT's successful PAN-India rollout, focus turned to the creation of dashboards. The government has created several dashboards that provide real-time data on the transfer of subsidies and other benefits to beneficiaries' bank accounts in order to monitor and assess how the DBT scheme is being implemented. These dashboards give decision-makers and other interested parties the ability to monitor the scheme's development, spot any problems or obstacles, and take necessary corrective action.

In India, some of the more well-liked DBT dashboards are:

**Public Finance Management System (PFMS) Dashboard:** With the web based PFMS platform, the government may control, track, and report on the movement of public funds. Real-time information on the transfer of subsidies, pensions, scholarships, and other benefits under the DBT plan is provided by the PFMS dashboard.

**Ministry of Rural Development (MoRD) Dashboard:** MoRD oversees carrying out a number of welfare programmes in rural regions, such as the Pradhan Mantri Awas Yojana and the National Rural Livelihood Mission (NRLM) (PMAY). Real-time information on the distribution of subsidies and other benefits under these programmes is provided through the MoRD dashboard.

**PM-KISAN Dashboard:** The Indian government introduced the PM-KISAN programme to help small and marginal farmers with their incomes. Real-time information on the distribution of income support to farmers' bank accounts is available through the PM-KISAN dashboard. Several reports are provided in this dashboard via,

- Fertilizer stock position (production and total)
  - at ports,
  - plants,
  - states, and
  - district levels.
- Appropriate demand for the season and stock availability at various levels

- ‘Top 20 Buyers’ List
- ‘Most Frequent Buyers’
- Retailers not selling fertilizers.

**National Health Mission (NHM) Dashboard:** The Government of India's flagship programme, NHM, aims to increase access to and provision of high-quality healthcare in rural areas. Real-time information on the distribution of subsidies and other incentives to healthcare providers and beneficiaries under the system is provided by the NHM dashboard.

These dashboards serve to guarantee that the benefits reach the intended recipients quickly and effectively and offer insightful information about how the DBT plan is being implemented.  
*Department of Fertilizers. (n.d.)*

### **4.3.3 Implementation of DBT Process.**

**E-receipts to Farmers:** The farmer or customer acknowledged each fertilizer purchase through SMS on his smart cell phone. The Department of Fertilizers (DoF) will introduce the SMS system in the POS 3.1 version on September 30, 2020.

**SMS for Stock Availability:** The farmer gets periodically notified through SMS by SMS Gateway as to whether fertilizer is still accessible at the shop where he most recently purchased it. Farmers and customers who want to know whether fertilizer is available at any retail store can send the Retailer ID through SMS to the telephone number 7738299899.

**SMS for cancellation of Sale:** If the farmer decides not to proceed with the fertilizer sale, he will automatically receive an SMS advising him of the cancellation of the invoice.

**OTP Based Aadhaar Authentication:** Extra contactless OTP-based Aadhaar authentication will be available as a new option starting on September 30, 2020, for the DBT programme. In order to avoid needing to approve biometric authentication during the COVID-19 pandemic, farmers may choose to employ OTP-based authentication.

**Android based Mobile Application to Retailers:** The Department of Fertilizers created an Android-based mobile application on September 30, 2020, allowing stores to sell fertilizer to farmers using their cell phones as an extra or optional feature of POS devices.

(Press Information Bureau, 2022).

## 4.4 Role of Aadhaar

### 4.4.1 Role of Aadhaar in Subsidy Distribution system

The delivery of subsidies in India has benefited greatly using the Aadhar card, a special identity number issued by the Indian government. Following are a few effects of Aadhaar on the distribution of subsidies:

**Direct Benefit Transfer (DBT):** The Direct Benefit Transfer (DBT) system, which enables the government to immediately pay subsidies to users' bank accounts, has integrated Aadhaar. As a result, there are fewer leaks, and the benefits are distributed to the intended recipients.

**Elimination of Duplicate and Ghost Beneficiaries:** The removal of duplicate and ghost beneficiaries from the system was made possible by Aadhaar. The government can identify and remove phony beneficiaries from the system by connecting Aadhaar with bank accounts and other welfare programs, which has helped to lower corruption and improve the effectiveness of subsidy delivery.

**Targeted Delivery of Subsidies:** The government is now able to direct assistance to the most deserving groups in society because of Aadhaar. The government may identify and direct subsidies to groups, including farmers, students, and women, who are most in need of these benefits by using Aadhaar-based identification.

**Increased Transparency:** The delivery of subsidies is now more transparent thanks to Aadhaar. The government can track the use of subsidies and oversee the distribution of benefits by connecting Aadhaar with bank accounts. This has contributed to lowering the potential for fraud and raising public confidence in the system for distributing subsidies.

