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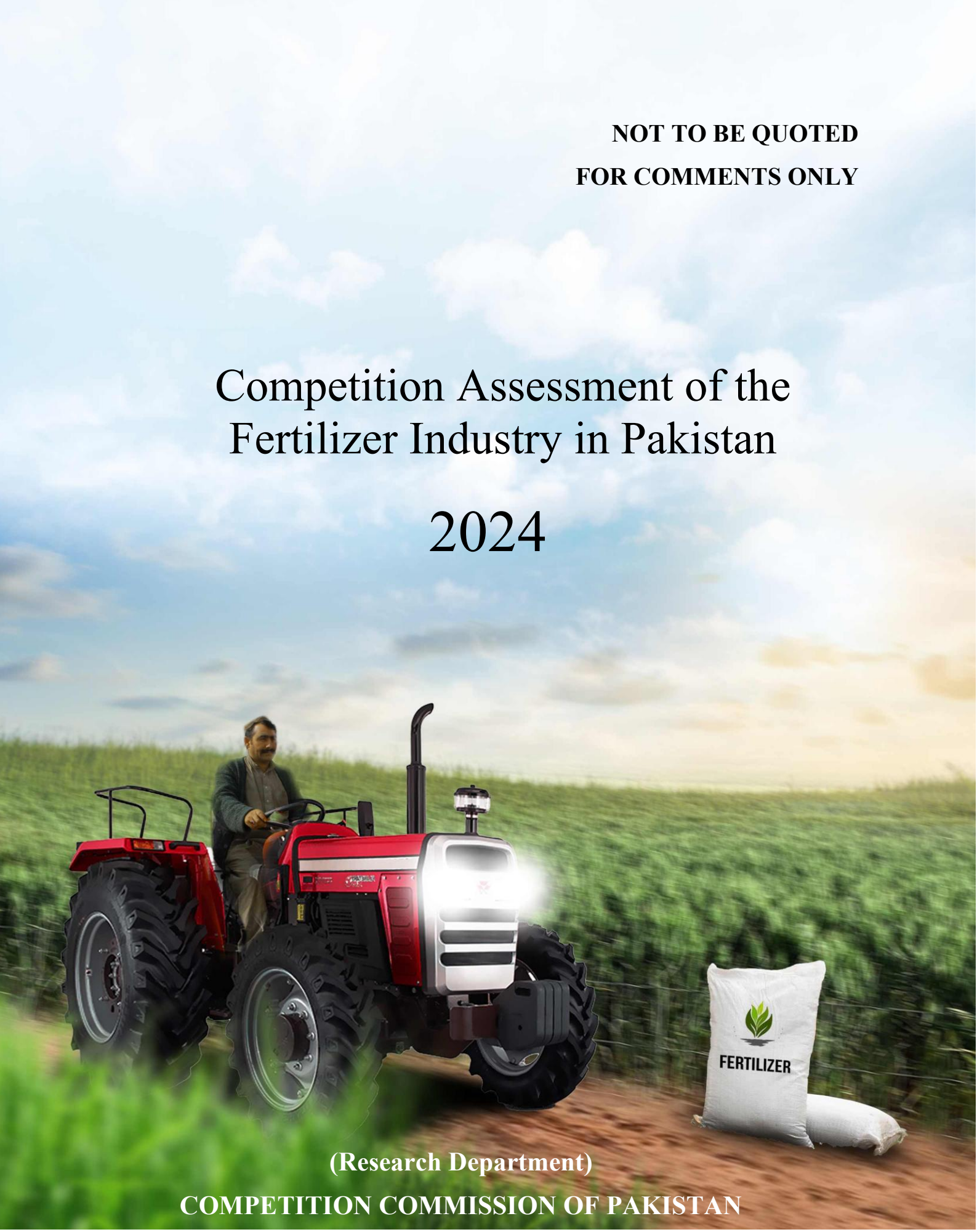
Competition Assessment of the Fertilizer Industry in Pakistan

2024



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Foreword

The agricultural sector remains the backbone of Pakistan's economy, contributing significantly to GDP, employment, and food security. Fertilizers play a pivotal role in enhancing agricultural productivity by improving soil fertility and crop yields. However, the fertilizer industry in Pakistan faces a myriad of challenges, including market distortions, and regulatory hurdles that impact both producers and consumers.

This Competition Assessment Study on the 'Fertilizer Industry in Pakistan' aims to provide a comprehensive analysis of the competition landscape, identify key constraints, and offer actionable recommendations to promote a more efficient and equitable market.

The study delves into various aspects of the fertilizer industry, including market structure, pricing, supply chain dynamics, and regulatory frameworks. By examining international best practices and cross-country comparisons, the study highlights opportunities for reform in Pakistan's fertilizer industry.

Our primary objective is to identify issues and offer pro-competition recommendations for policymakers, industry stakeholders, and regulators to enhance competition, improve market efficiency, and ensure that farmers have access to fertilizers. Addressing these issues is crucial not only for the prosperity of the agricultural sector but also for the overall economic development of Pakistan. The study is based on consultations with stakeholders, survey of farmers and market intermediaries like distributors, dealers and retailers.

We extend our gratitude to all stakeholders, who contributed their insights and expertise to this study. Their valuable input has been instrumental in shaping a comprehensive understanding of the challenges and opportunities within the fertilizer industry.

It is our hope that this assessment will serve as a catalyst for positive change, driving policy reforms and strategic initiatives towards a more competitive, and resilient fertilizer market in Pakistan.

Dr. Kabir Ahmed Sidhu
Chairman
Competition Commission of Pakistan

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Acronyms

Acronym	Description
ACAC	Agricultural Credit Advisory Committee
AMC	Antimonopoly Committee of Ukraine
ANDA	Brazilian National Fertilizer Association
AS	Ammonium Sulfate
BADC	Bangladesh Agricultural Development Corporation
BCIC	Bangladesh Chemical Industries Corporation
BFA	Bangladesh Fertilizer Association
Ca	Calcium
CAN	Calcium Ammonium Nitrate
CCP	Competition Commission of Pakistan
DAP	Di Ammonium Phosphate
DFPCL	Deepak Fertilizers and Petrochemicals Corporation Limited
DHCL	Dawood Hercules Chemicals Limited
ECC	Economic Coordination Committee
EECA	Eastern Europe and Central Asia
EFERT	Engro Fertilizer Limited
FAO	Food and Agriculture Organization
FFC	Fauji Fertilizer Company Limited
FFBL	Fauji Fertilizer Bin Qasim Limited
GSA	Gas Sale Agreement
GDP	Gross Domestic Product
GOP	Government of Pakistan
HHI	Herfindahl Hirschman Index
IFA	International Fertilizer Association
K	Potassium/Potash
LNG	Liquefied Natural Gas
LSM	Large Scale Manufacturing
MAP	Mono Ammonium Phosphate
MAPA	Ministry of Agriculture, Livestock and Food Supply
MCFL	Mangalore Fertilizers and Chemicals Limited
MMCFD	Million Standard Cubic Feet per Day
MNFSR	Ministry of National Food Security and Research
MOI&P	Ministry of Industries and Production
MOP	Muriate of Potash
MPCL	Mari Petroleum Company Limited
N	Nitrogen
NARC	National Agricultural Research Centre
NBS	Nutrient Based Subsidy
NFC	National Fertilizer Corporation
NFDC	National Fertilizer Development Centre
NFML	National Fertilizer Marketing Limited
NP	Nitro Phosphate
NPK	Nitrogen, Phosphorus, and Potassium
OGRA	Oil and Gas Regulatory Authority
P	Phosphorus
S	Sulfur
SBP	State Bank of Pakistan
SNGPL	Sui Northern Gas Pipelines Limited
SOP	Sulfate of Potash
SSGC	Sui Southern Gas Pipelines Limited
SSP	Single Super Phosphates
TCP	Trading Corporation of Pakistan
TSP	Triple Super Phosphate

Executive Summary

Significance of fertilizer industry in Pakistan: Food security is critical for Pakistan, the fifth most populous country in the world. Agricultural produce, productivity, and issues in any input markets are, thus, a matter of public interest. The agriculture accounts for 23% of Pakistan's GDP, employs 37% of labor force, and contributes 80% to export earnings. The agriculture greatly depends on the use of fertilizers, which is an essential input to boost soil nutrients for a good crop produce. The fertilizers contribute about 30 to 50% to the crop yield. The fertilizer type and quantity of usage varies across different crops. According to Pakistan Bureau of Statistics, annually about 50% fertilizer in Pakistan is used for wheat, 25% for cotton, 8% for sugarcane, 6% for rice, and 1.5% for maize, respectively. According to the Pakistan Economic Survey 2023-24, fertilizer weighs 3.9 percent in the Large-Scale Manufacturing (LSM) sector,[1] where the total share of LSM in the manufacturing sector stands at 67 percent.[2]

In Pakistan, there are ten urea manufacturing plants, one DAP, two Nitro Phos, four SSP (one plant is idle), two CAN, two plants of blended NPKs, and one plant of SOP, having a total production capacity of 9,417 thousand product tonnes per annum. Fertilizer production during July-March FY2024 was 7,171 thousand tonnes, 16.6 percent higher than the corresponding time in FY2023.

To analyze market concentration in the fertilizer industry, the *Herfindahl Hirschman Index* (HHI) has been calculated. The first HHI is calculated from the market share of the total fertilizer distributed during 2022-23, the second HHI is calculated from the urea market, and a third HHI is calculated for the DAP market during the same period. According to the estimates, the HHI is 2386 for the total fertilizer market, 3013 for urea, and 4180 for DAP. Therefore, the market is significantly concentrated for urea and DAP.[3] The companies are, therefore, considered to have more market power based on higher shares.

About this research: This Report looks into the state of competition in the fertilizer industry. The research study has been concluded after a close monitoring of the fertilizer industry's behaviour for over three years' span. The Report offers recommendations after a holistic analysis of regulations, production, import, costing, pricing, performance of the companies and the distribution system.

Regulatory framework: The Fertilizer Policy, 2001 is the foundation of the fertilizer industry, which is applicable to the entire value chain. For policy approval, the fertilizer industry comes under the purview of the Economic Coordination Committee (ECC). The Policy has implications for fertilizer production, taxation, subsidies, natural gas supply to fertilizer plants, pricing of feed and fuel gas, marketing, distribution, and the decision to export and import fertilizers. Also, there is a role of the Oil and Gas Regulatory Authority (OGRA), which determines and notifies the feed and fuel gas price, and the minimum charges applicable to the fertilizer producers on the network of Sui Southern Gas Company Limited (SSGCL), Sui Northern Gas Pipelines Limited (SNGPL), and Mari Petroleum Company Limited (MPCL).

[1] See: https://finance.gov.pk/survey/chapter_24/3_manufacturing%20and%20mining.pdf
[2] See: https://finance.gov.pk/survey/chapter_24/1_growth.pdf
[3]The HHI is calculated by squaring the market share of each firm competing in the market and then summing the resulting numbers. This is often used in pre and post-merger and acquisition transactions' analysis.

Barriers to competition: The Report identifies and analyzes the barriers to competition at upstream production level, midstream distribution level, and downstream retail level. These barriers restrict new competitors from entering the market, and protect the interests of the incumbents by maintaining or increasing their market share, profitability and revenues. These are: (a) structural/ natural barriers, (b) regulatory barriers, and (c) strategic barriers i.e., anti-competitive conduct of market players because of their dominance and market power.

High capital/ financial cost, and skilled labour force requirement for the upstream initiation of fertilizer plants, supply of natural gas, and location of fertilizer plants are identified as structural/natural barriers that restrict competition in the industry. The regulatory barriers include governing the fertilizer industry under the outdated Fertilizer Policy, 200l; discriminatory feed gas pricing to fertilizer producers under the Gas Supply Agreements (GSAs); and discriminatory fuel gas pricing within the fertilizer industry and across other industries. The other barriers to competition relate to the issues of buffer stock, black marketing of imported urea, and hoarding and smuggling of locally produced urea. Strategic barriers include the Gas Infrastructure Development Cess (GIDC) dispute. Another concern is the anti-competitive behavior of fertilizer producers at various levels including distributors/dealer level, and the alleged tie-in practice adopted by the fertilizer manufacturers. The possibility of a cartel cannot be ruled out considering the product and market's characteristics along with price parallelism for urea. The analysis of profit and returns reflect that the market players are not facing much competitive pressure and consistently enjoy, with some exceptions, high profits.

Recommendations: The study recommends the following:

i. Revision of the Fertilizer Policy, 2001, considering the current realities. Preferably, devising and implementing a new fertilizer policy based on the market dynamics and sustainable development (i.e. energy, agriculture and environment);

ii. Removal of the discriminatory feed & fuel gas pricing and foster competition and fair pricing in the industry;

iii. Removal of the natural gas subsidy to improve competition and efficiency in the sector; It may be considered to do away with the existing gas subsidies at the production level, which are not reflected in the price competition nor are passed on to the farmers in the shape of reduced prices.

iv. Removal of entry barriers in the gas market to bridge the gap between natural gas demand and supply to the fertilizer industry;

v. For the Competition Commission of Pakistan (CCP), the Report recommends:

   a. investigate and take action, where needed, in the case of unreasonable price increase, conscious price parallelism and shortage of commodity for a possible violation of *Sections 3 and 4* of the Act;

   b. an evaluation of the exemptions granted to some of the fertilizer companies for their distributorship agreements against any anti-competitive e.g. tie-in practices allegedly prevailing in the industry; and

   c. recommend suitable pro-competition policy reforms to the government through Policy Note under *Section 29* of the Act.

vi. Strengthening of already existing mechanisms for monitoring of urea movement and maintaining supply chain to deal with demand and artificial shortage.

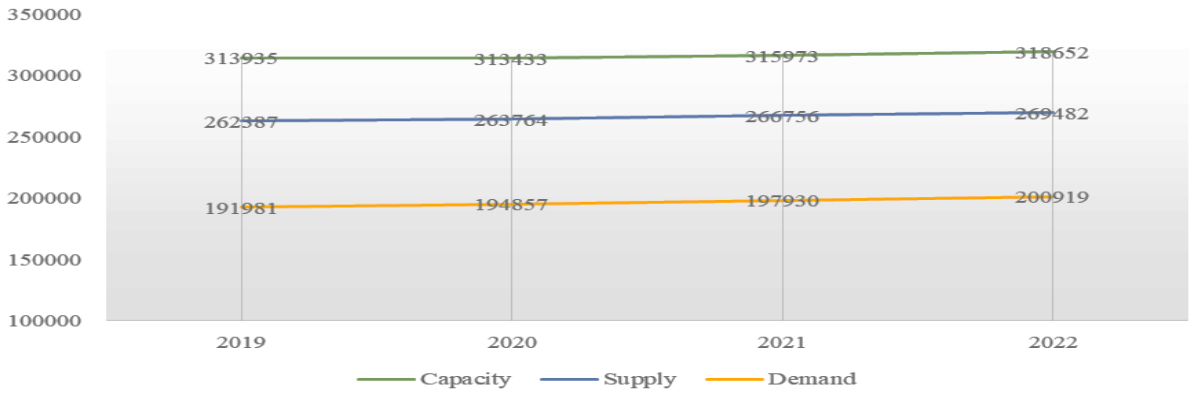
vii. Close collaboration and cooperation between governmental bodies at federal level to reduce distortions and ensure greater competition. At the provincial level ensure the availability of fertilizers to the farmers and its application in the right proportion.

Chapter 1 - Introduction

1. Fertilizer is a crucial input in agricultural production to ensure that the soil has necessary nutrients for optimal crop growth, maintaining soil health, and ultimately contributing to a bountiful harvest. Adoption of Nitrogen, Phosphorus and Potash fertilizers played a dominant role in the "*green revolution*", which along with mechanization transformed the traditional agricultural methods into industrial farming. Fertilizer usage is estimated to contribute 30 to 50 percent to the crop yield. Fertilizer requirement of any crop depends mainly on soil type, irrigation method adopted, and the yield target.[4] Accordingly, different crops require varying quantities of fertilizer, called the recommended fertilizer dose.

2. Fertilizers typically contain one or more of three essential nutrients: Nitrogen (N), Phosphate (P), and Potassium (K). N is manufactured from natural gas; P and K are produced from mined raw material.[5] The world's fertilizer production capacity was 318 million tons in 2022, and supply was 269 million tons against a demand of 201 million tons. (Figure 1).

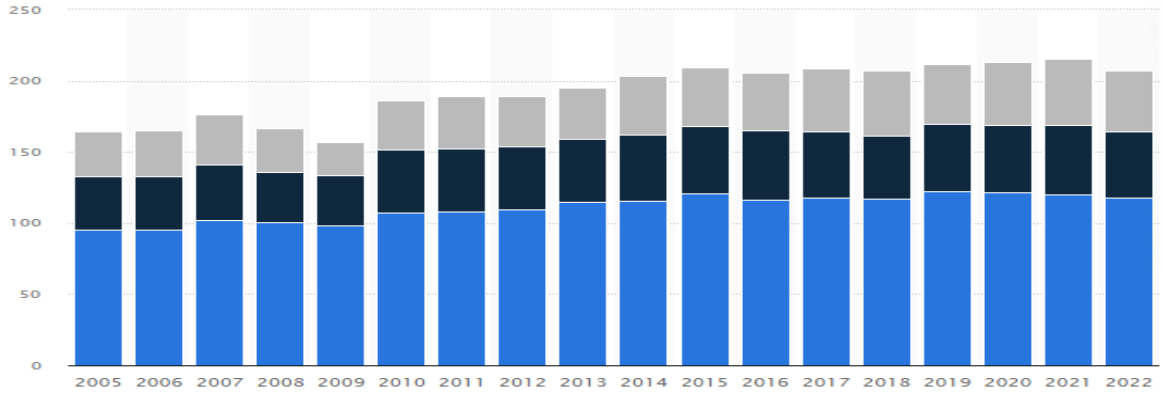
Figure 1: Global Capacity, Supply and Demand of Fertilizer (thousand tons)



Source: FAO of the United Nations

3. In 2022, the production of N was 118.08, P 46.08 and K remained 42.91 mmt (Figure 2).

Figure 2: Global Fertilizer Production by Nutrients N, P, K (mm tons)

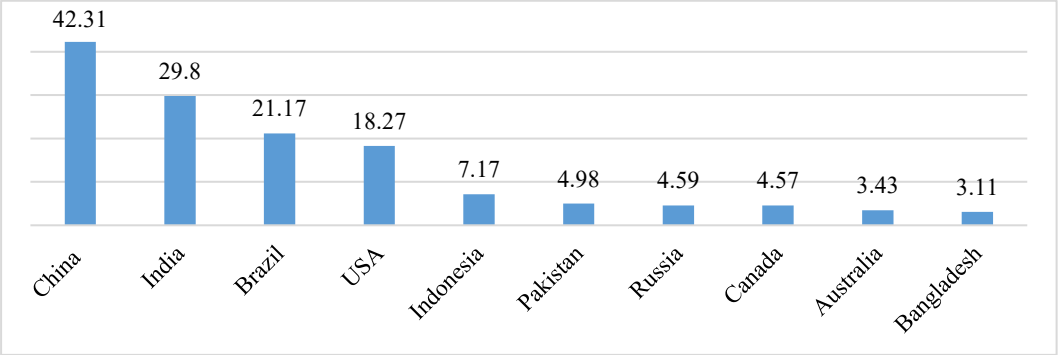


Source: https://www.statista.com/statistics/1290786/global-fertilizer-production-by-nutrient/

[4] Information provided by National Agriculture Research Centre (NARC)
[5] https://www.antitrustinstitute.org/wp-content/uploads/2013/10/FertilizerMonograph.pdf, 75% of the reserves of phosphate rock used to manufacture phosphorus fertilizer are located in Morocco and the Western Sahara, and 5% in China.

4. Globally, China is the largest consumer of fertilizer, with 42 million metric tons nutrients used in 2022. It was followed by India and Brazil, who consumed 29.8 and 21.17 million metric tons, respectively. Figure 3 presents the top global fertilizer consumers.

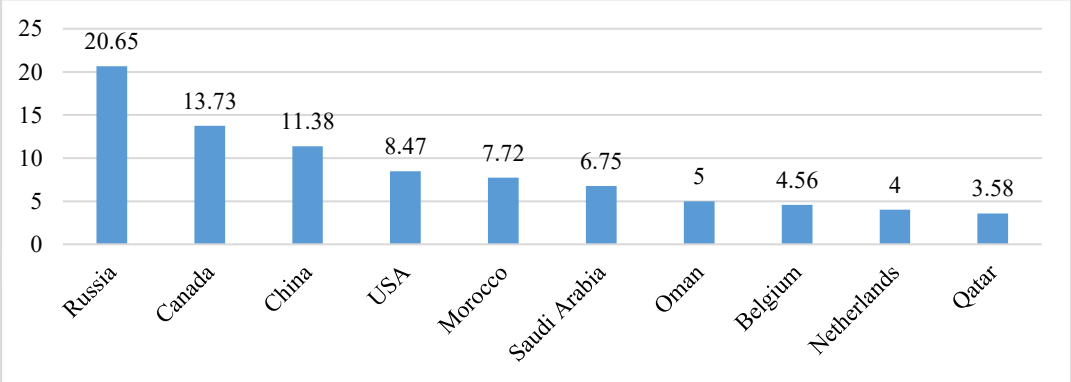
Figure 3: Global Consumption of Fertilizer by Country 2022 (mm tons of nutrients)



Source: Statista

5. Figure 4 presents the leading fertilizer exporters in 2022 in terms of value. Accordingly, Russia was the largest exporter, whose export valued at about $ 20.65 billion, followed by Canada with $13.73 billion and China with $11.38 billion. The total market size of the global fertilizer industry was valued at over 193.8 billion dollars in 2022, emphasizing the economic significance of this industry.