The government continues to employ Aadhaar-based identification to ensure targeted and effective delivery of subsidies to the intended beneficiaries. In India, Aadhaar has generally played a crucial role in the delivery of subsidies. *NITI Aayog. (2020)*

#### **4.4.2 Aadhar enabled Fertilizer Distribution System (AeFDS)**

It is a mechanism that assists in distributing precise fertilizer amounts to farmers in accordance with their level of land ownership and soil fertility. This system aids in disbursing subsidies to fertilizer firms in accordance with sales volume.

The major goal is to efficiently manage fertilizer distribution along the full value chain, from producers to farmers, and to make sure that distribution of fertilizer complies with biometric farmer authentication.

The information on the status of the land and soil health cards is retrieved from the government portal using a Point of Sale (PoS) device. This information will be utilized to determine the precise amount of fertilizer to apply for each crop, which will limit the usage of surplus fertilizer. *Government of India. (2017)*

##### **4.4.2.1 Salient Features of AeFDS**

- It combines the landholding details of the farmer with the soil analysis report, which later helps in optimizing the use of fertilizer as per the actual requirements.
- The actual beneficiaries, i.e., the farmers, receive their due entitlement to fertilizers without any difficulties.
- This also helps in maintaining the quality of the crops in the country.
- This helps in knowing that who is buying and how much is buying. If somebody is buying a truckload of urea, then that person clearly isn't a farmer.

*IndiaFilings. (n.d.)*

##### **4.4.2.2 Objectives of AeFDS**

- To ensure timely and correct distribution of fertilizers through Aadhaar
- To monitor the distribution of fertilizers across the value chain from manufacturers till farmers

- Deliver exact fertilizer quantity crop-wise to farmers based on their Soil Health Cards (SHCs)
- Streamline fertilizer distribution across the value chain reducing malpractices/ hoardings.
- Facilitate the farmers in availing direct subsidy in long run.

*IndiaFilings. (n.d.)*

## 4.5 Nitrogen, Phosphorus, and Potassium (NPK) Consumption Ratio

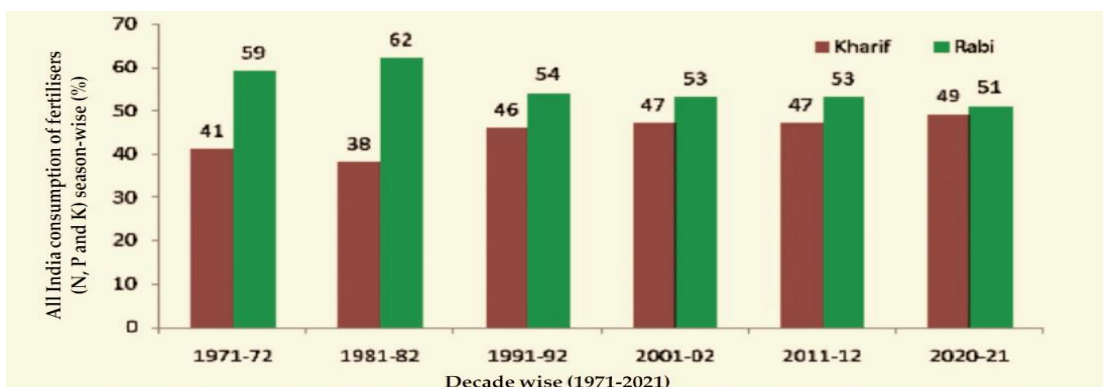
The 4:2:1 N: P<sub>2</sub>O<sub>5</sub>: K<sub>2</sub>O ratio, also known as the NPK usage ratio, is regarded as excellent for maintaining a balanced nutrient supply and is recognised for macro-level monitoring. The ratio of NPK utilisation on a global scale is 3.4:1.3:1. (*FAI, 2017*). The NPK use ratio increased from 6.5:2.8:1 in 2020–21 to 7.7:3.1:1 in 2021–22, demonstrating the uneven application of nutrients. (*Annexure 8*)

There are several regional differences or imbalances in the amount of fertilizer used, as indicated by the NPK use ratio. For instance, the NPK use ratio for states like Gujarat, Madhya Pradesh, Maharashtra, Goa, etc. was intermediate in the West (7.0:3.4:1) and in the East (5.2:2.1:1) for states like Assam, Manipur, Mizoram, etc. The ratio was widest in the North (20.6:6.0:1) and narrowest in the South (4.9:2.3:1) for states like Andhra Pradesh, Telangana, Karnataka, Kerala as shown in (*Annexure 9*).

Nutrient (NPK) use per hectare varied substantially from 104.2.0 kg in the West to 199.6 kg in the North (*FAI, 2022*). North consumed the most nitrogen (149.0 kg ha<sup>-1</sup>), while south consumed the most K<sub>2</sub>O. (23.5 kg ha<sup>-1</sup>) as shown in (*Annexure 10*) P<sub>2</sub>O<sub>5</sub> consumption was highest in the South (53.2 kg ha<sup>-1</sup>) and lowest in the West (31.0 kg ha<sup>-1</sup>).

The amounts of the nutrients consumed differed greatly between different regions as well as between states within a single region More than 200 kg ha<sup>-1</sup> of NPK were employed by the states of Telangana, Andhra Pradesh, Bihar, Punjab, Haryana, and Uttar Pradesh. (*Annexure 10*). NPK consumption ranged from Telangana (283.4 kg ha<sup>-1</sup>) to Rajasthan (58.6 kg ha<sup>-1</sup>). Zones were arranged according to NPK use in

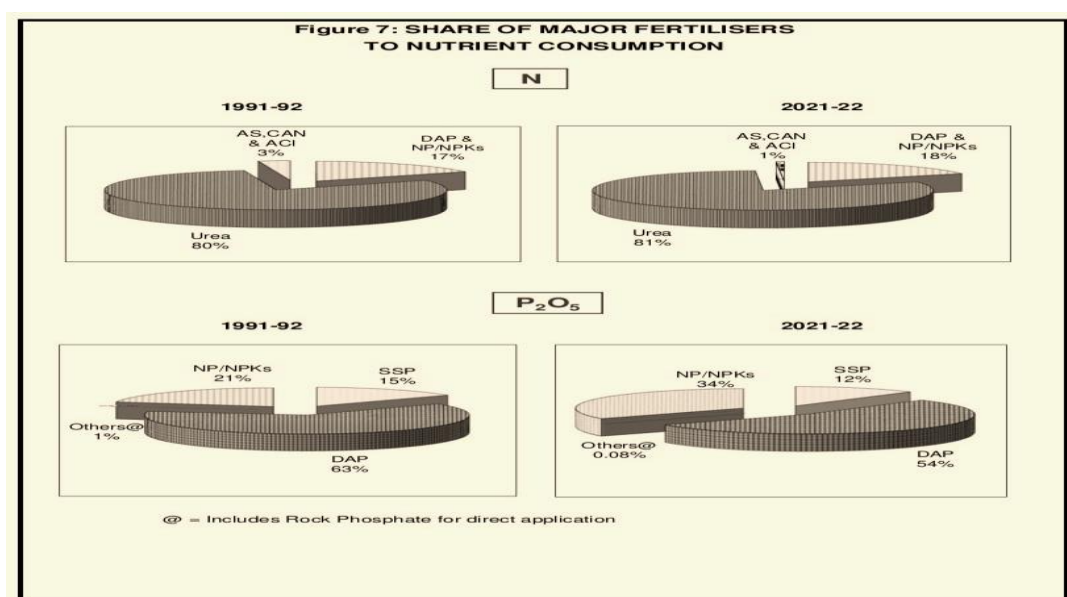




the following order: north > south > east > west. Information on the use of the three main fertilizers (N, P, and K) in all of India presented in *Figure 1* indicated that fertilizer consumption was higher in the rabi season than in the kharif season during the early decades of the Green Revolution, but that consumption is currently almost equal in both seasons. *FAI, (2022)*

**Figure 4.1: Season-wise All India Consumption of fertilizers (N, P, and K) (Source: FAI, 2021)**

According to data on fertilizer product usage, urea has remained a major source of nitrogen, accounting for close to 80% of all consumption over the past three decades (*Figure 2*). Other sources of N, such as DAP, NP, NPK complexes, ammonium sulphate, CAN, and ammonium chloride, were employed to make up the remaining 20% of N. According to this, more than 60% of P fertilizers still include DAP even after 30 years.



While the share of SSP fell by 3% (from 15% in 1991-92 to 12% in 2021-22), the share of

NP and NPK complexes increased by 13% (from 21% in 1991-92 to 34% in 2021-22). CAN is no longer produced or offered only for agricultural uses.