Figure 4: Leading Fertilizer Exporting Countries-2022 (billion U.S $)



Source: Statista

1.1 Overview of the Fertilizer Industry in Pakistan

6. Fertilizers play a crucial role in Pakistan's agriculture by enhancing soil fertility, increasing crop yields, and supporting the livelihoods of millions of farmers. Agriculture accounts for 23% of the GDP, employs 37% labor force, and contributes 80% to export earnings. Thus, the fertilizers significantly impact the agriculture produce and its contribution to the GDP.[6]

7. At present, Pakistan has seven leading fertilizer manufacturers, capable of producing over nine million tons annually. They produce primary nutrients, secondary nutrients, and micronutrients. The primary nutrients include basic nutrients such as N, P and K, whereas

[6] The agricultural land in Pakistan is 30.5 million hectare, and the total area used for crop production is 24.1 million hectare.

the secondary nutrients include Calcium, Magnesium, Sulphur, Carbon, Hydrogen and Oxygen. Zinc, Boron, Iron, Copper, Maganese, Molendenum and Chlorine.

8. According to the Pakistan Economic Survey 2023-24, fertilizer weighs 3.9 percent in the Large-Scale Manufacturing (LSM) sector,[7] where the total share of LSM in the manufacturing sector stands at 67 percent.[8] Fertilizer production during July-March FY2024 was 7.2 million tonnes, which was 16.6 percent more than the corresponding period of FY2023. Similarly, fertilizer production in nutrient terms remained at 3.3 million tonnes, 17.3 percent higher than last year compared to 2.8 million tonnes in the same period of FY 2023.[9]

9. The offtake of urea during the first nine months of FY2024 was 5.4 million tonnes, showing an increase of 7.5 percent compared to same period of FY2023. DAP offtake reached at 1.37 million tonnes, 56 percent higher than corresponding period of previous year due to extraordinarily low offtake during the previous period. Total offtake of fertilizer nutrients also saw an 18.7 percent increase, reaching 3.96 million tonnes. This high offtake is attributed to the extraordinarily low offtake during the previous year due to floods.[10] Urea is the most consumed fertilizer with 63.4 percent offtake followed by DAP 17.6 percent and CAN 7.8 percent. The Latest data shows that Urea offtake during Rabi 2023-24 (Oct-Feb) remained at 2.9 million tones, which is 4.2% less than the Rabi 2022-23. Whereas DAP offtake was 7.6 million tones that is 15% higher than the Rabi 2022-23.[11] Fertilizer imports also increased by 23.7 percent, reaching 524 thousand tonnes. Consequently, the availability of fertilizer increased by 18.1 percent to 3.8 million tonnes.

1.1.1 History of the Fertilizer Industry

10. Pakistan introduced chemical fertilizers in the 1950s mainly through imports. N was introduced in 1952, followed by P in 1959 and K in 1967.[12] Pakistan perceived its natural gas reserves to be large, an input to form ammonia in Haber-Bosch process, a key ingredient in N such as urea. This initially conferred a comparative advantage in fertilizer production. In the late 1950s and early 1960s, Pakistan invested to build domestic fertilizer industry. These included both joint ventures with foreign companies e.g. Pak-American Fertilizers (established in 1958, now Agritech) and Pak-Arab Fertilizers (established in 1973). Also, there established domestic fertilizer plants e.g. Fauji Fertilizer Company in 1978. Upon nationalization of the fertilizer industry in 1973, production for all fertilizer companies was undertaken through the parastatal, the National Fertilizer Corporation (NFC).[13]

11. By the late 1960s, Pakistan's fertilizer industry, based on abundant gas supply, increased the national supply of fertilizer and reduced the imports. Large quantities of fertilizers produced without natural gas (e.g. DAP and K) still had to be imported. Nonetheless, the

[7] See: https://finance.gov.pk/survey/chapter_24/3_manufacturing%20and%20mining.pdf
[8] See: https://finance.gov.pk/survey/chapter_24/1_growth.pdf
[9] https://finance.gov.pk/survey/chapter_24/3_manufacturing%20and%20mining.pdf
[10] https://finance.gov.pk/survey/chapter_24/Economic_Survey_2023_24.pdf, pg No. 30
[11] See *Supra Note*. No. 21.
[12] NFDC
[13] http://ageconsearch.umn.edu/record/211559/files/Lokossou-Gender_differential_Impact_of_NERICA_adoption_on_Total_Factor_Productivity-966_1_.pdf

domestic fertilizer production capacity continued to increase. Fertilizer usage gained momentum in 1970, when farmers started adopting high-yielding modern wheat and rice varieties in Pakistan's irrigated areas, supported by government subsidies and research.[14]

12. Initially, fertilizer was distributed through the Agriculture Extension Wing of the provincial Agriculture Departments. There was no independent marketing system for agricultural inputs until the formation of the West Pakistan Agricultural Development Corporation (WPADC) in 1961.[15] The WPADC was abolished in 1972, and this responsibility was transferred to the provincial governments. National Fertilizer Marketing Limited (NFML), a parastatal was established in 1976, to distribute the entire domestic production from NFC companies and all imports. After privatization of manufacturing units of NFC, NFML's role became limited to the distribution of imported urea. Currently, domestically produced supply is marketed by the private fertilizer manufacturing companies through their registered dealers' networks.

1.1.2 The Current Scenario of the Fertilizer Industry in Pakistan

13. At present, there are ten urea manufacturing plants, one DAP, two Nitro Phos, four SSP (one plant is idle), two CAN, two plants of blended NPKs, and one plant of SOP operating in the country.[16] These plants operate under two policies i.e. Fertilizer Policy, 2001 and Petroleum Policy, 2012. A total of 6.3 million metric ton is based on Fertilizer Policy, 2001 gas and imported LNG, while 1.7 million metric tons is based on Petroleum Policy, 2012.

14. Table 1 shows that all companies are producing Urea. Engro Fertilizer Limited (EFERT) and Fauji Fertilizer Company Limited (FFCL) are the major producers of Urea. Similarly, FFCL has the highest capacity to produce P fertilizer; and Fatima Fertilizer has the highest capacity to produce NitroPhos (NP). Total capacity of Urea production is 6.3 million tons and actual production stands around 6.4 million tons per year.

15. Fertilizer usage varies across different crops in Pakistan, with some crops requiring larger quantities while others need less. Its share in the cost of major crops of Pakistan is about 10 to 15 percent. According to the Pakistan Bureau of Statistics, about 50% of the country's fertilizer is used for wheat cultivation. Cotton accounts for around 25% of annual fertilizer consumption, while sugarcane utilizes approximately 8%. Whereas, rice and maize crops consume about 6% and 1.5% of the fertilizer, respectively.

[14] http://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/130248/filename/130459.pdf
[15] Hussain 2011, Hassan and Pradhan 1998
[16] https://finance.gov.pk/survey/chapter_24/3_manufacturing%20and%20mining.pdf

Table 1: Domestic Fertilizer Production Capacity and Actual Production FY 2022-23

('000' tons)

	Urea		DAP		NPK		CAN		NP		Total	
Company	**C**	**P**	**C**	**P**	**C**	**P**	**C**	**P**	**C**	**P**	**C**	**P**
Agritech	429	275	--	--	--	--	--	--	--	--	429	275
FFC	2048	2405	675	635	--	--	--	--	--	--	2723	3040
FFBL	551	444	--	--	--	--	--	--	--	--	551	444
EFERT	2275	1951	--	--	120	40	--	--	40	68	2435	2059
Fatima Fertilizer	500	494	--	--	--	--	470	498	360	467	1330	1459
Fatima Fert Limited	445	377	--	--	--	--	--	--	--	--	445	377
PakArab Fertilizers	99	87	--	--	--	--	450	322	330	325	879	734
Total	6347	6033	675	635	120	40	920	820	730	860	8792	8388
Source: Fertilizer Review 2022-23, NFDC, MNFS&R												

Note: 'C' stands for Capacity and 'P' stands for Production

1.1.3 International Trade of Fertilizer

16. Table 2 shows fertilizer trade from 2019-20 to 2023-24. About 53% of the national demand for DAP is fulfilled through imports. However, the international supply of DAP faced constraints due to export limitations imposed by China, having a share of 30% in the world's exports. Consequently, this restriction led to a significant surge in international prices. Additionally, the devaluation of the Pakistani Rupee against the US Dollar resulted in a fluctuation.[17]

Table 2: Pakistan - Fertilizer Trade (Thousand USD)

Year	Exports	Imports
FY 2019-20	310	522,665
FY 2020-21	1	685,668
FY 2021-22	655	716,653
FY 2022-23	683	615,486
FY 2023-24	13	642,339
Source: State Bank of Pakistan (SBP)		

1.2 Objectives of the Study

17. *Section 28(1) (b)* and *Section 29 (b)* of the *Competition Act, 2010* mandates the CCP to conduct market studies and review policies to promote competition. In this context, this research study analyzes the state of competition in the fertilizer industry, identify competition vulnerabilities and barriers to competition. The study also reviews the regulatory framework governing the sector, to identify possible barriers to competition due to certain regulations. This is followed by recommendations and desired policy changes both at the federal and provincial levels. The study specifically aims to:

    i. Provide a profile of the industry including market structure, demand and supply, regulatory environment, consumer behavior, and international trade;
    ii. Provide information about the competition landscape of the industry in Pakistan;
    iii. Identify specific competition concerns and barriers to competition;
    iv. Recommend steps to improve competition in the industry - to highlight the areas for reforms to promote competition through advocacy or enforcement actions by the CCP and other relevant organizations;
    v. Recommend policy note(s) in case of presence of any governmental policies that impede competition; and
    vi. Provide information and inputs to the policy makers, industry players and the general public to better understand the dynamics of this industry.

1.3 Significance of the Study

18. Agriculture plays a critical role in Pakistan's food security, it also accounts for 23% share in the GDP. Competition in the fertilizer industry, thus, has a deep impact on Pakistan's

[17] https://www.pacra.com/sector_research/Fertilizers%20-%20PACRA%20Research%20-%20Jan'23_1676028125.pdf

agriculture sector. Improving the competition in the fertilizer sector has multiple positive effects through increased agricultural produce, higher yield, higher farmer income, competitive market prices and enhanced export potential.

19. This research study on the fertilizer industry in Pakistan bears significant importance from competition as well as from policy perspectives. The Research findings can inform policy formulation and regulatory decisions related to the fertilizer industry. Evidence-based policy interventions help address challenges and capitalize opportunities for sustainable development of the fertilizer industry in Pakistan. Therefore, understanding market dynamics e.g. supply-demand trends, pricing, distribution channels, and market competition, is essential for stakeholders such as farmers, manufacturers, traders, and policymakers for informed decision-making and strategic planning.

1.4 Methodology

20. The research study relies upon both primary and secondary data sources. The secondary data has been collected from various governmental bodies such as Pakistan Bureau of Statistics (PBS), State Bank of Pakistan (SBP), Pakistan Economic Survey, annual reports of the companies, news reports, and other private sector research publications. For primary data, questionnaires were sent to both public and private sector stakeholders. The list of primary data collected through interviews/ meetings with various stakeholders is as follows:
    i. Ministry of Industries & Production (MoI&P)
    ii. National Fertilizer Development Centre (NFDC)
    iii. National Fertilizer Company (NFC)
    iv. National Fertilizer Marketing Limited (NFML)
    v. AgriTech
    vi. Trading Corporation of Pakistan (TCP)
    vii. National Agriculture Research Council (NARC),
    viii. Ministry of National Food Security and Research (MNFSR)
    ix. Sui Northern Gas Pipelines Limited (SNGPL)
    x. Mari Petroleum Company Limited (MPCL)
    xi. Farmers' survey in various areas of the country
    xii. Market survey of distributors, dealers and retailers in various markets

1.5 Limitation of Study

21. The research faced a limitation in the lack of access to crucial data from major fertilizer companies. The companies were unwilling to provide data or participate in consultative sessions with the research team due to the ongoing legal cases. This data would have been instrumental in obtaining a more comprehensive understanding of the market dynamics, pricing strategies, and competitive practices. It is noted that the comparative brand-wise pricing data of DAP was available only for Multan city. Therefore, the data should be taken as indicative of Punjab only. Based on this, a general conclusion cannot be made for the DAP price for the whole country.

Chapter 2 - Fertilizer Markets in the International Jurisdictions & Anti-Competition Cases

22. This chapter review of the fertilizer industry in selected markets. It also includes as to what lessons could be drawn for Pakistan, from other countries' experiences. As to how various jurisdictions dealt with anti-competition cases is also an area of interest, covered in this chapter.

2.1 Review of Selected Fertilizer Markets

2.1.1 India

23. India's fertilizer industry is a mix of regulatory oversight and market mechanisms, shaping the industry. India has achieved self-sufficiency in N, while it relies on imports for P and K. There are: Government-owned Public Sector Undertakings (PSUs), Cooperative Societies, and private sector. Historically, the industry had been heavily subsidized. Notably, urea is subject to statutory price and movement controls, while prices for P and K fertilizers were deregulated in 1992. During 2021, average fertilizer consumption (kilograms per hectare (kg/ha) for N, P, and K was 115.97, 46.58, and 15.05, respectively.

24. Currently, India is subsidizing local and imported fertilizers through a subsidy program that offsets production or import costs. Urea subsidies are regulated through price controls and distribution oversight, where government fixes maximum retail price and monitors distribution. Periodic reviews and adjustments to subsidy rates are conducted to sustain affordability for farmers while maintaining fiscal responsibility and resource efficiency.

25. The Indian Nutrient-Based Subsidy (NBS) Program calculates and provides subsidy to the manufacturers or importers based on the nutrient content rather than on the product i.e., N, P, and K in the fertilizers such as urea, DAP, and muriate of potash (MOP).

2.1.2 Bangladesh

26. The chemical fertilizer market in Bangladesh relies heavily on imports. The Government oversees import process through Bangladesh Agricultural Development Corporation (BADC) and Bangladesh Chemical Industries Corporation (BCIC). Private companies are permitted to import fertilizers with approval from the government.[18]

27. In 2021, the fertilizer consumption was: urea 161.42 kg/ha, phosphate at 117.62 kg/ha, and potash at 50.06 kg/ha. The average fertilizer consumption is lower than the developed countries but exceeds the average level of many developing nations.

28. The Government offers subsidies on four major chemical fertilizers: Urea, TSP, DAP, and MOP, to enhance their affordability for farmers. BADC and BCIC are responsible for

[18] https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Russia-Ukraine%20War%20Impact%20on%20Fertilizer%20Supply%20and%20Use%20in%20Bangladesh_Dhaka_Bangladesh_BG2022-0008

implementing fertilizer subsidy program. The government annually fixes retail prices for these fertilizers and regulates their distribution via authorized fertilizer dealers.[19]

2.1.3 China

29. China is self-sufficient in the production of N and P fertilizers, and is a major global exporters of these fertilizers.[20] In 2021, consumption of N was 166.4 kg/ha, P at 79.3, and K 74.1. The data shows a relatively high use of N fertilizer in China.

30. The fertilizer industry has undergone several policy transitions over the years, starting with a centralized control system under state ownership from 1949 to 1984. This was followed by a dual system involving central planning alongside market adjustments from 1985 to 1997. Subsequently, there was a shift towards a market-driven system with government-imposed price caps from 1998 to 2009. Currently, the industry operates under a fully market-oriented system, which has been in place since 2009.[21]

31. China subsidies fertilizer directly and indirectly to maximize the consumption and productivity. The broad range include subsidies on electricity for fertilizer manufacturers, transportation of fertilizer is exempted from certain railway fees, exemptions from value-added tax on fertilizer-related businesses, concessional finance for firms involved in fertilizer storage and price stabilization scheme, and input subsidies to farmers.[22]

2.1.4 Brazil

32. Brazil is the fourth largest fertilizer consumer with 8% of global demand, and the largest global destination of fertilizer exports.[23] The Brazilian fertilizer industry was controlled by state investment since 1960s. In the 1990s, the industry was privatized and the pricing of fertilizer deregulated. In the last 30 years, its import of NPK fertilizers, as a percentage of its total fertilizer consumption, has gradually risen from 32% in 1988, to 80% in 2022.

33. Compared to other countries, the consumption of N fertilizer in Brazil is relatively low, however, the consumption of P fertilizer is high. During 2021, the fertilizer consumption kg/ha of N, P, and K was 88, 97, and 114, respectively.

34. In 2023, Brazil's National Council on Fertilizers and Plant Nutrition ratified the National Fertilizer Plan to bolster fertilizer production, stimulate Brazilian enterprises, and research institutions engaged in fertilizer production/ distribution, and enhance logistics of fertilizer supply chain over the next 28 years. The Plan aims to elevate the market share of domestic fertilizer from the current 15% to 55% by 2050, projecting a twofold increase in demand.

35. Table 3 presents the comparison of fertilizer production, consumption, subsidy and pricing in different countries.

[19] *Ibid*
[20] https://www.gpca.org.ae/2023/03/26/china-and-the-gcc-fueling-a-green-future-for-fertilizers/
[21] https://pubmed.ncbi.nlm.nih.gov/24216349/
[22] http://documents1.worldbank.org/curated/en/827371554284501204/pdf/The-Greening-of-Farm-Support-Programs-International-Experiences-with-Agricultural-Subsidy-Reform.pdf
[23] Brazilian Ministry of Agriculture, Livestock and Supply (MAPA)

Table 3: Fertilizer Industry – key Indicators in Selected Countries (2021-22)

Country	Domestic Production/ Urea Import Situation	Consumption	Subsidy	Pricing Mechanism
India	Domestic Urea Production is 75%, DAP 40%, & NPK is 85%, rest is imported	1. N: 116 2. P: 47 3. K: 15.1 Total= 178 Kg/ha	Subsidy on Urea, and Nutrient Based Subsidy on P&K fertilizers to the manufacturers.	• MRP of urea is statutorily fixed by the Government. • Deregulated P&K fertilizers since 1992.
China	Self Sufficient in N and P fertilizer While imports K fertilizer.	1. N: 166.38 2. P: 79.26 3. K: 74.08 Total= 319.72Kg/ha	Subsidy on electricity, exemptions on railway fee on fertilizer transport and value-added tax on fertilizer-related business, concessional finance for storage, price stabilization scheme, and input subsidy for farmers.	No Price cap, Market-oriented system since 2009.
Bangladesh	Produces only 20% of the demand rest 80% is imported	1. N: 161 2. P: 117 3. K:50 Total= 329 Kg/ha	Subsidy on retail price of four major chemical fertilizers to increase farmer affordability.	Regulated price. The government fixes the retail prices of fertilizers, controls its distribution
Brazil	Imports 80% of N & P fertilizers and 98% of its K supply.	1. N: 88 2. P: 97 3. K: 114 Total= 298 Kg/ha	National Fertilizer Plan 2022: reduce dependence on imports to 50% by 2050 through modernize & expand existing plants. Improve business environment, R&D & Improve logistics.	Liberalized market. Prices are not regulated.

36. The above comparison reveals that Brazil and Bangladesh rely on fertilizer imports, while China is self-sufficient in N and P fertilizers, and India's domestic production is similar to that of Pakistan. The total fertilizer consumption of Pakistan for N, P, and K is less than China, Brazil, Bangladesh and India. Considering its significance, the fertilizer industry receives various incentives. China and Brazil have a deregulated price, while India and Bangladesh regulate prices. The analysis shows that Pakistan's fertilizer industry receives indirect subsidy on natural gas i.e., at the production stage in urea production. However the jurisdictions discussed above provide subsidy at post production stage. Pakistan also has a regulated pricing regime for imported urea, which is similar to Bangladesh to keep the domestic fertilizer price more accessible to the farmers.

2.2 Anti-Competitive Cases in the Fertilizer Industry

2.2.1 South Africa

37. In 2003, two fertilizer companies; Nutri-Flo and Nutri-Fertilizer lodged a complaint to the Competition Commission against Sasol Chemical Industries alleging anti-competitive conduct, and that Omnia Fertilizer was involved in collusive conduct to control the market of N business. The Commission's investigation revealed a collusive arrangement for Sasol to become an exclusive supplier of limestone ammonia nitrate (LAN) in the wholesale market. The arrangements were facilitated through meeting platforms such as the Nitrogen Balance Committee, Import Planning Committee, and the Export Club to fix LAN price, and allocations of production quota, customers and suppliers. It was found that Omnia Fertilizer's Nitrochem Division fixed prices and allocated market during 1998 to 2005. The collusion was related to ammonia, P, urea, mono-ammonium phosphate (MAP), DAP and LAN. In 2005, the Commission charged the companies for market allocation and price fixing. A penalty of R30 million was imposed on Omnia Fertilizer.

2.2.2 Anti-Competition case in Ukraine

38. Ostchem, a major fertilizer manufacturer in Ukrain, was alleged for abusing its dominant position in the market of N. The Antimonopoly Committee of Ukraine (AMC)'s investigation identified the group's involvement in intra-group overpricing of raw material and suspension of production during 2017, which lead to shortage of fertilizer.