***Figure 4.2: Share of Major Fertilizers to Nutrient Consumption, (Source: FAI, 2022)***

## **4.6 One Nation One Fertilizer**

The Indian government has taken this endeavor to make sure that farmers all around the nation have access to high-quality fertilizers. No matter where they are located, farmers should be able to receive fertilizers at a consistent price and quality thanks to this program. In accordance with this plan, the government intends to create a single fertilizer brand that will be used for all fertilizers marketed in the nation. This will make the distribution system less complicated and increase fertilizer cost, quality, and availability transparency. The program is anticipated to improve fertilizer supply chain effectiveness and lessen the financial burden of government subsidies.

The Indian government would only use one brand of fertilizers and one logo to implement One Nation One Fertilizers, which is known as the "Pradhan Mantri Bhartiya Janurvarak Pariyojna" (PMBJP).

Farmers' confusion about which of the different brands available on the market to select from will be reduced by increased fertilizer supply, which will also reduce crisscross movement and further ensure timely fertilizer supplies. The savings from the goods subsidies will probably total 5%. (*Press Information Bureau, 2022*).

## **4.7 Pradhan Mantri Kisan Samridhi Kendra (PMKSK)**

It is a flagship program of the Indian government that was introduced in 2019 to offer comprehensive assistance to the nation's small and marginal farmers. The program intends to advance environmentally friendly farming methods, lower the cost of cultivation, and increase farmer revenue. It aids farmers in managing livestock and other agricultural tasks as well as in the management of crop nutrition, soil health, and water conservation. The

program also offers farmers insurance protection against a variety of risks, such as accidents and natural disasters. The Pradhan Mantri Kisan Samridhi Kendra is a component of the Indian government's overall plan to quadruple farmers' incomes by 2022.

To create Model Fertilizer Retail Stores, it has been determined to change the current fertilizer retail shops at the village, block, subdistrict, taluk, and district levels. These stores will serve as a "One Stop Shop" for all services and inputs linked to agriculture.

Six hundred retail locations have been transformed into PMKSKs at the district level. Since PMKSK centers offer farmers clean facilities and better services, they serve as a great example of Swachhata Campaign activities. One of the best practices was the opening of the 600 Pradhan Mantri Kisan Samruddhi Kendras (PMKSK) throughout the nation as a part of the Department of Fertilizers' Special Campaign 2.0 operations. *Press Information Bureau, (2022).*

## **4.8 PM-Kisan Samman Nidhi Yojna (PM-KSNY)**

In February 2019, the Indian government unveiled the PM Kisan Samman Nidhi Yojana, a program designed to support the income of the nation's small and marginal farmers. Amounts are sent to qualifying farmers straight into their bank accounts in three equal installments of Rs. 2000 each, for a total of Rs. 6000 each year in financial support. The program's goals include providing farmers with a minimal level of income support, covering their farming-related expenses, and assisting them in implementing new technologies to increase productivity.

A farmer must own less than 2 hectares of cultivable land to be eligible for the program. Regardless of caste, religion, or gender, the program is open to all farmers in the nation. Also, the government has created a special portal for the program where farmers can register, determine their eligibility, and monitor the progress of their payments.

Many people have praised the PM Kisan Samman Nidhi Yojana for its ability to lessen rural distress and enhance the lives of small and marginal farmers. The program has, however, also come under fire for things like the exclusion of some types of farmers, the opaqueness of the selection procedure, and the delays in payment disbursement. By updating the scheme's rules and stepping up outreach and awareness programs, the government has tried to allay these worries. *Government of India. (n.d.).*

## 4.9 Challenges in Fertilizer Subsidy Reforms

Fertilizer subsidy reforms in India have been a subject of ongoing debate due to several challenges. Some of the major challenges facing fertilizer subsidy reforms in India are as such:

**High Fiscal Cost:** Fertilizer subsidies in India impose a significant fiscal burden on the government, which can affect the overall economic growth of the country. Reducing the subsidy can lead to a hike in fertilizer prices, which can impact farmers' livelihoods.

**Leakages and Inefficiencies:** The existing subsidy system is plagued with leakages and inefficiencies, which can reduce the effectiveness of the subsidy. There are issues related to the identification of beneficiaries i.e., farmers, the distribution mechanism, and the availability of quality fertilizers.

**Distortion of Market Prices:** The current fertilizer subsidy system can lead to a distortion of market prices, as the subsidized fertilizers are sold at lower prices than their actual cost. This can lead to a disincentive for the private sector to invest in fertilizer production and limit the availability of quality fertilizers in the market.

**Limited Reach:** The existing subsidy system does not cover all farmers, and some of the small and marginal farmers may not have access to subsidized fertilizers due to various reasons, including lack of awareness, identification issues, and distribution challenges.