39. The Ostchem group consisted of major Ukrainian fertilizer plants: PrJSC Severodonetsk Azot, PJSC Azot and PrJSC Rivneazot along with related wholesale trading company NF Trading Ukraine LLC. The cost of gas contributes around 70% towards the production cost of ammonium nitrate. The companies abused the connection between the price of raw material and final product. The AMC found that the alleged companies bought gas for production of fertilizers from related companies and then resold it within the group, constantly increasing the price. The price of gas was overestimated when it reached the final manufacturer. This resulted in overestimation of the cost of nitrogen fertilizer.

40. The AMC noted that the three plants acted as a single group, and ordered their separation within nine months. Furthermore, AMC imposed a penalty of EUR 3.8 million on fertilizer selling firm, NF Trading Ukraine LLC.

2.2.3 Anti-competition cases in Pakistan

41. In 2009, the CCP took notice of information sent by Secretary Agriculture, Government of Sindh, informing about the complaints of fertilizer companies' dealers. Accordingly, the fertilizer companies tied-in the sale of Urea and DAP. An enquiry was initiated against three main fertilizer producers to establish whether the sale of Urea being made conditional on sale of DAP as per Section 3 (3) (c) of the Competition Ordinance. However, investigation did not find empirical evidence from the records of the manufacturers indicating the tie-in. Therefore, the CCP disposed of the matter in 2010.

42. In January 2011, the CCP noticed a consistent increase in the price of 50 kg Urea bags. The CCP initiated an enquiry against manufacturers namely Engro Fertilizers Limited (EFL), Fauji Fertilizer Company Ltd (FFC), Fauji Fertilizer Bin Qasim Ltd (FFBL), DH Fertilizers Ltd (DHFL), Agritech Ltd (AGL), Fatima Fertilizer Company (FFL) and Pak Arab Fertilizer Ltd (PAFL). The main ground for price increase was argued to be the government's curtailment of gas to the plants.

43. The Enquiry found that the gas curtailment did not affect all the companies equally. For instance, while EFL's new plant that is on SNGPL network faced gas curtailment. However, its old plant was only slightly affected being supplied by a different gas provider. Similarly, FFC's plant was only slightly affected by gas curtailment. Further, the cost of inputs did not increase notably in absolute terms. Resultantly, the profit margins of FFC increased from 43 to 62 percent and those of EFL went up from 46 to 53 percent.

44. The market share of FFC was 48 percent thus having a dominant position. FFBL had a market share of 10 percent, but the CCP maintained that FFBL was a subsidiary of FFC and both companies share Board of Directors. EFL did not deny its dominance but maintained that it didn't always had dominant position as it was forced to reduce its price sometimes. The CCP found that during the period of infringement, EFL had the dominant position as it did not have threat of losing market share and it initiated the price increases. The CCP concluded that FFC and EFL abused their dominant positions in contravention of Section 3 of the Competition Act by making unreasonable price increase. The CCP imposed a penalty on FFC and EFL equivalent to 10% of the undertakings' turnover in 2011; a sum that amounts to PKR 3.14 billion on EFL and PKR 5.5 billion on FFC.

45. In 2014, the CCP took notice of concerns raised by fertilizer companies against the levy of Gas Infrastructure Development Cess (GIDC) that discriminated against the fertilizer plants installed prior to the Fertilizer Policy 2001 vis-à-vis the plants that were commissioned and became operative after the Fertilizer Policy 2001. This Policy granted a certain lower price for gas feed stock to all post-2001 plants. GIDC was levied on pre-2001 plants under the GIDC Act, 2011 for collection of this cess on natural gas. The lower rate of feed gas coupled with exemption of GIDC for post-2001 fertilizer plants resulted in a price difference and a cost disadvantage for pre-2001 plants to compete with the post-2001 plants. The CCP recommended that GIDC was charged equally to all fertilizer plants to create a level -playing field in the urea market.

Chapter 3 – Market Structure of the Fertilizer Industry in Pakistan

46. The market structure of any commodity refers to the organizational characteristics and dynamics of the market in which the commodity is bought and sold. It gives an insight of how firms and consumers interact to determine the market price. Market structure is determined by the number of buyers and sellers, the nature of product, availability of substitutes, pricing mechanism, nature of non-price competition, cost and profitability, and market entry and exit barriers. Understanding the market structure is essential to analyze competition dynamics, and the overall efficiency of the market This Chapter provides an analysis of the market structure of the fertilizer industry in Pakistan.

3.1 The Relevant Market

47. Defining the relevant market is central to competition assessment of any industry. The relevant market consists of: (a) *the relevant product market*, and (b*) the relevant geographic market*. The relevant product market is defined as the "market that comprises all the goods/services that are regarded as substitutable by reason of their intended usage, characteristics and prices". The relevant geographic market is "the area where the firms are involved in supply and demand of goods/services, where the conditions of competition are sufficiently homogenous, and which can be differentiated from other areas on the basis of the conditions of competition being different". The relevant product and geographic markets have a supply and demand side, and so create competition in the relevant market.

48. In general, the fertilizers are N, P, and K based[24], and fertilizer products are a combination of these primary nutrients. There are 11 types of fertilizers used in Pakistan.[25] These are:

    i. Urea[26]: an N fertilizer, having highest nitrogen content of 46 percent.
    ii. DAP[27]: a widely used P fertilizer, containing 18 percent N and 46 percent P.[28]
    iii. CAN[29]: Calcium Ammonium Nitrate, contains 8% calcium, 21-27 percent N.
    iv. AN: Ammonium Sulphate, is an inorganic salt, a N fertilizer used for crops
    v. NP: Nitro Phosphate fertilizer, has 22% nitrogen and 20 percent phosphorus.
    vi. SSP[30]: Single Super Phosphate, contains 14.5% P, and 11% Sulphur.[31]
    vii. NPK: It contains either N, P, and K[32] in equal proportion or it may have a higher N content compared to P and K.[33]

[24] *ibid*
[25] Fertilizer industry of Pakistan, http://pbit.gop.pk/system/files/Fertilizer%20Sector%20Report%20.pdf, http://pbit.gop.pk/
[26] Natural gas is the raw material required for the production of urea. Approximately 80% of the natural gas is used as feed gas and remaining 20% is used as fuel gas (power generation).
[27] Its application is recommended at the time of sowing of crops for better root proliferation.
[28] *Pakistan's Fertilizer industry, structure, policies, performance, and impacts*, International Food Policy Research Institute (IFPRI), 2016.
[29] CAN is considered a substitute of Urea, discussion with National Fertilizer Corporation (NFC)
[30] For P- phosphate fertilizers, the main raw material required for production is rock phosphate, required in production of SSP, NP, DAP and NPK.
[31] SSP is applied to land, which is deficient in Sulphur, it speeds up the process of photosynthesis and improves the quality of fruits and vegetables.
[32] Urea increases lushness/greenness, whereas Phosphorus and Potash improve grain quality.
[33] Engro Fertilizers

viii. TSP: Triple Super Phosphate fertilizer, a concentrated phosphorus fertilizer, produced by grinding and acidulating rock phosphate.
ix. SOP[34]: Sulphate of Potash, provides both Potassium and Sulphur.
x. MOP: Muriate of Potash[35], a common potash fertilizer, also known as potassium chloride, contains 60 percent potash.[36]
xi. MAP: Mono-ammonium Phosphate, a source of both P and N, in addition it has the highest phosphorus content.

49. Given the above fertilizer compounds constituting of N, P and K, the *relevant product market* of the fertilizer industry in Pakistan will comprise all the various types of fertilizers produced locally and imported having N, P and K nutrients in general, and urea and DAP market in particular.[37] Moreover, the *supply side* of the relevant product market will encompass all the local producers and importers of fertilizer that compete in the market in general, and urea and DAP supply in particular. On the *demand side*, the fertilizer consumers are the farmers, who use various types of fertilizer.

50. There exist fertilizer sub-markets within the broader fertilizer market. Urea is a fertilizer, which is produced by all local producers. The DAP is produced only by FFBL, and rest is imported by the private sector. This competition assessment will analyze the market dynamics and the level of competition at the overall industry and the sub-markets levels.

51. On the demand side, the farmers are segregated as small, medium, and large farmers. Small farmers have 2-4 acres of cultivable land; the large farmers having 1000s acres. In Pakistan, more than 50 percent of the farmers are small farmers. At the provincial level, Sindh and South Punjab have large farmers, and Punjab in general has medium and large farmers.[38]

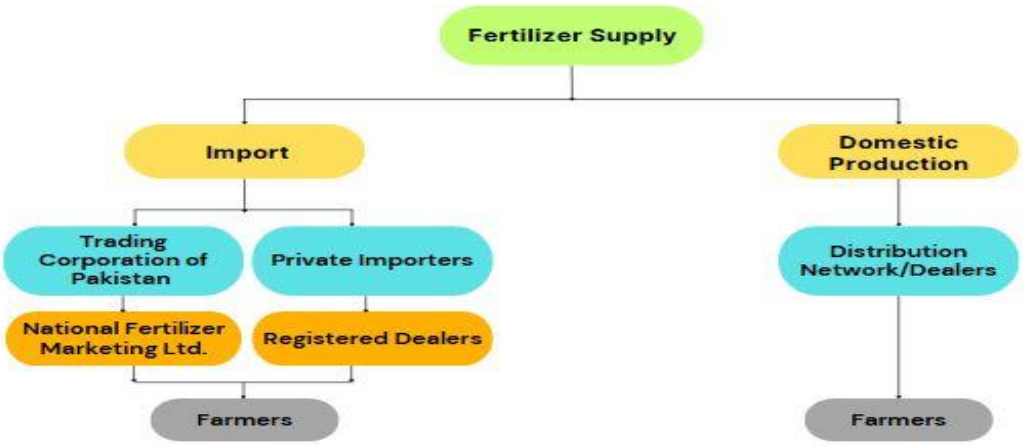
52. The *relevant geographic market* is the fertilizer market that includes the whole of Pakistan. The reason being that the fertilizer is supplied and demanded within the country, from south to north. On the supply side of the relevant geographic market, fertilizer manufacturers compete with each other. Whereas on the demand side, farmers compete for access to various types of fertilizer, within the geographical market.

53. The fertilizer manufacturers do not have any territorial restriction or limitation to supply and sell/market their produce. However, the distance from the plant location, increases the freight cost and thus the price. Therefore, location is a competitive constraint on the availability of all fertilizer brands at different geographical areas. This gives certain monopoly power to fertilizer manufacturers, as due to freight charges producers do not find it profitable to sell in a specific territory.

[34] An important source of Potash, used more specifically in cultivating fruits and vegetables
[35] MOP is used for sugarcane and fruit trees cultivation
[36] http://www.originfertilisers.co.uk/products/straights/muriate-of-potash-mop/
[37] Urea and DAP are the two types of fertilizers most used by farmers in Pakistan.
[38] Discussion with National Agricultural Research Centre (NARC)

54. Figure 5 presents the fertilizer's supply chain in Pakistan.

Figure 5: Supply Chain of Fertilizer in Pakistan

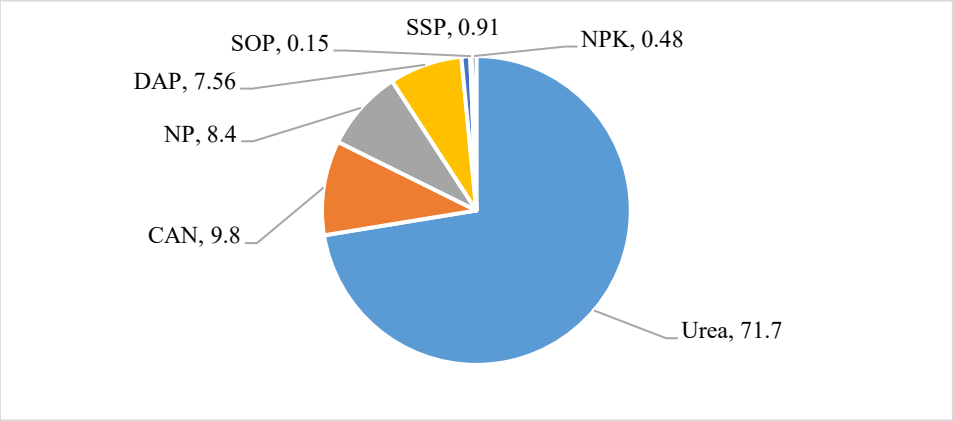


Source: Information gathered from the market sources

3.2 Fertilizer Supply- Domestic Production

55. The supply side of the fertilizer market/ industry consists of the local fertilizer manufacturers, importers, and distributors throughout Pakistan. As discussed earlier in the report, there are ten urea manufacturing plants, one DAP, two Nitro Phos, four SSP (out of which one plant is idle), two CAN, two plants of blended NPKs, and one plant of SOP, having a total production capacity of 9,417 thousand product tonnes per annum. Fertilizer production during July-March FY2024 was 7,171 thousand tonnes, which was 16.6 percent more than the corresponding time frame of the last year. Similarly, fertilizer production in nutrient terms was 3,253 thousand tonnes, 17.3 percent higher than last year.[39] Figure 6 presents the share of the N, P, and K fertilizers produced in Pakistan. Accordingly, Urea is the most important straight N fertilizer, having a share of 71.7 percent in the total fertilizer production in Pakistan, followed by CAN and DAP.[40]

Figure 6: Share of various Fertilizers in total Production



Source: Fertilizer Review 2022-23, NFDC

[39] Pakistan Economic Survey, 2023-24, Pg. No. 47.
[40] NFDC, Fertilizer Review - 2023.

56. The recent fertilizer outlook is provided in the Table 4 below.

Table 4: Fertilizer Supply - Demand Situation

Description	Kharif (Apr-Sep) 2023		Rabi (Oct-Mar) 2023-24	
	Urea	DAP	Urea	DAP
Opening Stock	69	274	77	38
Imported Supplies	0	128	220	552
Domestic Production	3,328	392	3,401	393
Total Availability	3,397	794	3,698	983
Offtake/Demand	3,332	758	3,525	874
Write on/off	1	1.9	0	-30.6
Closing Stock	77	38	174	78

Source: Pakistan economic Survey 2023-24

Table 5: Domestic Fertilizer Production by Product (000 tonnes)

Year	Urea	DAP	NP	CAN	SSP	TSP	SOP	MAP	MOP	AS	NPK	Total
2017-18	5365	758	534	519	66	--	--	--	--	--	63	7305
2018-19	5933	783	495	453	76	--	6	--	--	--	78	7824
2019-20	6176	737	650	546	58	--	7	--	--	--	72	8247
2020-21	6301	789	921	793	106	--	11	--	--	--	87	9009
2021-22	6426	897	902	826	101	--	15	--	--	--	78	9245
2022-23	6347	675	860	920	445	_	10	_	_	_	160	9417

Source: NFDC, MNFS&R

3.2.1 Major Market Players

57. In Pakistan, the fertilizer market has an oligopolistic structure. There are few large sellers in the domestic market. The market is led by three conglomerates: Fauji, Engro and Fatima Group. Given below are the details of the domestic fertilizer producers and their products.

58. **Fauji Fertilizer Company Limited (FFC)**: It is a public listed company incorporated in 1978 as a Joint Venture (JV) between Fauji Foundation, a charitable trust in Pakistan, which owns 44.35% equity stake in the Company, and Haldor Topsoe of Denmark.[41] Its first urea plant was commissioned in 1982 at Goth Machi.[42] After revamping in 1992, this Plant has 403,000 Met/year of Ammonia, and 695,000 Met/year of Urea production capacity. Plant II located at Goth Machi, started operations in 1993, with a design capacity of 363,000 Met/year of Ammonia and 635,000 Met/year of Urea. Plant III[43] is located at Mirpur Mathelo, district Ghotki, Sindh, the plant was commissioned in 1980 and was acquired by FFC in 2002. Its initial design capacity was 330,000 Met/year of Ammonia, and 574,000 Met/year of Urea production. In 2009, the plant underwent capacity

[41] Fauji Group was founded in 1954, under the Charitable Endowments Act, 1890, as a charitable trust for the welfare of ex-servicemen and their dependents. Fauji Foundation today runs more than 18 industries. It is one of Pakistan's largest conglomerates having stakes in cement, power, fertilizer, banking, oil and gas, and food.
[42] Goth Machi is a small town in tehsil Sadiqabad, district Rahim Yar Khan in Punjab
[43] Formerly Pak Saudi Fertilizer Limited

enhancement, and now its production capacity stands at 413,000 Met/year of Ammonia, and 718,000 Met/year of Urea production.[44]

59. FFC markets its products under the brand name 'Sona'.[45] It produces, Urea, DAP[46], SOP, MOP, Boron and Zinc. Sona Urea produced by FFC is in prilled form.[47]Sona Boron and Sona Zinc produced by FFC are micronutrient fertilizer required for plant nutrition. Urea, DAP and SOP also have industrial usage in addition to crop harvesting. Urea is used in manufacturing of plastics and adhesives, DAP is used in sugar purifying, as yeast nutrient and in firefighting products. Likewise, SOP is occasionally used in manufacturing of glass.

60. **Fauji Fertilizer Bin Qasim Limited (FFBL)**: It is a fully owned project of Fauji Foundation, which holds 18.29 percent shares of the company, and FFC holds 49.88 percent shares. FFBL was incorporated in 1993 and started commercial operations in 2000. The manufacturing plant of FFBL is located at Port Qasim, Karachi. It manufactures chemical fertilizers, and is the only manufacturer of DAP and granular Urea in Pakistan. Both these products are marketed under the brand 'Sona'. FFBL's capacity of granular Urea and DAP production stands at 1,920 MT/day and 2,523 MT/day, respectively.[48]The granular urea is preferred by farmers as compared to prilled urea due to slow evaporation, when applied to crop. However, the total production share of granular urea in the total urea market in Pakistan is less than 10 percent.[49]

61. FFC's marketing group markets the products of FFC and FFBL through the country's largest dealer network. It is supplying around 3.4 million tonnes of fertilizer per annum.[50] The combined market share of FFC and FFBL was 48 percent in Urea during 2021-22.[51] Additionally, FFBL has 25 percent equity holding in Pakistan Maroc Phosphore (PMP), which produces phosphoric acid (P205), a raw material used in the production of DAP.

62. **Engro Fertilizer Limited (EFERT)**: It is a subsidiary of Engro Corporation, which has 56.27 percent shareholding in EFERT. The EFERT was incorporated in 2009, after it was demerged from its parent company, Engro Chemical Pakistan Limited. EFERT has three manufacturing facilities. Two urea plants are located at Daharki, Sindh, and one NPK plant is located at Port Qasim, Karachi.[52] EFERT brands its fertilizer products under the brand name 'Engro'. Its brands include Urea, DAP, NP, Zingro, Zarkhaiz, MOP, SOP, SSP+Zinc, Ammonium Sulphate, Zabardast Urea, Zoron and Power Potash.[53]

63. At inception, EFERT's urea plant was the world's largest single train urea plant of 1.3 million tons with a production capacity of 2.3 million tons per annum. Engro imports DAP since 1996, and EFERT is the largest importer of DAP in Pakistan. Engro NP is both produced and imported by the company. In lower Sindh, EFERT has a high market share in NP, a sub-market of fertilizer. Zingro i.e., in Zinc sub-market, EFERT is a market leader.

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[44] https://www.ffc.com.pk/manufacturing-plants/
[45] The fertilizer producers market various fertilizer brands in 50 kg bags.
[46] DAP is produced by FFBL
[47] Urea is produced in prilled and granular forms, however granular form urea is better for crops due to its ease of application in standing crops.
[48] https://www.ffbl.com/about/#FFBL
[49] Meeting with the NFC
[50] https://www.ffc.com.pk/#CEMD
[51] *ibid*
[52] https://www.pacra.com/summary_report/RR_79_9257_30-Jul-21.pdf
[53] https://www.engrofertilizers.com/brands/

Zarkhaiz is NPK fertilizer, which the company produces in three different grades, green (for vegetables and cash crops), blue (for fruits and orchards) and another for tobacco.[54]

64. **Fatima Fertilizer Company Limited**: It was incorporated in 2003 as a JV between Fatima and Arif Habib Groups. Its plant is located at Sadiqabad, Rahimyar Khan. The company has a capacity to produce Urea, CAN, NP, and NPK along with intermediate products, Ammonia and Nitric Acid, used to produce fertilizers. It uses the brand name 'Sarsabz'. The manufacturing plant receives 110 MMCFD of dedicated natural gas from Mari Gas Fields. The plant has a designed capacity to produce 500,000 Metric Tonnes (MT)/annum of urea, 460,000 MT/annum of CAN, and 480,000 MT/annum of NP.[55]

65. **Fatimafert Limited:** It is a wholly owned subsidiary of Fatima Fertilizer Company Limited. It was incorporated in 2010 after its demerger from the parent company Dawood Hercules Chemicals Limited (DHCL), named DH Fertilizer Ltd. In 2015, Fatima Group took control of DH Fertilizer Ltd., and changed the name to Fatimfert Ltd. The manufacturing facility is located at Sheikhupura, Punjab. It sells urea under the brand name of 'Bubber Sher'. It also imports DAP and markets it across the country.[56] At present, the plant has a production capacity of 446,000 MTs of Urea and 269,000 MTs of Ammonia per annum.[57]

66. **PakArab Fertilizers Limited (PFL)**: It was incorporated in 1973 by a JV between Government of Pakistan (GOP) and Abu Dhabi National Oil Company Limited (ADNOC). Subsequently, 52 percent shares were held by National Fertilizer Corporation (NFC), and 48 percent shareholding was held by ADNOC. Later, under the privatization policy of the government, Pakarab Fertilizer Limited was privatized in 2005. It was acquired by a consortium of Fatima Group and Arif Habib Group. The manufacturing plant is located at Khaniwal road, Multan. Pakarab Fertilizers produce CAN, Urea, and NP.[58] PFL's urea manufacturing plant located at Multan has a production capacity of 99,000 MT/annum for urea.[59] The NP plant uses imported rock phosphate, and has a production capacity of 330,000 MT/annum of NP. The CAN plant has a production capacity of 450,000 MT/annum. All fertilizers produced by Fatima Fertilizer Limited and PFL use the brand name 'Sarsabz'.

67. **Agritech (formerly, Pak American Fertilizer Limited)**: Commissioned in 1958, it was the first N fertilizer plant in Pakistan. In 1973, the plant was converted from coal gasification to natural gas. The plant was later recommissioned in 1998, and the production began in 1999.[60] Agritech has two plants, Urea plant is located at Daudkhel, district Mianwali, Punjab. It produces Urea and Ammonia (ancillary product). The second plant,

[54] *ibid*
[55] http://fatima-group.com/ffcl/page.php/company-overview-ffcl
[56] DAP imported by Fatimafert is branded under 'Sarsabz'
[57] http://fatima-group.com/ffl/page.php/company-overview-ffl
[58] http://fatima-group.com/pafl/page.php/company-overview-pafl-a
[59] In 2008, the Company introduced new improved processes to maximize the output while minimizing the negative impacts on the environment under 'Clean Development Mechanism' (CDM) by selling Carbon Credits in the international market. CDM has potential for other fertilizer manufacturers as well as other industries to participate in the market of carbon credits and improve their production, decrease carbon emission and earn additional profit from selling of carbon credits to developed nations. For details see the link: https://www.dawn.com/news/457568/pak-arab-fertiliser-earns-highest-profit-in-sector
[60] http://www.pafl.com.pk/our-company

Hazara Phosphate is located at Haripur, Khyber Pakhtunkhwa, and produces SSP. The installed capacity of urea is 430,000 tonnes/annum and that of SSP is 100,000/annum.[61]

68. Agritech brands its products, urea and SSP under the brand name 'Tara'. For urea, Agritech has a market share of 5%. It sells urea and SSP in the provinces of Punjab and KP.

69. **Suraj Fertilizer Industries Private Limited**: It was incorporated in 2004, and produces SSP in granulated and powder form. The company has the capacity to blend various NPK grades. It uses brand name of 'Badshah'. The plant is located in Sahiwal district, Punjab.[62]

70. **Safi Chemicals and Fertilizers (Pvt.) Limited:**[63] It started the business in 2007 and was incorporated in 2010. It produces SSP (powder and granular), D.A Phos (Direct Action Phosphorus), SOP, MOP, AS, and MAP. Its plant is located in Muzaffargarh, Punjab, and it markets its products using brand name 'Safi' in the provinces of Punjab and Sindh.[64]

71. The domestic fertilizer production capacity and actual production is given in Table 6.

[61] Information shared by Agritech Limited.
[62] https://www.surajfertilizer.com/index.html
[63] A project of Safi Group of Companies, an integrated fertilizer and agro chemicals manufacturing company.
[64] https://www.safigroups.net/safi-chemicals-and-fertilizers-pvt-limited/

Table 6: Company & Product-wise Production Capacity and Production (000 tons)

Manufacturers	Products	Annual Production Capacity (000 t)	Production 2021-22	% Share 2021-22	Production 2022-23	% Share 2022-23	% Change over 2021-22	Capacity Utilization (%) 2022-23
Fatima Fert (DHCL)	Urea	445	364	3.94	377	4.5	4	85
EFERT	Urea	2275	2153	23.3	1951	23.2	-9	86
Pak Arab	Urea (PFL)	99	94	1.02	87	1	-7	88
Agritech	Urea (PAFL)	429	286	3.1	275	3.3	-4	64
FFC	Urea (prilled)	1330	1669	18	1584	18.8	-5	119
FFBL	Urea (Granular)	551	533	5.8	444	5.3	-17	81
FFC	Urea (PSFL)	718	893	9.7	821	9.8	-8	114
Fatima Fertilizer	Urea	500	435	4.7	494	5.9	14	99
Total	**Urea**	**6347**	**6426**	**69.51**	**6033**	**71.7**	**-6.1**	**95**
Pak Arab	CAN (PAR)	450	357	3.9	322	3.8	-10	72
Fatima Fertilizer Co.	CAN	470	469	5.1	498	5.9	6	106
Total	**CAN**	**920**	**826**	**8.9**	**820**	**9.8**	**-0.7**	**89**
Pak Arab	NP (PAR)	330	367	4	325	3.86	-11	98
EFERT	NP	40	68	0.74	51.4	0.61	-25	129
Fatima Fertilizer	NP	490	467	5.05	416	4.95	-11	85
Total	**NP**	**860**	**902**	**9.8**	**792**	**9.4**	**-12.1**	**92**
FFC	DAP-SONA	675	897	9.70	635	7.56	-29.1	94
LCFL (AlHamd)	SSP	108						0
Agri Tech	SSP	147	67	0.73	70	0.83	4.1	48
Suraj Fertilizer	SSP	150	30	0.33	6.1	0.07	-79.9	4
Safi Chemicals	SSP	40	4	0.04	0.1	0.00	-97	0
Total	SSP	445	101	1.10	76	0.91	-24.7	17
Pacific Exim	SOP	10	15	0.16	12	0.15	-17	120
EFERT	NPK (Various Grades)	120	78	0.85	40	0.48	-49	33
Safi Chemicals	NPK	40						0
Total	**All Products**	**9417**	**9245**	**100**	**8409**	**100**	**-9**	**89**

Source: Fertilizer Review 2022-23, NFDC, MNFS&R

3.2.2 Supply of Natural Gas to the Fertilizer Industry

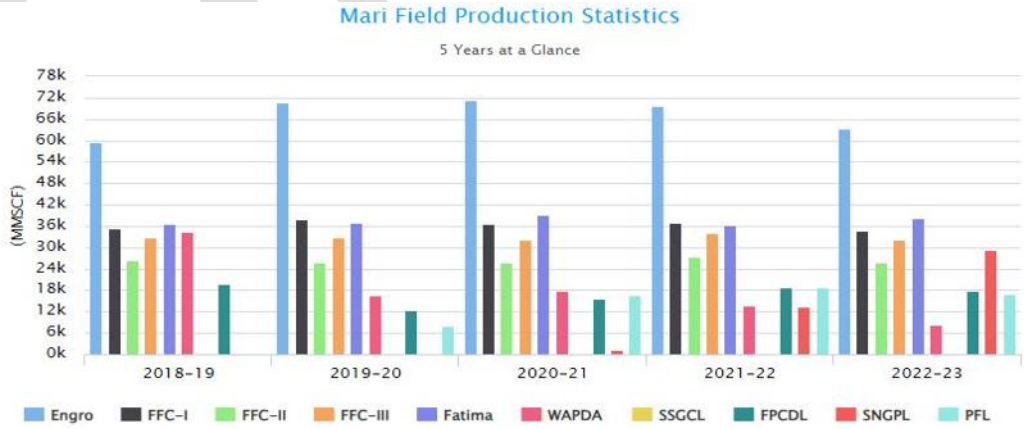
72. The fertilizer industry is the fourth largest industry running on natural gas,[65] it consumes about twenty-three percent of the natural gas produced in Pakistan. To produce N fertilizer and Urea, natural gas is the key raw material required, where about 80 percent of the natural gas is used as feed gas and 20 percent is used as fuel gas. As Pakistan's natural gas reserves are depleting consistently, the fertilizer industry is facing gas curtailment. The gas supply has improved with the import of Liquefied Natural Gas (LNG).[66] The natural gas supplied to the fertilizer industry constitutes both the locally produced gas and the imported LNG.

73. Three companies are supplying natural gas to the industry: Sui Southern Gas Company Limited (SSGC), Sui Northern Gas Pipelines Limited (SNGPL), and Mari Petroleum Company Limited (MPCL). They supply natural gas under the Gas Sale Purchase Agreements (GSAs) with the fertilizer manufacturers. Through their pipeline network, the gas companies inject the local natural gas from the natural gas fields to the fertilizer plants.

74. SNGPL is supplying natural gas to Fatimafert Ltd. (DHCL), Agritech (Hazara Phosphate Fertilizer Pvt. Ltd. located at district Haripur, and Pak American Fertilizer Limited - Tara Urea located at district Mianwali), Pak-Arab Fertilizer Limited, and to EFERT. SSGC is supplying natural gas to FFBL and MPCL is supplying natural gas to Fatima Fertilizer Company Limited, EFERT and all three plants of FFC.[67]

75. MPCL supplies over 70 percent of the total natural gas supplied to the fertilizer industry.[68] MPCL hands over the gas at the field gate. FFC has its own transportation system at the field gate to transport gas to the plants.[69] Other fertilizer producers have Gas Transport Agreement (GTA), and SNGPL and SSGC transport gas to the plants (including Agritech and Engro).[70] Figure 7 shows the supply from Mari Fields to the fertilizer industry.

Figure 7: Mari Fields Natural Gas Supply (2018-19 – 2022-23)



Source: https://mpcl.com.pk/operations/mari-field-statistics/

[65] Fertilizer Review 2022-23, National Fertilizer Development Centre (NFDC), http://nfdc.gov.pk/publications/Pakistan%20Fertilizer%20Statistics.pdf
[66] The LNG import began in 2015
[67] Gas Price Notification, Oil and Gas Regulatory Authority (OGRA)
[68] Previously MPCL supplied 95 percent natural gas to the fertilizer industry.
[69] Meeting with MPCL
[70] Meeting with SNGPL

76. Fertilizer industry is the primary consumer of Mari fields' natural gas. From here, the EFERT receives the highest gas supply, followed by FFC-I, Fatima Fertilizer, and FFC-III.[71] Mari fields' gas is of low MMBTU, which is suitable for urea production. Therefore, gas is supplied to the fertilizer industry under dedicated commitment. The GSAs between MPCL and fertilizer manufacturers were valid till June 2024. The GSAs did not have a price determination clause, as the ECC and the policy directives determine the price. After June 2024, the GSAs faced significant changes. Consequently, discussions and negotiations for new agreements were started. Fertilizer manufacturers were concerned about securing a stable gas supply, which is critical for their operations. The GoP mediated these negotiations, considering the importance of fertilizer for food security. The government aimed to ensure that the fertilizer sector continues to receive gas supplies at competitive prices. As part of the renegotiation process, there were discussions around gas pricing. The situation continues to evolve based on the negotiations and market conditions.

3.2.3 Natural Gas Pricing For Fertilizer Industry

77. In Pakistan, the domestic fertilizer prices are deregulated. As chemical fertilizer is an essential commodity, the ECC makes all decisions for feed and fuel gas supply and its pricing for the fertilizer industry. To keep the domestic fertilizer prices lower than the international prices, the GoP subsidizes feed gas, available to the domestic fertilizer industry, under the Fertilizer Policy 2001.

78. The Fertilizer Review Committee (FRC) under the Ministry of Industries and Production (MOI&P) is the federal forum to review fertilizer demand and supply. The FRC comprises representatives from provincial agriculture departments, Ministry of National Food Security & Research (MNFSR), and Ministry of Energy (Petroleum Division).[72] In case of fertilizer shortage, the FRC recommends urea import. Once the MOI&P decides about the quantity of urea to be imported, the summary for urea import is sent to the ECC. There the decisions about the import quantity and pricing are finalized. Additionally, imported urea price is fixed by the Federal Government, lower than the international market price.[73]

79. OGRA mandated under the OGRA Ordinance 2000, notifies the natural gas prices for the fertilizer industry. Table 7 shows the notified natural gas prices (offtake) in February 2024.

Table 7: Notified Natural Gas Prices to the Fertilizer Plants (Rs./MMBTU)

Fertilizer Plants	SNGPL (Offtake)	Mari	SSGC
EFERT	Rs. 1597 (feed & Fuel)	Rs. 580 (feed gas) Rs. 1580 (fuel gas)	--
Agritech (H) **Agritech (PA)**	Rs. 1500 (fuel gas), Rs. 510 (feed gas) Rs. 1597 (feed & Fuel)	--	--
Fatima Fertilizer	Rs. 1597 (feed & Fuel)	Rs. 580 (feed gas) Rs. 1580 (fuel gas)	--
FFBL	--	--	Rs. 1597 (Feed & Fuel)
FFC- I **FFC-II** **FFC-III**		Rs. 580 (feed gas) Rs. 1580 (fuel gas)	--
PakArab	Rs. 1500 (fuel gas)	Rs. 510 (feed gas)	

Source: OGRA, Price Notification, February 15, 2024

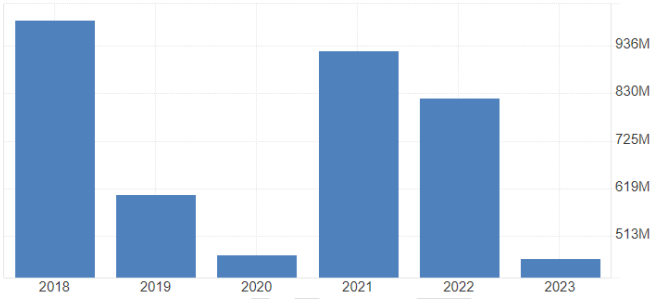
[71] FFC-I & II located at Goth Machi, FFC-III located at Mir Pur Mathelo
[72] As and when needed, the CCP is also invited to participate in the deliberations of the FRC.
[73] NFC & NFML questionnaire reply.

80. The imported LNG is provided to the fertilizer plants, who receive RLNG through the transmission network of SNGPL, based on the Sale Purchase Agreement with the Sui Company. The fertilizer plants of Agritech and Fatimafert are operating on LNG.

3.3 Fertilizer Import

81. The total demand for fertilizer in Pakistan is over 9 million tons/annum. If natural gas supply is available (keeping else as constant) the total production by the local fertilizer producers meets the demand. However, Pakistan has been importing fertilizer to meet the local demand. The import of fertilizers was US$463.8 Million during 2023, according to the United Nations COMTRADE database (updated on November of 2024).[74] Figure 8 shows the amount of foreign exchange spent on imported fertilizer from 2018 to 2023.

Figure 8: Pakistan's Fertilizer Imports during 2018-2023 (Million US$)



Source: United Nations COMTRADE database

82. In Pakistan, the private sector imports DAP, MOP, MAP, NP, etc. Whereas, public sector imports urea. Domestic fertilizer manufacturers[75] also import various types of fertilizers.[76] The annual demand of DAP is around 1.5 million tonnes but the domestic production is only 0.6 million tonnes. Thus, the gap is filled through imports.[77] The fertilizer import received at the port is lab tested for quality by both the importer and the government. It is then shifted to the importers' warehouses after bagging in quayside. These warehouses are located near the port as well as other locations across the country.

83. The manufacturers and importers sale the imported fertilizer in the domestic market under their respective brand name. The public sector carries out urea import, to ensure urea fertilizer availability at affordable price to farmers. The Trading Corporation of Pakistan (TCP), on the directives of GoP carries out the import. The marketing and distribution of imported urea is handled by National Fertilizer Marketing Limited (NFML), the public sector agency engaged in its import. Urea import is regulated but domestic production is deregulated. The price of imported urea is decided by the ECC/ GoP, and is kept lower than the international price. However, for DAP and other fertilizers, the private sector set the import quantity and price.[78]

[74] United Nations COMTRADE Database on international trade, available at : https://tradingeconomics.com/pakistan/imports/fertilizers
[75] Such as EFERT Agritrade-where DAP trading activity is handled, it is a 100 percent subsidiary of EFERT.
[76] In addition to the domestic fertilizer producers, there are some other importers, such as Jaffer Group of Companies, and Chawla Fertilizers, who import and distribute various fertilizer products.
[77] http://www.chawlainternational.com/ChawlaFertilizer.htm
[78] *ibid*

84. During 2021-22, domestic fertilizer production met about 89 percent of the demand. About 1,125 thousand tonnes of various types of fertilizer (684 thousand tonnes in nutrient terms) was imported during 2021-22. This quantity declined by about 20 percent in 2022-23. Table 8 shows the various types of fertilizer import, both in terms of product quantity as well as the nutrient quantity imported during 2021-23.

Table 8: Fertilizer Import by type ('000 tonnes)

Products	2021-22		2022-23		% Change
	Imports	% Share	Imports	% Share	
PRODUCTS					
Urea	100.2	8.9	400	46	299
DAP	893.5	79.4	444	51	-50
SSP	-	-	-	-	-
SOP	41.8	3.7	16	2	-62
NP	-	-	-	-	-
MOP	42.9	3.8	1	-	-99
AS	21.5	1.9	12	1.3	-46
MAP	25	2.2	1	-	-96
Total	*1,125*	*100*	*873*	*100*	*-22.4*
NUTRIENTS					
Nitrogen	213.9	31.3	266	56	24
Phosphate	423.5	61.9	205	43	-52
Potash	46.7	6.8	8	1.7	-82
Total	684.1	100.0	479	100	-29.9

Note: Quantities less than one hundred thousand tonnes are not reported in the table
Source: Fertilizer Review 2022-23, NFDC, MNFS&R

85. Table 8 shows that, of all the fertilizer products imported during 2021-22, DAP constitutes the highest share of 79.4 percent. However, in 2023, the share of DAP declined and that of urea increased considerably.

3.4 Fertilizer Distribution/Dealership System

86. Initially, the provincial agricultural departments used to distribute fertilizer. Later, the fertilizer's marketing and distribution task was given to NFML, created in 1976. NFML was solely responsible for the distribution and marketing of locally produced fertilizer by manufacturing units of NFC as well as the imported fertilizer. As the fertilizer industry is deregulated, therefore private sector carries out fertilizer production and offtake. However, only urea import is carried out by the public sector i.e., TCP and distributed by NFML.

87. The fertilizer manufacturers supply their products to the distributors/dealers with a recommended maximum price. This retail price is inclusive of the dealer's profit margin. The fertilizer dealers procure the products on a cash as well as against a bank guarantee, the dealers' further sale the products through the network of their sales agent.[79]

88. The private fertilizer manufacturers have extensive distribution network of their registered distributors/dealers across the provinces. The fertilizer producers sell their products to their appointed dealers for onwards sales to farmers.[80] Fertilizer plants located in Sindh generally have a distribution network in Sindh and Punjab. Similarly, those located in

[79] 'The role of regulations in the fertilizer sector of Pakistan', Pakistan Strategy Support Program/International Food Policy Research Institute (IFPRI), 2015
[80] Information shared by Agritech Pvt. Limited.

Punjab or KP, have distribution networks in these two provinces. Freight cost is the major factor for the fertilizer producers to operate in specific provinces.

89. There are multiple distributors within a district, known as the sales point for particular fertilizer. The fertilizer manufacturers maintain warehouses across the country to ensure availability to the farmers.[81] The fertilizer producers collaborate closely with their dealers for supply security and accessibility by the farmers. Additionally, a retail price list is also provided by the fertilizer producers and maintained by these dealers at the sale points.

90. The fertilizer companies enter into Dealer Finance Agreements (DFAs) with different banks. Accordingly, the banks provide financial assistance to the approved dealers of the company. The fertilizer company under the DFA is liable to pay 5% to 10% of the principal amount in case of default by a dealer. Furthermore, a registered distributor of one fertilizer producer may also have the distributorship of another fertilizer producer.

91. Before privatization of fertilizer industry[82], all fertilizer units were under National Fertilizer Corporation (NFC) and the marketing/distribution of fertilizer was undertaken by NFML, its sister concern. However, later the role of NFML was restricted to the distribution of imported urea. Urea fertilizer import is carried out by TCP, and the distribution is undertaken by NFML. NFML has 4 regional offices and there are 2200 authorized dealers registered with NFML who supply the imported urea to the farmers.

3.5 Fertilizer Demand and Offtake

92. Fertilizer demand is a derived demand, it is an input used for agricultural production, and thus demanded by farmers. The fertilizer nutrients offtake and the demand by farmers depends on soil quality and type. For less fertile soil, higher fertilizer dose is recommended.[83] The share of fertilizer in the cost of production of major crops is about 10 to 15 percent, depending on its price.[84] The five major crops of Pakistan include wheat, sugarcane, rice, maize and cotton, which account for about 20 percent in the value addition of the agriculture sector and 4.18 percent in the GDP. Other crops[85] contribute 14.49 percent in the value addition of the agriculture sector and 3.32 percent in the GDP.

93. There are two cropping seasons in Pakistan, 'Kharif' and 'Rabi'. Kharif is the first sowing season and starts from April to June and is harvested in October - December. Kharif crops include rice, sugarcane, cotton, maize, moong, mash, jowar and bajra. Rabi is the second sowing season that starts in October - December, and is harvested in April - May. Rabi crops include wheat, lentil (masoor), gram, rapeseed, mustard and barley. Pakistan's agricultural production also depends on time availability of both water and fertilizer.

94. The total fertilizer offtake[86] in terms of all nutrients (N, P, and K) was 4,366 thousand tonnes during 2022-23, compared to 5001 thousand tonnes during 2021-22. Table 9 presents the fertilizer nutrients offtake comparison.