**Awareness:** A change in policy regarding subsidies faces two challenges. First off, farmers may find it difficult to accept the idea of receiving the subsidy amount directly into their bank accounts after purchasing fertilizer at market prices if they are unaware of the current subsidy regime. Second, if the change in policy is not clearly conveyed, farmers' preference for the current subsidy programme could delay implementation.

Moving from the current situation to the suggested course of action will require effective communication of the policy change. The experience of MSC demonstrates the need of excellent communication for the seamless implementation of subsidy reforms before, during, and after implementation. For various stakeholders, a good communication plan will require a variety of factors to be considered. *Mehta, R., & Singh, A. (2021)*

The government must develop a communication plan with the following components:

- To emphasise the necessity of reforms and their advantages, engage the public through outreach and two-way communication.

- Engage with institutions and stakeholders to learn about their opinions and views of the proposed reforms.
- Provide a system for feedback and an efficient one for resolving complaints.
- To increase knowledge and support for reforms, as well as to reduce unfavourable impressions and potential societal effects, communicate regularly using evidence-based messages.

Prior to enacting a change in policy, the government must notify stakeholders, stay in touch with them effectively while doing so, and address their concerns. To address these problems, the government has implemented a few measures, including digitising the distribution system, promoting balanced fertilisation, and fostering private sector participation in fertilizer manufacture. Nonetheless, continual efforts are necessary to ensure that fertilizer subsidies are efficient, effective, and targeted. *World Bank Group. (2018)*

#### 4.10 Fertilizer Subsidy Expenditure by Government of India.

Fertilizer Subsidy Expenditure by GoI (in Rs. Crores)			
Particulars	Budget	Actual	% Share in Subsidy
	<b>2016-17</b>		
Urea	51000	47470	72
P&K	19000	18843	28
<b>Total</b>	<b>70000</b>	<b>66313</b>	<b>100</b>
	<b>2017-18</b>		
Urea	49768	44223	67
P&K	20232	22244	33
<b>Total</b>	<b>70000</b>	<b>66468</b>	<b>100</b>
	<b>2018-19</b>		
Urea	45000	46514	66

<b>P&amp;K</b>	25090	24090	34
<b>Total</b>	<b>70090</b>	<b>70605</b>	<b>100</b>
	<b>2019-20</b>		
<b>Urea</b>	53629	54755	67
<b>P&amp;K</b>	26367	26369	33
<b>Total</b>	<b>79996</b>	<b>81124</b>	<b>100</b>
	<b>2020-21</b>		
<b>Urea</b>	47805	90549	71
<b>P&amp;K</b>	23504	37372	29
<b>Total</b>	<b>71309</b>	<b>127922</b>	<b>100</b>
	<b>2021-22</b>		
<b>Urea</b>	58768	100988	66
<b>P&amp;K</b>	20762	52770	34
<b>Total</b>	<b>79530</b>	<b>153758</b>	<b>100</b>
	<b>2021-22</b>		
<b>Urea</b>	63222	153354	70
<b>P&amp;K</b>	42000	65122	30
<b>Total</b>	<b>105222</b>	<b>218476</b>	<b>100</b>
	<b>2023-24</b>		
<b>Urea</b>	131100		75
<b>P&amp;K</b>	44000		25
<b>Total</b>	<b>175100</b>		<b>100</b>

**Table 4.1: Fertilizer Subsidy Expenditure by Government of India.**

*Source: Ministry of Finance, Government of India. (n.d.).*

The amount of money spent by the Government of India (GoI) on providing subsidies for the manufacturing and distribution of fertilizers to farmers is shown as the Fertilizer Subsidy spending by GoI. This helps enhance agricultural output and the nation's food security by making fertilizers more affordable and available to farmers.

The table above displays the planned and actual fertilizer subsidy spending for financial years, starting in 2016–17 and going through 2023–24, for various fertilizer kinds (Urea and P&K). The amounts are in Indian Rs. Crores.

The subsidy share percentage indicates the percentage of the overall subsidy budget that was allotted to each group of fertilizers. For instance, in 2016–17, Urea received 72% of the subsidy while P&K fertilizers received the remaining i.e., 28%. In further years also amount of subsidy allocated to Urea has been around 70%. Higher international prices of major fertilizer raw materials like Ammonia, Phosphoric Acid, Rock Phosphate, Sulphur etc have compelled GoI for higher budget allocation with an aim of keeping fertilizer prices affordable to the farmers.

Yet, there has consistently been attention paid to giving subsidies for urea, the most popular fertilizer in the nation.

The government has set aside INR 175,100 crores for fertilizer subsidies in the upcoming fiscal year 2023–24, of which 75% will go towards urea and 25% to P&K fertilizers.

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