[81] EFERT has over 100 warehouses located across the country.
[82] Fertilizer industry privatization process from 1999- 2007
[83] Primary information, meeting with National Agricultural Research Council (NARC)
[84] *Ibid*.
[85] Include pulses, oil seeds, vegetables, etc.
[86] Fertilizer offtake is the tool used to monitor the demand situation in proportion to its supply/availability

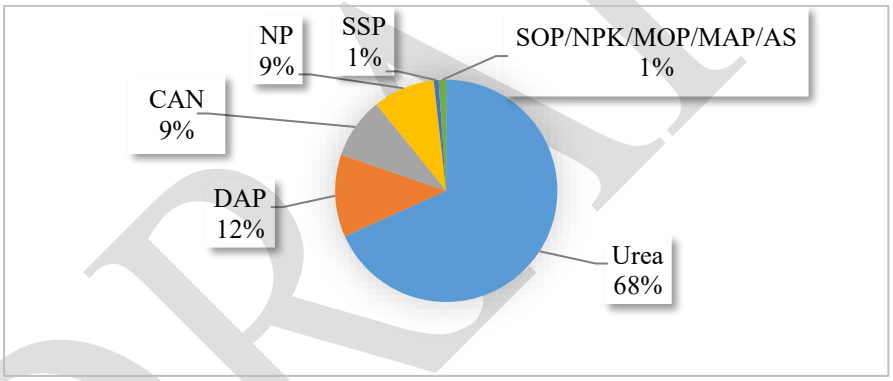
95. Analyzing the data presented in Table 9 shows that the actual offtake of N, P and K is not the same as that of the recommended nutrient use, 2:1:0.5. There is an imbalance in the use of the fertilizer nutrients. Additionally, comparing N and P use, 2:1, the N:P ratio is 3.51 for 2021-22, where it does not follow the recommended usage, but also its value remained higher in 2022-23 as compared to 2021-22, depicting a much higher use of N fertilizer compared to P and other phosphorus based) fertilizer. The Product-wise Fertilizer Offtake can be seen in Annex-I.

Table 9: Fertilizer Nutrient Offtake (000 Tonnes)

Nutrients	2018-19	2019-20	2020-21	2021-22	2022-23
Nitrogen (N)	3,408	3,415	3,711	3,838	3,604
Phosphate (P)	1,153	1,084	1,228	1,093	734
Potash (K)	53.4	50.2	69.3	70.9	28.8
Total	4,614	4,549	5,008	5,001	4,366
Percentage Change	-3.1	-1.4	10.1	-0.1	-12.7
N:P Ratio	2.95	3.15	3.02	3.51	4.91

Source: Fertilizer Review 2022-23, NFDC, MNFS&R

Figure 9: Fertilizer Products' Percentage Share in Fertilizer Offtake (2022-23)



Source: Calculations based on Fertilizer Review 2022-23, NFDC, MNFS&R

96. The product-wise share of Urea, DAP, CAN. SSP, NP, TSP/SOP/NPK's/MOP/MAP are presented in Figure 9 including both domestic and imported. The two main fertilizer products in Pakistan are urea (6%) and DAP (12%), as compared to others.

97. In Pakistan, 56 percent of the fertilizers are consumed in Rabi and 44 percent in Kharif. The recommended level of fertilizer use in the country for N, P and K is 2:1:0.5.[87] In the provincial context, Punjab consumes 68 percent of the total urea fertilizer, followed by Sindh with a share of 24 percent. KP and Baluchistan use 5 percent, and 3 percent, respectively.[88]

[87] Fertilizers Sector of Pakistan, Punjab Board of Investment and Trade (PBIT), 2018, https://pbit.gop.pk/system/files?file=Fertilizer%20Sector%20Report%20_0.pdf

[88] The soil fertility varies due to difference in topography, the use of fertilizer in a ratio of 2:1:0.5 is the average recommended fertilizer use.

Figure 10: Provincial Urea Offtake 2022-23 (%)

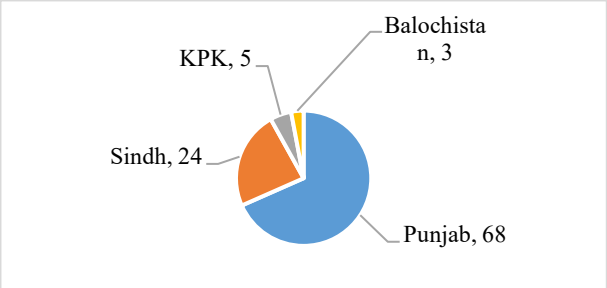
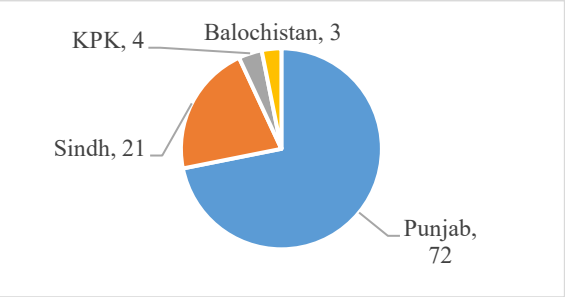


Figure 11: Provincial DAP Offtake 2022-23 (%)



Source: Fertilizer Review 2022-23, NFDC, MNFS&R

98. Figure 10 and Figure 11 shows that the Punjab has the largest offtake of DAP, followed by Sindh. Table 10 shows the crop-wise use of fertilizer from 2018 to 2023. Accordingly, wheat is the largest receiver, followed by cotton, sugarcane, rice and maize.

Table 10: Crop-wise Use of Fertilizer (000 Nutrient tonnes)

Year	Wheat	Rice	Maize	Cotton	Sugarcane	Others	Total
2018-19	2307.2	276.9	69.2	1153.6	369.2	438.4	4614.4
2019-20	2274.3	272.91	68.2	1137.1	363.9	432.1	4549
2020-21	2504.0	300.5	75.1	1252.0	400.7	475.8	5008
2021-22	2500.7	300.1	75.0	1250.4	400.1	475.1	5001
2022-23	2183.15	261.98	65.49	1091.57	349.3	414.8	4366

Source: NFDC, MNFS&R

3.6 Analysis of Market Concentration and Competition

99. The fertilizer industry in Pakistan is oligopolistic. In oligopoly market structure, small number of firms generally produce a homogenous good/service. A key feature of an oligopoly market is that no single firm can keep the others from having a significant influence over the market. In oligopolies firms may indirectly or directly restrict output or prices to achieve higher returns.[89] In Pakistan, there are three main conglomerates Fauji, Fatima Group and Engro Corp. that have more than 90 percent share of the fertilizer market. Due to inelastic demand, these players thus enjoy sufficient control over pricing and production.

100. In Pakistan, there are seven major fertilizer manufacturers/ distributing agencies, having marketing companies operating in all cropping areas of the country. FFC is the largest urea manufacturing and marketing company, with a network of 3573 dealers. EFERT is the oldest marketing company, with a marketing network in Sindh, Balochistan and Punjab. Further, its NPK products are available in KP also. Other major producers include Fatima Fertilizer Company Limited, Agritech, Pak Arab Fertilizer Limited, and Fatimafert/DHCL.

101. Additionally, Suraj Fertilizer Industries has a large fertilizer plant of SSP and markets the product only in Punjab. Among the importers of various fertilizer products other than urea include Jaffer Brothers Limited (JBL), United Agro Chemicals (Pvt.) Limited, Chawla International, Pacific Exim, Premium petroleum, Neelum and Agven. They sell the imported products throughout the country.[90]

[89] https://www.investopedia.com/terms/o/oligopoly.asp
[90] NFDC.

102. Of the total fertilizer produced and imported during 2022-23, the private sector's market share was 93 percent in urea, and the rest was by the public sector. Table 11 shows the market share of all the domestic producers and importers in the total offtake of various fertilizer products. Further, it also gives a detailed account of market share of the domestic producers, and importers in the fertilizer offtake overall, including the share of each participant in the various sub-markets of fertilizer, such as urea, DAP, SSP, NP and others.

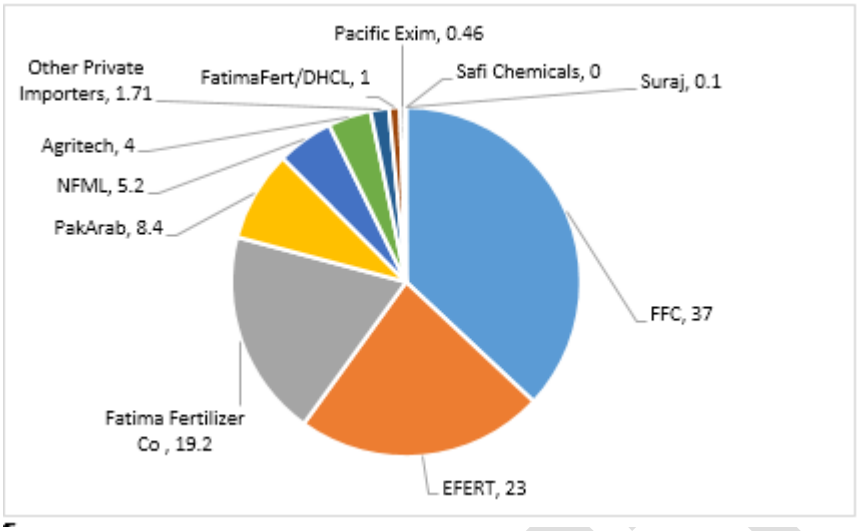
Table 11: Market Share of Domestic Producers & Importers in Fertilizer Distribution

2022-23 (Percentage)

Producers/Importers	Urea	CAN	NP	SSP	DAP	NPKs	TSP	SOP	MOP	MAP	AS	Total
NFML	7	-	-	-	-	-	-	-	-	-	-	**5.2**
Total Public Sector	**7**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**5.2**
FFC	44	-	-	-	61	-	-	30	-	-	-	**37.4**
EFERT	29	-	6	-	21	100	-	17	46	73	5	**23.4**
FatimaFert/DHCL	1	-	-	-	-	-	-	-	-	-	-	**1**
PakArab	1	38	42	-	0.1	-	-	-	-	-	-	**8.4**
Agritech	4	-	-	92	-	-	-	-	-	-	-	**4**
Fatima Fertilizer Co	13		51	-	3	-	-	-	-	-	-	**19.2**
Suraj Fertilizers	-	-	-	8	-	-	-	-	-	-	-	**0.1**
Safi Chemicals	-	-	-	0.2	-	-	-	-	-	-	-	**0.00**
Pacific Exim	-	-	-	-	3	-	-	39	15	-	3	**0.46**
Other Private Importers	-	-	-	-	12	-	100	14	39	27	92	**1.71**
Total Private Sector	**93**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**95**
Grand Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: Fertilizer Review, 2022-23, NFDC, MNFS&R

Figure 12: Market Share of Fertilizer Distributed During 2022-23

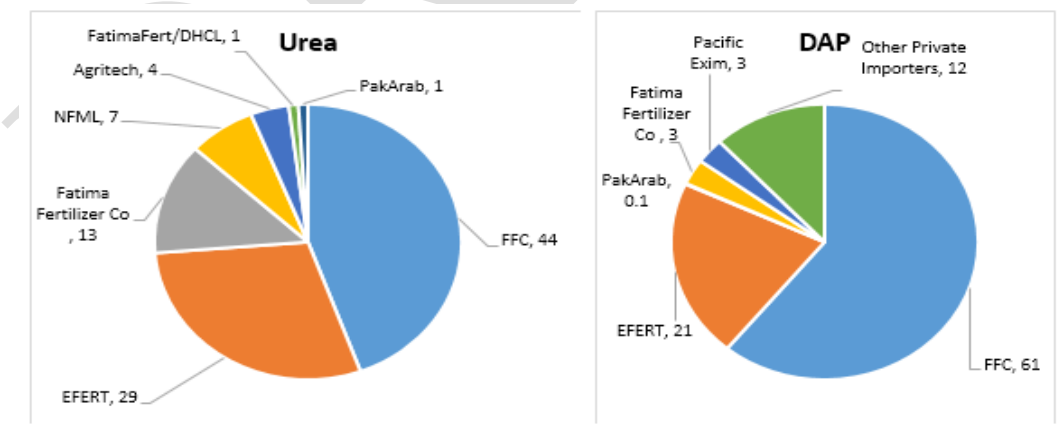


Source: Fertilizer Review 2022-23, NFDC, MNFS&R

103. Figure 12 shows the market share of the domestic producers and importers in the total fertilizer distributed/offtake in the country during 2022-23. It shows that of the total fertilizer distributed in Pakistan including both domestically produced and imported, FFC has the largest market share of 37 percent, followed by EFERT with 23 percent, Pak Arab having a share of 8.4 percent.

104. The market share of various market players in urea offtake is presented in Figure 13. In the urea market, FFC is the market leader with a market share of 44 percent, followed by EFERT with 29 percent share. NFML is the only public sector agency responsible for the import of only urea has a market share of 7 percent.

Figure 13: Market Share of Fertilizer Producers/Importers (2022-23)



Source: Fertilizer Review 2022-23, NFDC, MNFS&R

105. Figure 13 also presents the market share of domestic producers and importers in DAP offtake. In the DAP market, FFC is the market leader with a market share of 61 percent, followed by EFERT with 21 percent during 2022-23.

106. Market concentration is the degree to which the number of firms in an industry make up for the total production/sales of a particular industry. Market concentration is calculated to

determine the competitiveness of an industry. If the market concentration is low, it shows that the top *'n'* firms do not have a high share in the total production/sales and that the market is not dominated by a few firms for total production/sales. On the contrary, if the market concentration is high, it depicts that the top *'n'* firms have a high share in the total production/sales and the market is dominated by a few firms. A greater concentration shows a higher degree of market power and control over production and prices of a few market players. Hence, a lack of competition.

107. To check the degree of market concentration, *Herfindahl Hirschman Index (HHI)* is calculated. HHI is *'the sum of squares of the market share of each competing firm in the market'*. HHI value ranges 0 to 10,000. HHI of less than 1500 is an indicator that the market is less concentrated. A value between 1500 and 2500 is an indicator that the market is moderately concentrated and a value equal to or higher than 2500 indicates a highly concentrated market. The HHI formula is:

$$\boldsymbol{HHI = S_1^2 + S_2^2 + S_3^2 + \ldots + S_n^2}$$

(where S represents firms, and there are 1,2,3…n firms in the industry)

108. To analyze market concentration in the fertilizer industry of Pakistan, 3 HHI's are calculated. The first HHI is calculated from the market share of the total fertilizer distributed during 2022-23 given in Figure 12 above. The second HHI is calculated for the urea market (Figure 13), and a third HHI is calculated for the DAP market (Figure 13), as in Pakistan, urea and DAP are the two main types of fertilizers commonly used in agriculture sector.

$$\text{HHI (Total)} = (37)^2 + (23)^2 + (19.2)^2 + (8.4)^2 + (5.2)^2 + (4)^2 + (1.71)^2 + (1)^2 + (1.46)^2 + (0.1)^2 + (0)^2 = 2386$$

$$\text{HHI (Urea)} = (44)^2 + (29)^2 + (13)^2 + (7)^2 + (4)^2 + (1)^2 + (1)^2 = 3013$$

$$\text{HHI (DAP)} = (61)^2 + (21)^2 + (3)^2 + (3)^2 + (0.1)^2 = 4180$$

109. All the 3 HHI calculated have a value greater than 2500, which indicates that the fertilizer industry in Pakistan is highly concentrated, meaning that the firms have a high degree of market control.

3.7 Analysis of Fertilizer Prices and Implications for Competition

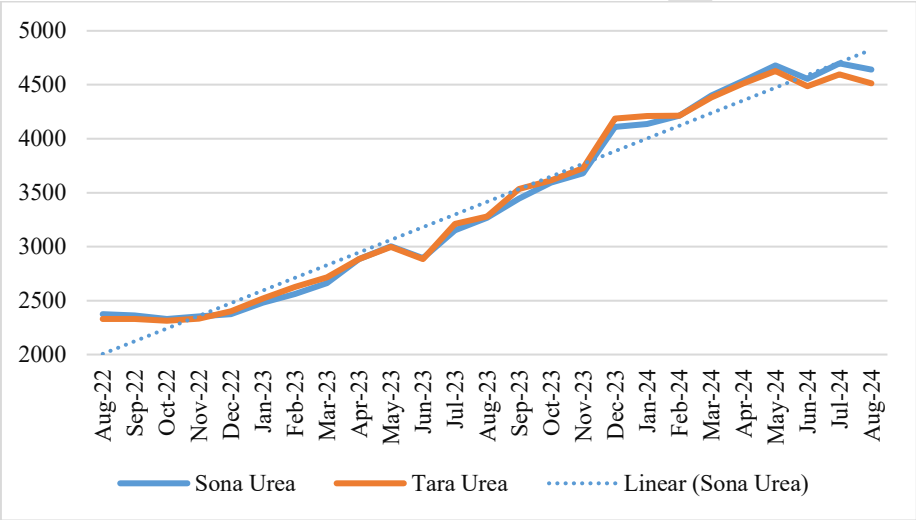
110. The domestic fertilizer prices are deregulated in Pakistan. The prices vary across regions and generally are higher in the north of the country compared to the south. This is due to the higher cost of transporting fertilizers from the fertilizer plants, which are mainly located in the south. Table 12 provides average urea price, price change and a comparison of the domestic and imported prices. It can be observed that the urea prices have remained much lower than the international prices in PKR in 2021 to 2023 period. However, the domestic urea prices show a relatively strong increasing trend during the same period.

Table 12: Pakistan - Domestic and Imported Urea Prices (50 Kg/PKR)

Year	Domestic Urea prices	Imported Urea prices	Change
2019	1,806	2,459	20%
2020	1,708	2,683	-5%
2021	1,806	5,429	6%
2022	2,269	8,005	26%
2023	3,427	6,468	51%

Source: PACRA Fertilizer Report 2024

Figure 14: Pakistan - Trend in the Wholesale Price of Urea (Rs. Per 50 Kg bag)

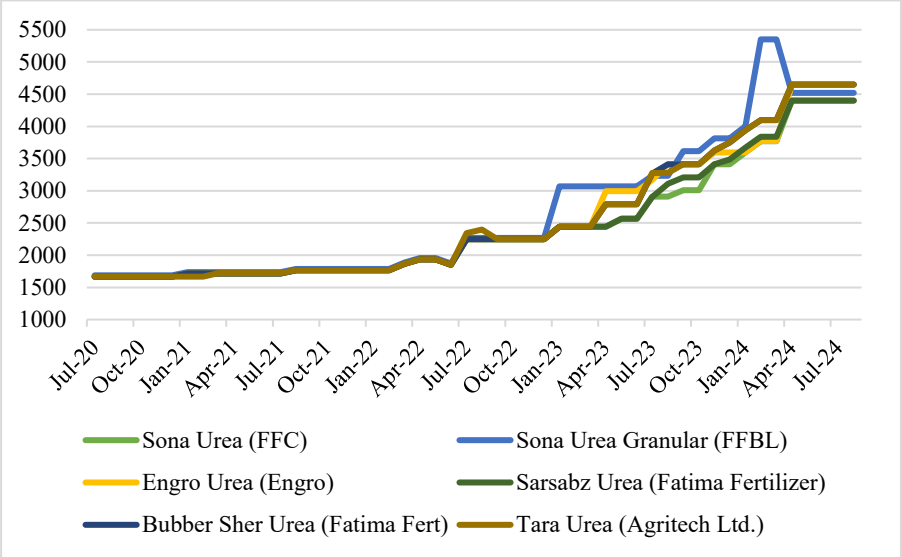


Source: Pakistan Bureau of Statistics (PBS)

111. Figure 14 presents the trend in wholesale price of urea for the period of August 2022 to August 2024. It can be observed that the price of urea is increasing since January 2023. The prices of Sona Urea and Tara Urea have been moving parallel to each other. The price of urea started to increase following December 2022 due to increasing cost of production,[91] mainly due to increase in gas prices.[92] However, a company and brand-wise comparison seems more crucial to see the competition amongst various brands.

[91] https://www.dawn.com/news/1729393
[92] Document shared by NFDC.

Figure 15: Pakistan - Monthly Brand-wise Company Notified Price of Urea (Rs./50Kg Bag)



Source: NFDC, MNFS&R

112. Figure 15 presents the brand-wise monthly price trend of urea from July 2020 to August 2024. The prices of all brands, except FFBL remained identical till March 2023. The price of Urea granular produced by FFBL was expensive by Rs. 20 as compared to other Urea brands during July 2020 to December 2022. The price of urea jumped from Rs. 1850 per bag in Jun 2022 to Rs. 2250 per bag in July 2022, which was attributed to increase in sales tax on fertilizer manufacturers. The revision in feed gas price in February 2023, October 2023 and February 2024 also resulted in increasing the urea price. Though, the gas prices for urea plants increased, the increase in the average prices of urea and other nitrogen-containing fertilizers was disproportionately high compared to the increase in gas prices.[93]

113. It is noted that the price of all brands of urea was identical (excluding FFBL which produced urea in slightly different shape) during July 2020 to March 2023, when the feed gas price was low. However, after March 2023, the companies notified prices of urea did not differ substantially across players - despite a huge difference in the price of feed gas paid by different players. Although, different players are charging different prices but the difference in their prices is not substantial. This gives an indication of 'price parallelism' for urea. Furthermore, review of urea prices during the two cropping seasons Kharif (sowing season April – June) and Rabi (sowing season October – December) also indicates the same pricing behavior/movement indicative of price parallelism.

114. Table 13 gives the average domestic price of DAP from 2019 to 2023, prices change, and a comparison of the domestic and imported DAP prices. DAP is locally produced by FFBL, and to meet the local demand, other fertilizer companies import DAP from international market. It can be observed from the data that the domestic DAP prices have remained slightly above the international DAP prices in PKR during 2019 to 2023 period. It can also be observed from the data that the domestic DAP prices showed an exponential growth during 2021 and 2022.

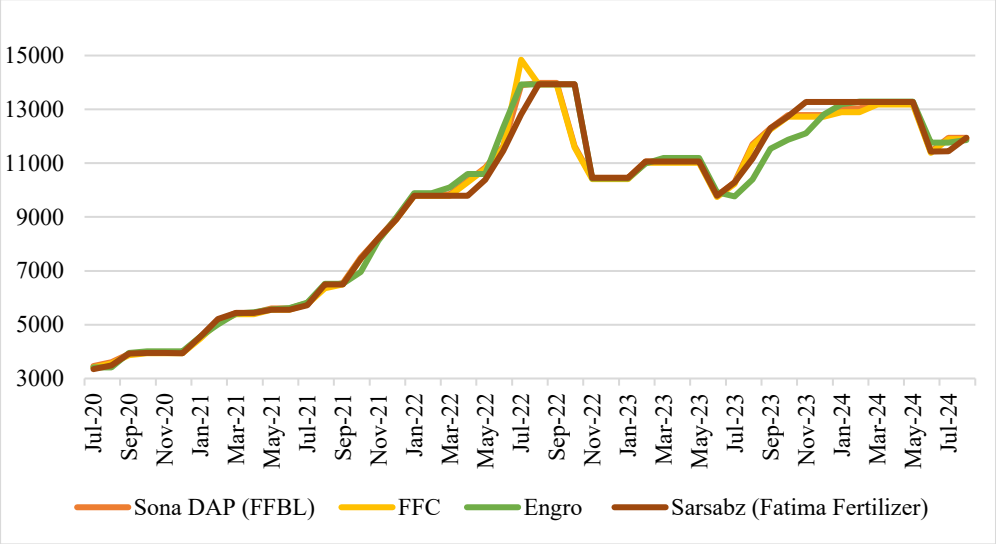
[93] Pakistan Economic Survey 2023-24, pg. v.

Table 13: Pakistan - Domestic and Imported DAP Prices (50 Kg/PKR)

Year	Domestic DAP prices	Imported DAP prices	Change
2019	3,525	3,042	-1%
2020	3,515	3,298	0%
2021	5,959	5,547	70%
2022	10,678	10,672	79%
2023	11,006	10,014	3%

Source: PACRA Fertilizer Report 2024

Figure 16: Brand-wise Company-Notified Price of DAP for Multan (Rs. Per 50 Kg bag)



Source: NFDC, MNFS&R

115. Figure 16 presents the trend in brand-wise company notified price of DAP for Multan for the period of July 2020 to July 2024. During the said period, the price of local DAP manufactured by FFBL has mostly remained higher as compared to imported DAP. Furthermore, unlike urea price, the price of DAP differs across brands. In absolute terms, the difference has increased after March 2022. Although, in percentage terms, the difference fluctuates across brands, which may indicate the role of market forces in determining the DAP price.

116. The increasing trend in the price of DAP during 2021 was attributed to increase in price of DAP in the international market and rupee's devaluation. As a result, the price of DAP reached to Rs. 9,792 in January 2022 from Rs. 4,558 in January 2021. The price of DAP further increased at the start of Kharif 2022 season in April 2022 from average of Rs. 10,256 to average of Rs. 13,867 in July 2022 due to PKR devaluation and rising international and local freight charges. The decline in price of DAP in November 2022 was due to a subsidy of Rs. 2,500 per bag provided by the GoP. The increase in the price of DAP after June 2023 may be attributed to the withdrawal of subsidy.

3.7.1 Subsidies, Duties and Taxes on the Fertilizer Industry

117. The fertilizer industry has been receiving various types of subsidies since long. The following table provides the estimates of various subsidy heads. It is glaring that the subsidy on the feed gas has been consistently rising from 2004 to 2023.

Table 14: Subsidy Estimates for Fertilizer Industry

(Rs. Billion)

Year	Imported Urea	Domestic Urea (Cash Subsidy)	Subsidy on RLNG	Other P & K Fertilizer	Total Budgeted Subsidy	Tax Relief	Cheap Feed Gas
2004-05	3.7	0	0	0	3.7	0	14.4
2005-06	8.0	0	0	0	8.0	0	17.2
2006-07	3.4	0	0	13.7	17.1	0	22.7
2007-08	3.1	0	0	17.4	20.5	0	22.8
2008-09	14.3	0	0	26.5	40.8	0	33.5
2009-10	19.4	0	0	0.5	19.9	0	32.8
2010-11	9.2	0	0	0	9.2	0	43.5
2011-12	50.5	0	0	0	50.5	0	46.0
2012-13	12.7	0	0	0	12.7	0	43.9
2013-14	11.0	0	0	0	11.0	0	48.0
2014-15	4.1	0	0	0	4.1	0	51.4
2015-16*	0.3	0	0	19.9	20.2	0	78.0
2016-17**	0	19.9	0	17.6	37.5	23.8	78.6
2017-18**	0	11.7	0	0	11.7	36.6	75.4
2018-19	2.7	0	9.2	0	11.9	59.4	92.8
2019-20	2.4	0	7.3	0	9.7	55.0	126.1
2020-21	0	0	8.1	0	8.1	75.0	132.4
2021-22	8.7	0	36.0	0	44.7	107.0	104.4
2022-23	39.2	0	32.3	0	71.5	114.0	108.0

Notes: * Budget allocation for phosphate and potash
** Data for 2016-17 and 2017-18 show subsidy claims of phosphate & potash submitted by fertilizer companies and not actual disbursement.

Source: Pakistan Fertilizer Statistics[94], NFDC, MNFS&R

118. To further elaborate, Table 15 presents the subsidy data for fertilizer industry in the Federal Budgets for FY2019-20 to FY2024-25. It can be observed that the industry has been receiving subsidy on domestic fertilizer production as well as on urea imports.

[94] Available at: http://nfdc.gov.pk/publications/Pakistan%20Fertilizer%20Statistics.pdf

Table 15: Subsidy for Fertilizer in the Federal Budget by GoP (Rs. In Million)

Year	Subsidy to Fertilizer Plants (Budget)	Subsidy to Fertilizer Plants (Revised)	Subsidy on Import of Urea Fertilizer (Budget)	Subsidy on Import of Urea Fertilizer (Revised)
FY 2019-20	0	7000	5000	0
FY 2020-21	6000	6000	0	0
FY 2021-22	6000	25000	0	0
FY 2022-23	15000	15000+18000*	6000	6000
FY 2023-24	25000	25000	6000	6000
FY 2024-25	3000		10000	

*Note: * Additional Fertilizer subsidy for flood*
Source: Federal Budget, Ministry of Finance

119. The detail of the applicable taxes and duties on the fertilizer industry during FY23 and FY24 is given in the table below. It can be observed that while there is no customs duty on urea, DAP and potash fertilizer, the industry pays additional customs duty of 2 percent and a sales tax of 18 percent. Furthermore, the industry is subject to 12 percent income tax.

Table 16: Duty Structure of the Fertilizer Industry

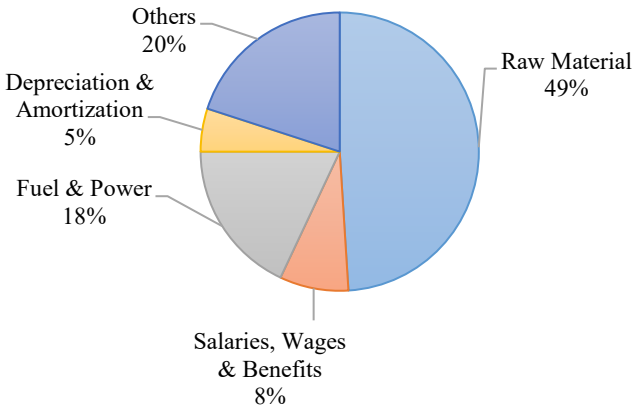
Fertilizer	Custom Duty (%)		Additional Custom Duty (%)		Sales Tax (%)		Income Tax (%)	
	FY23	**FY24**	**FY23**	**FY24**	**FY23**	**FY24**	**FY23**	**FY24**
Urea	0	0	2	2	18	18	11	12
DAP	0	0	2	2	18	18	11	12
Potash	0	0	2	2	18	18	11	12

Source: Fertilizer Sector Study, 2024 PACRA

3.8 Cost Structure of the Fertilizer Industry

120. The cost structure of Pakistan's fertilizer industry is influenced by a mix of local and global factors, including raw material prices, energy and labor costs, and the regulatory requirements. Figure 17 provides the cost breakup. It can be observed that the raw materials (natural gas for urea production) account for 49 percent of the total cost, salaries and wages account for 8 percent, and fuel and power make up 18 percent of the total cost.

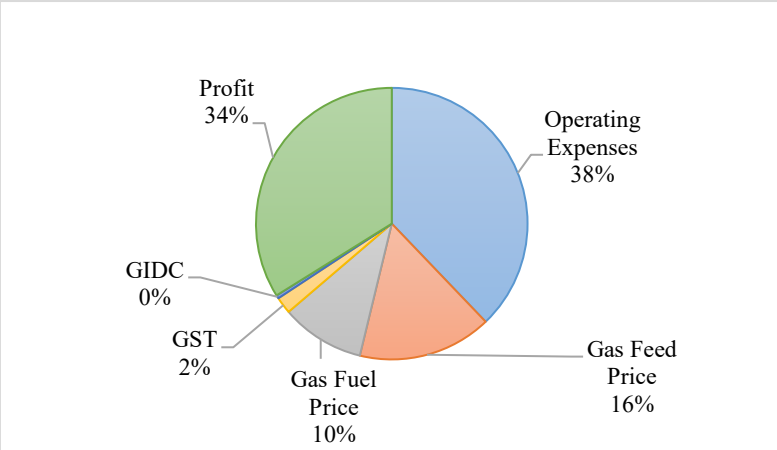
Figure 17: Cost Breakup of Fertilizer Industry



Source: Fertilizer Sector Study, 2023 PACRA Report

121. The price breakup of a 50 Kg fertilizer (Urea) bag reveals critical insights as under:

Figure 18: Price Breakup per 50 Kg Urea Bag



Source: Fertilizer Sector Study, 2023 PACRA Report

122. Operating expenses include production and administrative costs, sales and marketing costs, insurance, and transportation costs. These cost components play a crucial role in determining the overall cost structure and the pricing of fertilizers. The operating expenses constitute 38 percent in the price of urea fertilizer, feed and fuel gas account for 26 percent, GST 2 percent, while the profit accounts for 34 percent in the 50 kg fertilizer bag price.

123. The data on the price parallelism, subsidies and cost break-up provide information about a lack of competitive pressure for the industry to compete on the basis of prices. Thus, the industry is sustaining in a comfort zone, which is supported by the regulatory framework and favorable policies.

3.9 Financial Performance from a Competition Perspective

3.9.1 Return on Equity (ROE) Analysis of the Fertilizer Sector

124. Table 17 provides a comparative overview of the return on equity ratio of the major fertilizer companies for the years 2020 to 2023. The ROE ratio serves as a key indicator of a company's ability of how efficiently a company is using the shareholders invested capital to generate revenue.

Table 17: Return on Equity (ROE) (%)

Company	2023	2022	2021	2020
FFC	47.97	39.44	46.08	48.94
Engro Fertilizers	56.35	34.74	44.97	40.29
FFBL	16.25	10.25	31.28	15.71
Fatima Fertilizer	19.27	13.69	18.43	15.24
Agritech	8.31	(24.64)	(71.39)	(66.72)
Source: Annual reports of the respective fertilizer companies.				

125. FFC consistently showed a robust ROE, which remained around 40% during the last four years, indicating strong profitability relative to the shareholders' equity. The analysis also

shows that Engro Fertilizers has shown a significant improvement in ROE from 2020 to 2023, reaching 56.35% in 2023, suggesting effective use of equity to generate high profits.

126. While FFBL experienced fluctuating ROE, with a notable drop in 2022 followed by a recovery in 2023. Fatima Fertilizer demonstrated moderate and stable ROE over the period, indicating consistent profitability. Moreover, Agritech Fertilizers Ltd. shows a volatile trend with negative ROE in 2020 and 2021, improving to 8.31% in 2023 but still indicating challenges in profitability and efficiency in recent years.

3.9.2 Gross Profit Ratio Analysis

127. Table 18 provides a comparative overview of the gross profit ratio of the major fertilizer companies for the years 2020 to 2023. The gross profit ratio serves as a key indicator of a company's ability to generate profits from its core operations relative to its revenue.

Table 18: Gross Profit Ratio of Fertilizer Companies (2020-2023)

Company	2023	2022	2021	2020
FFC	40.29	36.62	35.78	32.34
EFert	32.30	27.30	33.30	32.40
FFBL	17.15	16.07	20.06	15.11
Fatima Fertilizer	31.51	32.98	38.30	40.40
Agritech	19.84	12.27	4.05	-20.58

Source: Companies Financial Statements

128. FFC demonstrated consistent growth in its gross profit ratio from 32.34% in 2020 to 40.29% in 2023, showcasing a strong upward trend in profitability over the period. On the other hand, Engro Fertilizers maintained a relatively stable ratio, fluctuating between 27.3% and 33.3% over the period under review. FFBL experienced notable fluctuations in its ratio, with a peak of 20.06% in 2021, followed by a slight decline in the subsequent years. Fatima Fertilizer demonstrated a declining trend in its gross profit ratio, starting at 40.4% in 2020 and decreasing to 31.51% in 2023. Agritech Fertilizers showed significant variability from -20.58% in 2020 to 19.84% in 2022, indicating a turnaround in profitability. It is important to note that negative values in the gross profit ratio, as observed in Agritech Fertilizers in 2020, indicate a loss incurred from the core operations relative to revenue.

3.9.3 Profit after Tax Analysis

129. Profit after Tax (PAT) of a company is the amount that remains after it has paid off all of its operating and non-operating expenses, taxes, and other liabilities.

130. Table 19 shows that the FFC has the highest PAT in 2023, followed by Engro. FFC made a PAT of PKR. 29,673 million in 2023. Similarly, Engro made a PAT of PKR. 26,191 million. The PAT of FFC and Engro increased by 48% and 64%, respectively in 2023 as compared to 2022. The data of Fatima Fertilizer shows that its PAT accounted for PKR. 23,008 million, which was PKR. 14,714 million during 2022, showing a rise of about 56%. Similarly, the PAT of FFBL has also witnessed an increase of 89% in 2023 as compared to 2022. This indicates that the PAT of major fertilizer players has shown a large increase during 2023.

Table 19: Profit after Tax of Fertilizer Companies (PKR. In Million)

Company	2020	2021	2022	2023	% Change 2023 over 2022
FFC	20,819	21,896	20,050	29,673	48%
EFERT	18,133	21,093	16,003	26,191	64%
Fatima Fertilizer	13,275	18,474	14,714	23,008	56%
FFBL	2,193	6,391	2,328	4,403	89%
Agritech	-4,297	-2,681	-2,953	1,086	137%

Source: Financial Statements of the Companies & PACRA report on Pak Arab[95]

131. From a competition perspective, the overall conclusion from the above pricing, cost and profitability indicators is that the industry is earning consistent and high profits. This in turn is indicative of a lack of competition, and low threat from competitors to capture the market.

[95] https://www.pacra.com/summary_report/RR_1387_9228_05-Aug-21.pdf

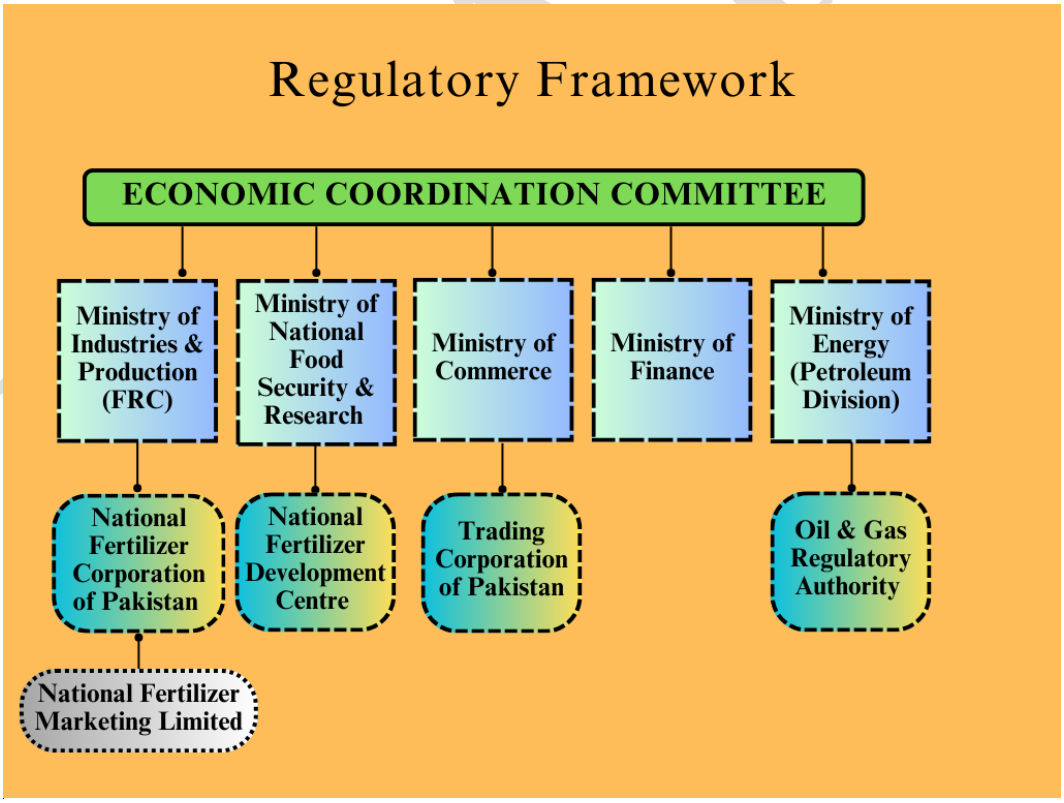
Chapter 4 - Regulatory Framework of the Fertilizer Industry

132. Looking into the historical perspective, the fertilizers were initially introduced in Pakistan during the 1950s, mainly through imports. Nitrogenous, Phosphorus and Potassium fertilizers were introduced in 1952, 1959 and 1967, respectively.[96] During the late 1950s and early 1960s, the government initiated an import substitution industrialization policy, and established a domestic fertilizer industry. Fertilizer plants were commissioned in joint ventures with foreign companies. Pak-American Fertilizers Ltd. was established in 1958 (now Agritech), Pakarab was established in 1973. Later, domestic fertilizer plants were also commissioned, like the Fauji Fertilizer Company (FFC) was established in 1978.

133. Promulgated in 1971, and amended in 1973, *the Provincial Essential Commodity Act (PECA),* placed the production and marketing of fertilizer under the direct regulatory purview of the Federal Government.[97] The fertilizer industry in Pakistan was nationalized in 1973. Consequently, the National Fertilizer Company (NFC) took over the production of all fertilizer plants in the country. Later, during 1990s, and early 2000s, the fertilizer plants were gradually privatized under the government's privatization plan.

134. Figure 19 presents the flow chart of the regulatory framework of fertilizer industry.

Figure 19: Flow Chart - Regulatory Framework of the Fertilizer Industry in Pakistan



Source: Market sources

[96] Pakistan's Fertilizer industry, structure, policies, performance and impacts, IFPRI Discussion Paper, 2016
[97] Role of regulations in the fertilizer industry of Pakistan, IFPRI

4.1 Economic Coordination Committee (ECC) of the Cabinet

135. Economic Coordination Committee (ECC) of the Cabinet is the apex decision making body on economic matters, and coordinate economic policies initiated by various divisions of the government.[98] Fertilizer industry, a key sector of the economy comes under the purview of ECC from policy approval to fertilizer production, taxation and subsidies, natural gas supply to fertilizer plants, pricing of feed and fuel gas, marketing, distribution, and the decision to export and import fertilizers.

136. At the federal level, *Ministry of Industries and Production (MOI&P), Ministry of National Food Security and Research (MNFS&R), Ministry of Finance, Ministry of Energy (Petroleum Division), MOE(PD), and Ministry of Commerce* are involved from pre-production, to import and export stage.

4.2 Ministry of Industries & Production (MoI&P)

137. MoI&P plays a critical role in policy formulation and regulation of the industrial sector including the fertilizer industry.[99] The ministry is responsible for formulating policies related to fertilizer production, including regulations governing production processes, quality standards, and environmental compliance. It oversees the issuance of licenses and approvals for setting up new fertilizer manufacturing units and expansion of existing facilities.

138. The Fertilizer Review Committee (FRC) of MoI&P coordinates with the Ministry of National Food Security & Research to assess the fertilizer demand and supply, availability of raw materials, and any issues in the fertilizer supply chain management. The proposals and recommendations of the FRC are then sent to the ECC of the Federal Cabinet for consideration.

139. *The Fertilizer Policy, 2001* is the cornerstone of the fertilizer industry and is applicable on the entire value chain of the fertilizer industry, that is:

- Pre-production stage
- Production process stage
- Marketing and distribution stage, and
- Import and export stage

4.3 Fertilizer Policy 2001

140. Fertilizer policy making comes under the purview of the Ministry of Industries and Production (MOI&P). Prior to the Fertilizer Policy, 2001, the fertilizer industry was governed under the Fertilizer Policy, 1989.[100] The Fertilizer Policy, 2001 was announced to further enhance investment in the fertilizer production, keeping in view the importance of fertilizers in increasing the country's agricultural performance. The policy's focus is:

- To encourage new and existing investors in the fertilizer industry.

[98] PlanningCommission.gov.pk
[99] https://mnfsr.gov.pk/
[100] The fertilizer Policy 1989 aimed to address a shortage of fertilizer and encourage local manufacturing, while the fertilizer Policy 2001 seeks to update and enhance the previous policy's efficacy to meet the evolving needs of the agricultural sector.

- Availability of natural gas at a competitive price to the existing/ new fertilizer plants.
- Concessions for the import and local manufacture of plant.
- Equal treatment of all fertilizer producers.

141. *Section 1.1 (a) (b) and (c)* of the policy are reproduced below:

(a) To enable local fertilizer price to stay below imported fertilizer prices, the escalation of existing feed gas prices will be as follows:

Date	*Annual Increase (%)*
1.07.01	*Nil*
1.07.02	*5.0*
1.07.03	*7.5*
1.07.04	*10.0*
1.07.05	*12.5*
1.07.06	*15.0*

(b) Thereafter, the price is to be $1.10/MMBTU or prevailing Middle East price determined in accordance with 2.1.2 whichever is higher, only for those existing investors who bring in new plant (minimum) capacity 0.5 MT/year) under clause 2.

(c) Fuel gas price will be the same as for other industrial consumers in the country. Fuel gas will continue to be defined as gas which is used for generation of electricity and steam and for usage in housing colonies.

142. Under the Fertilizer Policy, 1989, fertilizer plants that undertook expansion of plants, were allowed concessional feed gas. There was a change, under the Fertilizer Policy, 2001, when concessional feed gas was allowed to such plants up to their 10th year. Afterwards, the feed gas price is the same as under Section 1.1 (a) and (b) presented above.

143. The Fertilizer Policy, 2001 under *Section 2.1 Natural Gas*, intends to provide investors in new fertilizer plants a gas price at which they could compete in the domestic market with fertilizer imports from the Middle East. Moreover, under Section 2.1.2, the feed gas price for the plants is the Middle Eastern Price on the date of signing of the Gas Sale Agreement (GSA) or $ 0.77/MMBTU, whichever is higher, with a discount of 10% mentioned in Section 2.1.3. The price is to remain fixed till the expiry of the GSA i.e. 10 years from the date of commissioning. Further, the policy directs Oil and Gas Regulatory Authority (OGRA) for the price determination from the published international data.

144. Under *Section 2.1.3, a discount of 10% on the feed gas price will be allowed to facilitate new investment*. This discount price or the price determined under Section 2.1.2, will remain fixed for a period of 10 years. The price will be inclusive of all taxes, duties, levies, and charges whether local, federal, or provincial. It is noted that under *Section 2.2.7*, the shallow natural gas reserves of Mari Gas Production are dedicated to fertilizer industry, and the new deep reserves are dedicated to power sector for power generation.

145. All fertilizer producers, local, foreign, public or private, are to be treated equally in commercial, fiscal, contractual and corporate matters under Section 2.6 of the Fertilizer policy, 2001. To encourage the Phosphate fertilizer's use and production, rock phosphate and phosphoric acid are free of import duty and sales tax. Also, all raw material required

for the production of NPK, DAP, MAP MOP, TSP, SOP and other micronutrients are to be imported free of duty and taxes, as per Section 3.1.1 and 4.1.1.

146. As per the Fertilizer Policy, 2001, the fertilizer prices are to remain deregulated and the market forces to determine the price. The fertilizer manufacturers shall pass the benefits of subsidized natural gas, exemption of taxes and duties in the form of lower prices to the farmers. To ensure this objective, a committee is to be setup to meet on a quarterly basis and take necessary steps to ensure these benefits are passed on. This committee will be headed by the Minister for Industries & Production and will include Minister for Food, Agriculture, Livestock and a senior representative from Ministry of Finance (Section 5.1).

147. Under the Fertilizer Policy, 2001, in the commissioning of a fertilizer plant at the federal level, five ministries are mainly involved i.e., M/O Industries & Production, M/O Commerce, M/O National Food Security, M/O Petroleum, and the Ministry of Finance. An application is submitted to the M/O Industries for the initiation of a manufacturing plant. Afterwards, M/O National Food security decides the need and starts the feasibility study of the plant, M/O Petroleum assesses the gas reserves for the new plant, M/O Commerce assess fertilizer trade (import and export), and finally M/O Finance evaluates the financial viability and subsidy requirement for the new plant.

4.4 National Fertilizer Development Centre (NFDC)

148. NFDC is a multidisciplinary research and development organization, under the Ministry of National Food Security and Research (MNFSR), mandated to study all issues of the fertilizer industry from the factory gate to the farmers' field. NFDC provides policy advice to the government regarding fertilizer use and development. The main functions of NFDC include maintaining fertilizer database, including international prices, fertilizer situation reviews (monthly, seasonal, and annual), special technical notes, fertilizer use surveys, crop response to fertilizer, impact of excessive use of fertilizer on the environment, symposium, workshops on balanced fertilizer use, fertilizer marketing, and comparative financial analysis regarding import/local production for policy decisions. NFDC's fertilizer database contains information of fertilizer use up to the district level from 1980 onwards. It regularly monitors fertilizer demand situation and prices in the domestic and international market.

149. The Centre compiles 'Annual Fertilizer Review' document. It is a comprehensive document on the fertilizer industry encompassing domestic fertilizer production, imports, offtake, supply, demand, availability, distribution at National, provincial, and district level, domestic and international prices trend, economics of fertilizer use and fertilizer demand estimates for next 5 years. It also publishes 'Pakistan Fertilizer Statistics', which includes historical information on fertilizer production, imports, exports, offtake, prices, stocks etc. NFDC is a member of the Fertilizer Review Committee of the Ministry of Industries and Production, where fertilizer supply/demand, import, and price situation is discussed and corrective measures are suggested. NFDC is also a member of the Pakistan Standards and Quality Control Authority (PSQCA)'s committee on fertilizer and allied production responsible for formulation/development of standard specifications of different fertilizer products followed at the international level.

150. At the provincial level, NFDC maintains liaison with the Provincial governments, agricultural universities/research institutes, soil testing and soil fertility laboratories and extension and training organizations, pesticides associations, importers, distributors, etc. NFDC also works in close liaison with the private sector fertilizer producers and marketing agencies.

4.5 National Fertilizer Corporation of Pakistan (Pvt.) Limited (NFC)

151. NFC was incorporated as a private limited company on 11th August 1973 under the Companies Act, 1913. At that time, three small fertilizer plants, Pak-American Fertilizers Limited, Lyallpur Chemicals & Fertilizers Limited, and Natural Gas Fertilizer Company were transferred to NFC. From 1980 to 1998, NFC increased its fertilizer production capacity and added new plants to its inventory. These included:

- PakArab Fertilizers (Pvt.) limited, Multan
- PakSaudi Fertilizers Limited, Mirpur Mathelo
- PakChina Fertilizers Limited, Haripur
- Hazara Phosphate Fertilizers Limited, Haripur
- PakAmerican Fertilizers Limited, Daudkhel

152. NFC is an autonomous corporation operating under the umbrella of Ministry of Industries & Production (MOI&P). Prior to privatization of the fertilizer industry[101], the fertilizer plants were under the control of NFC. The main role of NFC is the creation of new fertilizer production capacity in the country, availability of fertilizer throughout the country at uniform prices, and to maintain adequate stocks of fertilizer in consumption areas to overcome any shortage.

4.6 National Fertilizer Marketing Limited (NFML)[102]

153. NFML was established in 1976, as a Public Limited Company (unlisted), as a subsidiary of National Fertilizer Corporation (NFC) under the administrative control of MOI&P. The Company was solely responsible for marketing of entire fertilizer production of 2 million Metric Tons produced by NFC plants. However, since 2008, after privatization of all NFC production plants, Government tasked NFML exclusively to sell imported Urea across the country at uniform price to ensure availability of urea to farmers at the right time. The decision about the quantity of urea import is made by the Economic Coordination Committee (ECC).

154. NFML has a network of 2300 dealers across the country to supply urea throughout the country at controlled prices. Imported urea is filled in bags at the port and transported to 6 bulk stores of NFML at different locations in Sindh and Punjab, through the interconnected

[101] The privatization process was initiated under the privatization policy of GOP and initiated in 1992, with the privatization of PakChina Fertilizers, established in 1982. It continued till 2008 when the last fertilizer plant under NFC, Hazara Phosphate established in 1988 was privatized.
[102] The Federal Government planned to merge National Fertilizer Marketing Limited (NFML) with Trading Corporation of Pakistan (TCP), however till the completion of this report the status is unclear.

railway lines.[103] NFML has 4 regional offices, from where the dealers get the fertilizer for supply to farmers.

4.7 Trading Corporation of Pakistan (TCP)

155. GoP established Trading Corporation of Pakistan (Pvt.) Limited (TCP) in 1967, under the Companies Act, 1913 (now the Companies Ordinance, 1984). It operates under the administrative control of Ministry of Commerce. TCP acts as a public sector trade house for exporting agricultural and consumer goods and import of essential commodities under the specific directives of the Government.[104] In 1995, the Federal Cabinet assigned the TCP to import essential commodities in emergent times to stabilize the domestic prices, to achieve economies of scale through the import of bulk industrial raw material, and to promote trade with other countries.

156. The TCP is also engaged in the export of selected commodities produced by public sector companies and agencies, and to develop export potential of various commodities on a public private partnership basis. TCP imports urea to meet the domestic urea shortages. The procurement activity starts well ahead of the sowing season.[105] The most of the urea is imported from China, Saudi Arabia and the Gulf countries.

4.8 Pakistan Standards & Quality Control Authority

157. Pakistan Standards and Quality Control Authority (PSQCA), under the Ministry of Science and Technology approves and authorizes fertilizer specific licensing and quality control approvals at pre-production, production process, marketing, distribution, import and export stage. PSQCA has developed standards for different types of fertilizers in Pakistan.[106] These include standards for urea, DAP, CAN, SSP, AS, etc. The controller appointed under the Fertilizer Control Order, 1973 is responsible to ensure the quality of fertilizers in the market through survey and sample testing from the designated laboratories.[107] The price and supply control, on the other hand, is the duty of controller of prices at the district level, who is appointed under the Essential Commodities Act of the respective province.[108]

4.9 OGRA - Feed & Fuel Gas Price Determination and Notification

158. Under the powers conferred by sub-section (3) of Section 8, of the OGRA Ordinance, 2002 (XVII of 2001), OGRA determines and notifies the feed and fuel gas price and the minimum charges applicable to the fertilizer producers on the network of Sui Southern Gas Company Limited (SSGCL), Sui Northern Gas Pipelines Limited (SNGPL), and Mari Petroleum Company Limited (MPCL). The fertilizer plants, as per their Gas Sale

[103] Primary information collected through a meeting with the NFML.
[104] https://tcp.gov.pk/page-page-aboutus
[105] Ibid.
[106] https://www.psqca.com.pk/division-wise-standards/chemical/
[107] https://punjablaws.punjab.gov.pk/uploads/articles/THE_PUNJAB_FERTILIZERS_%28CONTROL%29_ORDER%2C_1973.doc.pdf
[108] http://punjablaws.gov.pk/laws/2889.html, http://www.pas.gov.pk/uploads/acts/Sindh%20Act%20No.IX%20of%202006.pdf, https://kpcode.kp.gov.pk/uploads/THE_WEST_PAKISTAN_FOODSTUFFS_CONTROL_ACT_1958.pdf, https://balochistancode.gob.pk/lawdir/d729ed32-00bc-4273-9d4d-2a1552b097c0.pdf

Agreement (GSA) with SNGPL, SSGC and MPCL are supplied with feed and fuel gas. Under the GSA, typically for 10 years, the quantity of gas supplied is fixed.

4.10 Gas Sale Agreement (GSA) between Fertilizer Plants and Gas Companies

159. In the production of N, natural gas is used as feed and fuel gas. Table 20 shows the list of selected fertilizer producers having GSAs with SSGC, SNGPL and MPCL.

Table 20: GSA between Fertilizer Manufacturers and the Gas Companies

No.	Fertilizer Producer	GSA
1	Agritech	SNGPL
2	Fatimafert (DHCL)	SNGPL
3	Pak-Arab Fertilizer Limited	SNGPL
4	Hazara Phosphate Fertilizer Plant Limited (Agritech)	SNGPL
5	Engro Fertilizer Company Limited (EFERT)	SNGPL
6	Pak China Fertilizer Limited	SNGPL
7	Fauji Fertilizer Bin Qasim Limited (FFBL)	SSGC
8	Engro Fertilizer Company Limited (EFERT)	MPCL
9	FFC (I,II,III)	MPCL
10	Fatima Fertilizer Company Limited[109]	MPCL

Source: OGRA

160. Mari Fields meet 70 percent of the gas demand of the fertilizer industry, and the remaining is met by pipeline gas of the SSGC, SNGPL. Also, imported RLNG[110] is also available to the fertilizer plants having GSA with SNGPL. During FY2022-23, the consumption of natural gas was 3,258 MMCFD in Pakistan (including 631 MMCFD of RLNG)[111] out of which 687 MMCFD was used in fertilizer industry, representing a share of 21 percent in the total natural gas consumption in the country. Of the total gas consumed in the fertilizer industry 82.7 percent was used as feed stock and 17.3 percent was used as fuel.

4.11 Provincial Laws & Regulations applicable to the Fertilizer Industry

161. The fertilizer production plants are situated across Punjab, Sindh, and Khyber Pakhtunkhwa (KP), while fertilizer marketing and distribution activities span all four provinces. Consequently, at the provincial level, the regulation of the fertilizer industry - from pre-production to marketing and distribution stages - is overseen by the respective provincial agriculture departments, operating under various provincial government orders and rules.

162. The relevant provincial laws[112] and rules applicable on the fertilizer industry are listed below:

- *Punjab Fertilizer (Control) Order, 1973*[113]

[109] Mari Petroleum is also supplying gas to PakArab Fertilizers Ltd.
[110] NFDC Fertilizer Review, 2022-23
[111] Pakistan Economic Survey, 2023-24
[112] Azad Jammu and Kashmir (AJK) and Gilgit-Baltistan (GB) regions do not have specific laws applicable on the fertilizer industry.
[113] Punjab Fertilizer Bill, 2018 was proposed with certain improvements. However, it did not materialize after a change in the government.

- *The Punjab Agriculture, Food and Drug Authority Act, 2016*
- *Food stuff and Fertilizers (cancellation of authorization and dealership) Ordinance, 1978*
- *Sindh Fertilizer (Control) Act, 1994*
- *Sindh Fertilizer (Control) Rules, 1999*
- *Khyber Pakhtunkhwa (KP) Fertilizer Control Act, 1999*
- *Balochistan Fertilizer Control Act, 2022*

163. Provincial environment protection agencies are empowered to regulate the environmental issues in respective provinces, and to approve the Environmental Impact Assessment (EIA), and the Initial Environmental Examination (IEE) before the commencement of a fertilizer plant. Accordingly, the *Environment Protection Department, Punjab, Sindh Environmental Protection Agency (SEPA), and Environmental Protection Agency, KP,* are the concerned regulatory bodies in the respective provinces, where the fertilizer production plants are located.

164. At the district level, the fertilizer sale, its price, and distribution to the farmers is monitored by the District Coordination Officer (DCO)/ Deputy Commissioner.[114] The DCO regularly holds meetings with all fertilizer dealers in the district. The DCO monitors the fertilizer supply and takes prompt action in case there is a fertilizer shortage in the district. In case, dealers are involved in creating fertilizer (urea) shortage and price hike in a district, DCO's are empowered to take action against them.

[114] Under the "Price Control and Prevention of Profiteering and Hoarding Act, 1977", chemical fertilizer is included in the list of essential commodities, and its price monitoring is done by the district government.

Chapter 5 - Market Contestability in the Fertilizer Industry of Pakistan

Barriers to Competition

164. To assess the level of competition and contestability in the fertilizer industry at each level of the value chain, this Chapter identifies and evaluates the entry barriers and competition in the industry. These barriers are factors that distort and impede competition at upstream production level, at midstream distribution level, and at the downstream retail level, i.e. fertilizer availability to farmers. These barriers restrict new competitors from entering the market and at the same time protect the interest of the incumbent players by maintaining or increasing their market share, profitability, and revenues. These are (a) structural/natural barriers, (b) regulatory barriers, and (c) barriers resulting from anti-competitive conduct of market players because of their dominance and market power, and vertical/horizontal agreements between players. These barriers are discussed in detail below.

5.1 Structural/ Natural Barriers

165. These barriers arise due to the structure of the industry. High structural/natural barriers restrict competition in the industry. In the fertilizer industry these barriers arise due to the industry characteristics, such as startup/financial costs, availability of raw material, technology, economies of scale and brand and customer loyalty, as discussed below.

5.1.1 High Capital, Financial, and Skilled Labour Force Requirement for Upstream Initiation of Fertilizer Plant

166. The fertilizer industry, at upstream production level, requires high capital investment in building a plant and purchasing equipment and machinery. This also requires the services of trained human resources having technical expertise, for plant operations. Furthermore, the firms also invest in expensive energy efficient technology. These requirements relating to capital, financial, and labour thus create a barrier for new firms to enter the industry.

5.1.2 Supply of Natural Gas

167. Nitrogenous fertilizers such as Urea, NPK, and CAN require natural gas, as feed gas for their production. Ammonia, the key raw material required for nitrogenous fertilizers is produced by mixing nitrogen (taken from air) and hydrogen (taken from natural gas). Ammonia is used to produce nitric acid, later mixed to produce ammonium nitrate (AN). Ammonia is mixed with liquid carbon dioxide to produce urea.[115] In Pakistan, all domestic fertilizer manufacturers produce urea requiring natural gas as feed gas. Urea consumption/ offtake is 63.4% of Pakistan's fertilizer offtake.[116] The demand for natural gas is, therefore, inelastic and urea/nitrogenous fertilizer production is dependent on its availability. The supply of natural gas to the fertilizer industry is decided by the Federal Government and the fertilizer producers enter into a GSA with the gas supply companies. The supply and

[115] https://www.fertilizerseurope.com/fertilizers-in-europe/how-fertilizers-are-made/#:~:text=For%20nitrogen%2Dbased%20fertilizers%2C%20the,to%20power%20the%20synthesis%20process.
[116] Fertilizer Review, 2021-22

availability of natural gas thus creates a structural barrier to entry at upstream fertilizer production.

5.1.3 Location of Fertilizer Plants

168. The location of a fertilizer plant is dependent on specific factors. These include access to the natural gas pipeline network, power, and transportation. While natural gas is the main raw material, port facilities is another factor that affects fertilizer plant location, for ease of importing raw material such as rock phosphate and potash[117], and for the export of fertilizers as well. Globally, potash and phosphate reserves are available scarcely and concentrated in a few countries.[118] While the FFBL plant is located at Port Qasim, Karachi, other fertilizer manufacturers have their warehouses at or near the port. On the other hand, all fertilizer plants manufacturing nitrogenous fertilizers in Pakistan are located near the natural gas supply/pipeline network. Access to key raw materials, and access to transportation thus creates a natural/structural barrier in the upstream fertilizer industry.

5.1.4 Seasonal Demand

169. In Pakistan, Kharif and Rabi are the two main sowing seasons. Kharif sowing season begins in April and harvested during October-December. Likewise, Rabi crops sowing begins in October and harvested in April-May. The demand for fertilizer, more specifically urea i.e. urea offtake increases at the beginning of the two sowing seasons. Urea is preferred over other fertilizers because of its properties and lower prices compared to other fertilizers.[119] The demand for fertilizer is inelastic at the beginning of the two sowing seasons, and any shortage of fertilizer in the market at the beginning of sowing seasons can put an upward pressure on the prices. This seasonality factor therefore creates a structural barrier in the fertilizer industry, and provides an opportunity for anti-competitive conduct.

5.2 Regulatory Barriers

5.2.1 Discriminatory Feed Gas Pricing to Fertilizer Producers under the Gas Supply Agreements (GSAs)

170. Pakistan's fertilizer industry is dependent on natural gas, for both feed and fuel. Under the Fertilizer Policy, 2001, Section 2.2.7 reads:

> *Gas will be allocated to new fertilizer plants on the principle of first come, first served. Recognizing the expected growth in fertilizer demand, the importance of steady supply and the suitability of Mari Gas production, the government has decided to dedicate the shallow reservoir of Mari gas field to the Fertilizer Industry while the new deep reservoir is to be developed for power sector as it is suitable for power generation.*

171. Under the Policy directive, MPCL (previously supplying 95 percent) is supplying 70 percent of natural gas to the fertilizer industry. It is supplying natural gas from its fields, under the GSAs, to Engro, FFC-I, FFC-II, FFC-III, Fatima Fertilizer and Pak Arab

[117] https://docs.vis.com.pk/docs/Fertilizer201908.pdf
[118] 81 percent of potash reserves are concentrated in Russia and Canada, while 75 percent reserves of rock phosphate are located in Morocco and Western Sahara.
[119] ibid

Fertilizer.[120] Engro Fertilizer receives fuel gas from SNGPL as well under the GSA. Furthermore, Pak Arab Fertilizer has a GTA with SNGPL, under which natural gas is transported to Pak Arab Plant through Mari gas fields. Agritech and Fatimafert are using RLNG for feed and fuel gas. While some fertilizer plants have ensured supply of natural gas through their respective long-term GSAs, others like Agritech and Fatimafert do not have equal access to natural gas supply and are run on RLNG. Further, where the plants have access to natural gas through their respective GSA, the feed gas rates are disproportionate as described in Table 21.

[120] Regular supply to Pak Arab began in 2020, earlier it was receiving gas through SNGPL under the GSA.

Table 21: Comparison of Feed Gas Price for Fertilizer Plants (Rs. per MMBTU)

Plants	Gas Supplier	Feed Gas Price Oct, 2020	Feed Gas Price Feb, 2023	Feed Gas Price Oct/Nov, 2023	Feed Gas Price Feb, 2024
FFC-I&II	Mari	300	300	580	580
FFC-III	Mari	300	300	580	580
Engro-Dharki	Mari	302	302	580	580
Fatima Fertilizer	Mari	$0.70	$0.70	580	580
Engro-Dharki	SNGPL	$0.7	$0.7	$0.7	1597
Pak Arab	Mari-SNGPL	302	510	510	510
Agritech (Hazara Phosphate Fertilizer)	SNGPL	302	510	510	510
FFBL	SSGC	302	510	580	1597
Fatima Fert (Dawood Hercules)	SNGPL	302	510	510	1597
Agritech (Pak American)	SNGPL	302	510	510	1597

Source: OGRA Gas Price Notification

172. Table 21 shows the gas price charged from fertilizer manufacturers from October 2020 till Feb 2024. It is observed that the gas price was almost equal for all plants in October 2020, except for one plant of Engro, and Fatima Fertilizer that paid $0.7 per MMBTU. However, the price of gas was increased for fertilizer plants on the network of SNGPL and SSGC.

173. The price of gas for plants getting gas from Mari did not change and they continue to receive cheaper gas. In the latest notification by the Government of Pakistan, there is a stark discrimination in prices of different plants. Four plants working on the gas supply network of Mari are paying Rs. 580 per MMBTU, whereas two plants on the network of SNGPL are paying Rs. 510 per MMBTU and the remaining four plants are being charged the price of Rs. 1597 per MMBTU as per their respective GSA. As the GSAs of the fertilizer manufacturers and Mari gas expired in June 2024, the Finance Division has directed Petroleum Division to negotiate new terms and renew the GSAs.[121]

174. This discriminatory behavior over pricing of the gas does not provide a level playing field to all the players in the market. It creates an imbalance in the cost of production for players. Some players face less than 40% of the cost borne by other players. In this scenario, the selling price of low-cost fertilizer manufacturers are substantially lower than the price of other players. The manufacturers of high-cost fertilizer is in a disadvantaged position, as they face fierce competition from fertilizer manufacturers receiving subsidized gas and earning high profits.

5.2.2 Discriminatory Fuel Gas Pricing Within the Sector and Across Industries

175. Section 2.2.4 of the Fertilizer Policy 2001 states '*Fuel gas prices shall continue to be treated as* at *par with other industrial consumers.*' However, the current price of fuel gas for the fertilizer industry is far below the price charged to other industries. Table 22 presents the comparison of fuel gas prices for fertilizer and other industries.

[121] https://propakistani.pk/2024/03/07/fertilizer-companies-to-renew-gas-contracts-in-june-with-rates-likely-to-rise/

Table 22: Comparison of Fuel Gas Price between Fertilizer & other Industries

(Rs. per MMBTU)

Plant	Gas Supplier	Fuel Gas Price Oct, 2020	Fuel Gas Price Feb, 2023	Fuel Gas Price Oct/Nov, 2023	Fuel Gas Price Feb, 2024
FFC-I	Mari	1021	1021	1580	1580
FFC-II	Mari	1021	1021	1580	1580
FFC-III	Mari	1021	1021	1580	1580
Engro-Dharki	Mari	1023	1023	1580	1580
Fatima Fertilizer	Mari	1021	1021	1580	1580
FFBL	SSGC	1023	1500	1580	1597
Engro-Dharki	SNGPL	1023	1500	1580	1597
Fatima Fert (Dawood Hercules)	SNGPL	1023	1500	1500	1597
Pak Arab	SNGPL	1023	1500	1500	1500
Agritech (Pak American)	SNGPL	1023	1500	1500	1597
Agritech (Hazara Phosphate Fertilizer)	SNGPL	1023	1500	1500	1500
All offtake					
General Industry		1054	1200	2200	2150
Export Oriented (General)		819	1100	2100	2100
Export Oriented (Captive)		852	1100	2400	2400
Cement		1277	1500	4400	4400

Source: OGRA

176. It can be observed from the above table that the price of fuel gas for the fertilizer industry was slightly less than the general industry from October 2020 to January 2023. In Feb 2023, the price of fuel gas for fertilizer plants getting supply from the network of Mari were charged the price of around Rs. 1021 per MMBTU. Whereas the plants on SNGPL and SSGC were charged a higher price of Rs. 1500 per MMBTU. This shows discrimination among the prices charged to different players in the market for the period of Feb 2023 to October 2023. In October the prices for fertilizer plants on the network of Mari were also increased to Rs. 1580 per MMBTU. Although, the price of fuel charged to fertilizer industry has increased by over 47% as compared to the price during October 2020 to January 2023, the price is still far below than the price charged to the general industry. The minimum price charged to export oriented (general) industry is Rs. 500 higher than the price charged to fertilizer industry. Such behavior of providing concessional input to a specific industry creates a non-level playing field among industries and one industry is promoted at the expense of others. The industry getting concessional inputs will advance higher returns and will attract more investment, considering disproportionate opportunity cost. . In the long run, such a policy affects allocation of resources within the industries and creates perverse incentives.

5.2.3 Maintaining Buffer Stock and Issue of Black Marketing in Imported Urea

177. Pakistan's annual total demand of urea fertilizer stands over 6.5 million metric tons, and the total installed capacity of domestic urea production is 6.3 million metric tons. However, due to natural gas shortages, fertilizer (urea) import is carried out e.g. the TCP has imported 7.82 million metric ton of urea from 2008- 2020. In case of fertilizer shortage in the country (at the time of sowing), Urea is imported by the GoP, through TCP and is later sold through NFML, at a price set by the Government. This decision making, its execution and the actual availability of fertilizer in the market is a time-consuming process.[122] Where the decision to import fertilizer is taken by ECC of the Cabinet through the engagement of government bodies such as NFDC in the fertilizer review committee under MoIP. However, to meet the sudden demand, there is no buffer stock of imported urea is available in the country. Resultantly, fertilizer shortage during peak sowing season has been observed at times. Shortage encourages black marketing and hoarding of urea fertilizer in the domestic market. Shortage of fertilizer also encourages collusive behavior in the market upstream or downstream negatively affecting competition in the market.

5.2.4 Issues of Hoarding and Smuggling of Locally Produced Urea

178. The oligopolistic market structure of fertilizer in Pakistan makes the sector prone to anticompetitive practices. Higher demand during peak season and a regulatory barrier of delay in import provides the basis for hoarding of urea in peak season by the distributors. Consequently, there are multiple incidences of government taking actions against hoarders of urea fertilizer during sowing season in major provinces of the country.[123] Furthermore, the urea manufacturing is subsidized locally, making the local price of urea substantially lower the international price. This creates an opportunity for smugglers to sell locally manufactured urea in neighboring countries at higher prices. The smuggling of urea is

[122] Primary data shared by the TCP
[123] https://tribune.com.pk/story/2453390/crackdown-ordered-against-fertiliser-hoarders

recurring and distorts local market.[124] Additionally, highly subsidized products are moved out of country without legal transmission of foreign exchange into the country. While GoP is subsidizing natural gas for fertilizer production so that it may be available at lower prices to farmers. However, due to smuggling, the benefit is exploited by the intermediaries involved in smuggling. This creates additional loss to the government. On the one hand, the product is not available to local farmers at the time of sowing, and on the other, the country is deprived of foreign exchange.

5.2.5 Governing the Fertilizer industry under the Outdated Fertilizer Policy, 200l

179. The fertilizer industry is governed under the Fertilizer Policy, 2001. The Policy was announced to attract new investment in the sector. The current policy was announced at a time when there was sufficient natural gas supply. However, over the last one and a half decade, the country has faced an energy crisis, consequent to the shortage of natural gas, Pakistan has been importing LNG since 2015. To encourage domestic fertilizer production, the fertilizer producers under their respective GSA's are receiving concessional feed gas, which constitutes over 80 percent of their cost to produce urea. On the other hand, there are fertilizer manufacturers who receive LNG.[125] Further, under the Policy, where urea prices are monitored, the DAP price is not. There is no statutory power given to the provincial authorities to check and monitor DAP prices. It is also learnt that the demand for DAP in the coming years will rise as Pakistani soil will be nitrogen sufficient due to the continuous application of urea. The dynamics of the fertilizer market vis-à-vis access to natural gas, gas subsidy, soil quality and effective use of fertilizers, and LNG import have significantly changed. Under these changing market dynamics, the Fertilizer Policy 2001 creates a barrier to competition, market development and efficiency.

5.3 Strategic & Other Barriers

5.3.1 Gas Infrastructure Development Cess (GIDC) Dispute

180. The GIDC was imposed to develop the gas pipeline network in Pakistan, including Turkmenistan-Afghanistan-Pakistan-India Pipeline (TAPI) and Iran-Pakistan (IP) gas pipeline. GIDC was imposed under the GIDC Act, 2011, and then later the GIDC Act, 2015, it was levied by the government on various sectors (consumers of natural gas). These sectors include fertilizer (GIDC on both feed & fuel gas), CNG, captive power plants, Karachi Electric Supply Company (KESC), independent power producers (IPPs), general industry (including textile sector), and electric power generation companies (GENCOs). However, the industry was against the imposition of the GIDC, and its constitutionality remains challenged. The government abolished the GIDC in January 2020 to decrease the price of urea.[126] However, some manufacturers were collecting GIDC from farmers but did not deposit the collected amount to the government, and the matter went into litigation.[127] The judgment of the Supreme Court of Pakistan (SCP) on the applicability of GIDC came in August 2020. Accordingly, the GIDC conforms to the provisions of the Constitution, and therefore all balance under the GIDC not paid by the industries was to be paid to the government in 24 installments. The Cess amount payable was based on the natural gas

[124] https://tribune.com.pk/story/2337628/urea-being-smuggled-to-afghanistan
[125] Agritech and Fatimafert are receiving RLNG as feed and fuel gas.
[126] https://profit.pakistantoday.com.pk/2020/01/21/gidc-abolition-to-increase-price-disparity-in-fertilizer-sector/
[127] https://www.brecorder.com/news/521692/pm-decides-to-withdraw-gidc-ordinance

consumption of the respective business entities. The total amount since its imposition in 2011 against various industries was Rs. 795 billion, accrued till December 2022.[128] Out of the total, the government had collected Rs. 346 billion and the remaining amount of Rs. 448 billion is outstanding. The fertilizer industry has the highest share in natural gas consumption and therefore subjected to highest rate of GIDC. The fertilizer industry owes Rs. 171 billion to the government in GIDC. However, where the fertilizer manufacturers collected GIDC from farmers, an amount of Rs. 400 per bag[129] of urea, as GIDC was included in the retail price of fertilizer sold, the same has not been paid to the Federal Government. The non-payment of GIDC on part of the fertilizer manufacturers conforms to an abuse of dominance under *Section 3 (3) (a)* of the *Competition Act, 2010*, as the farmers had no choice but to pay the Cess amount, which was a part of the retail price.

5.3.2 Inelastic Demand and Low Threat of Substitution

181. Fertilizer demand is inelastic, and the fertilizer manufacturers face low threat of substitution. More specifically, urea demand is less sensitive to a price change as compared to DAP. The data in Table 23 and Table 24 shows that the response in demand to a change in the price of urea is not price sensitive. In case of DAP, it is sensitive, and more responsive to a change in the international price of DAP. This is because for crop cultivation farmers demand remains inelastic for urea even in the face of high domestic fertilizer prices. Further, the price of urea remains the same throughout the country. The DAP price is dependent on the freight cost as well, therefore, its price is high in the north as compared to the south.

Table 23: Price Elasticity of Urea Demand

Year	Price Change	Demand (Offtake) Change
FY2019	25.9%	2.5%
FY2020	6.0%	0.7%
FY2021	-8.2%	4.2%
FY2022	12.7%	6.8%

Source: Authors' calculation based on NFDC Data

Table 24: Price Elasticity of DAP Demand

Year	Price Change	Demand (Offtake) Change
FY2019	22.1%	-9.8%
FY2020	1.1%	-9.8%
FY2021	24.6%	9.4%
FY2022	85.6%	-14.1%

Source: Authors' calculation based on NFDC Data

182. Urea dominates the fertilizer offtake. Farmers at the end of the value chain, the ultimate consumers do not have any bargaining power. Any upward increase in the price due to gas issues or any other factor is passed on to the consumers in the form of higher price per bag of urea. The manufacturers are aware of their monopoly position in the market, the demand

[128] https://profit.pakistantoday.com.pk/2022/12/12/govt-owed-rs448bn-in-form-of-gidc/
[129] https://dailytimes.com.pk/548460/govt-notifies-gidc-relief-for-fertilizer-sector/

for urea produced by them has inelastic demand. Therefore, the upward revision in price is not led by a corresponding change in demand.

5.3.3 Anti-Competitive Behavior of Fertilizer Producers at the Distributors/Dealers' Level

183. All domestic fertilizer manufacturers have a dealership network in every district, and each has a different distribution and marketing strategy. In the downstream fertilizer market, the distributors/dealers are registered with the fertilizer manufacturers. The dealers make advance payment of 40-50 days in the form of a bank guarantee/credit facility to pay to the manufacturer. The manufacturer sells at a booking price to the distributor, and later the distributor/dealer sells at a price depending on the fertilizer's demand and supply situation in the market.[130]

184. Some manufacturers have sole distributorship, whereby credit is given to the distributor as well. The distributor/dealers have to follow the marketing strategy of the manufacturer. The manufacturer allocates areas/regions (district level) to the distributors who then can only sell the fertilizer in the allocated region. In case of higher demand in a certain region, the distributor cannot pick up fertilizer from another region. This strategy is followed by the manufacturers to maximize their profitability.

185. Further, in the wake of any change in the market situation, such as gas supply shortage or change in price of urea in the market, the manufacturer stops the supply to the dealer till further notice. The dealer resultantly has to manage the delay in supply whereas the bank guarantee had already been given against the fertilizer shipment. The relationship between the fertilizer manufacturer and the distributor/dealer is dominated by the manufacturer, who abuses the dominance through imposing various trading restrictions on the dealers. Whereby the dealers have to accept all conditions of the manufacturer in order to do business.

5.3.4 Tie-In Practices by the Fertilizer Manufacturers

186. It has been found that at the time of sowing, the farmers require DAP. Consequently, the demand for DAP rises and therefore the dealers demand DAP. The fertilizer manufacturers on the other hand compel the dealers to buy urea with DAP, even when the demand for urea is not there or is much lower. Further, the manufacturers also obligate the dealers and tie the purchase of slow selling micronutrients such as Zinc and Boron with the purchase of DAP or urea. This tie-in practice by the manufacturers is anti-competitive, as this benefits the manufacturers to sell their inventory of urea and maintain their profits. The cost of capital of the dealers rises as the manufacturer obligates the dealer to purchase urea with DAP and the dealers have no option but to buy the two in order to stay in business.

5.3.5 Fertilizer Related Issues at the Farmers' Level

187. To better understand the issues at the farmers' level, surveys of farm areas were conducted for this research study and information was gathered from various parts of the country in

[130] Fertilizer price is dependent on demand and supply, and the price can be higher than the maximum retail price (MRP)/bag, https://profit.pakistantoday.com.pk/2018/08/03/urea-prices-surge-to-rs1800-per-bag-as-supplies-dwindle/

all the four provinces.[131] The survey focused on four core issues: fertilizer availability, price, quality and usage by the farmers.

188. Based on the information collected, some major issues were identified. These include: firstly, the farmers highlighted the problem of shortage and non-availability. The shortage of fertilizers is alleged to be due to hoarding and black marketing. Secondly, the price rises exorbitantly due to shortage or artificial shortage, especially in the season of high demand. The survey also revealed the issue of adulterated fertilizer, and lower weight of the fertilizer bags, particularly in the far flung areas. These issues have been discussed in detail in the Report. However, the inefficient use of fertilizer by farmers is discussed here. The recommended fertilizer use is 2:1, but due to higher price of phosphate fertilizer such as DAP, the farmers apply urea.

189. Excessive or improper use of fertilizers lead to negative consequences. It disrupts the natural balance of nutrients in the soil, leading to reduced soil quality.[132] For instance, the overuse of chemical fertilizer for long periods results in soil compaction, which badly affect nearly all soil properties i.e., physical, chemical and biological. This can result in the loss of soil's organic matter, decreased soil fertility, and increased susceptibility to erosion. Pakistani soils are deficient in different nutrients essential for plant growth and development. Imbalanced use of fertilizers is one of the major reasons of declining agricultural produce and profit margin of the famers in Pakistan. A number of factors are at work in the background, these include a lack of knowledge transfer by the R&D institutions to the farmers. Consequently, the farmers remain ignorant about the technicalities of using appropriate fertilizer according to the needs of crop and soil.[133] Also, the small-holder farmers do not have access to soil testing facilities, which is essential for making informed decisions.[134]

190. The provincial agriculture departments have offices at tehsil level, which are mandated to guide/ train farmers on the use of fertilizers. However, farmers' survey reveals that the presence of these departments is inadequate for field training or holding seminars for the benefits of the farmer. Instead, the job is being done by the private companies/ domestic fertilizer manufacturers, who have a business motive to pursue and train their clients (farmers) to promote and market their fertilizers. This lack of activity of the agriculture department may be attributed to a lack/ misappropriation of funds, and a lack of focus.

191. The tehsil head of the agriculture department has magisterial powers to check the quality and prices of fertilizers. However, where fertilizer prices and availability are monitored, requisite attention is not given to train and educate the farmers about the efficient use of various fertilizers to enhance crop yield. In the long run, this results in inefficient allocation of scares cultivable resources. These issues point towards the need for effective monitoring of the supply chain.

[131] The areas covered for the survey included: Mardan and Sawabi in KP, Jaffarabad in Balochistan, Jamshoro and Sanghar in Sindh, Faisalabad, Multan, Sargodha, Lahore and Khanewal in Punjab, and Islamabad's rural areas.

[132] https://www.dawn.com/news/1725030

[133] https://www.ipipotash.org/uploads/udocs/453-pakistan-internship-report-third-q2015.pdf

[134] https://www.researchgate.net/publication/367177425_PROBLEMS_OF_AGRICULTURE_IN_PAKISTAN_AN_INSIGHT_INTO_THEIR_SOLUTION_Soil_and_Water_testing_laboratory

Chapter 6 - Conclusions & Recommendations

192. The fertilizer industry has a vital role in Pakistan's economy owing to its importance for the agriculture sector. With a production capacity over 9 million tons, the country meets most of its urea fertilizer demand. While 10 fertilizer plants produce urea, DAP is produced only by FFBL and the rest is imported by the private sector. Pakistan imports urea fertilizer when required and it is distributed to the farmers at a subsidized price. The fertilizer plants receive ensured and subsidized natural gas for feed and fuel stock under the Fertilizer Policy, 2001 and the respective GSA of the fertilizer plants with Mari and the Sui companies.

193. The fertilizer industry is governed under the Fertilizer Policy, 2001. As fertilizer is an essential commodity, all decisions such as quantity of natural gas supply, its pricing, fertilizer import and any subsidy for the industry is made by the ECC. The domestic fertilizer prices in the country are deregulated. However, when the government imports fertilizer (urea), its price is regulated. The government gives indirect subsidy on fertilizer by providing subsidized natural gas to the industry. This policy directive was taken to keep the domestic fertilizer prices lower than the imported fertilizers, and to increase farmers' affordability.

194. Many factors affect the competition landscape of the fertilizer industry, both on the supply and the demand side. On the supply side, the main factors are the availability of natural gas, the key raw material to produce urea fertilizer, and the pricing of domestic natural gas vis-à-vis price of imported RLNG supplied as feed/fuel gas to the fertilizer industry. On the demand side, availability of fertilizer to the farmers at affordable price, timely import of urea in case of shortage, black marketing, availability of low quality counterfeit products, and fertilizer application to crops are factors that affect competition in the fertilizer market, and the efficient allocation of resources.

195. A comparative analysis of Pakistan's fertilizer industry with countries like India, China and Brazil shows that Pakistan's fertilizer industry receives indirect subsidy on natural gas i.e., at the production stage in urea production. However, other jurisdictions provide subsidy at the postproduction stage. This strategy helps reduce price to be paid by the farmers, and more importantly allows producers to focus on efficiency, R&D and compete on prices. By drawing on the experiences of these countries, Pakistan can create a more competitive fertilizer market by focusing on liberalization, promoting private investment, reducing/ eliminating inefficient subsidies, and improving regulations.

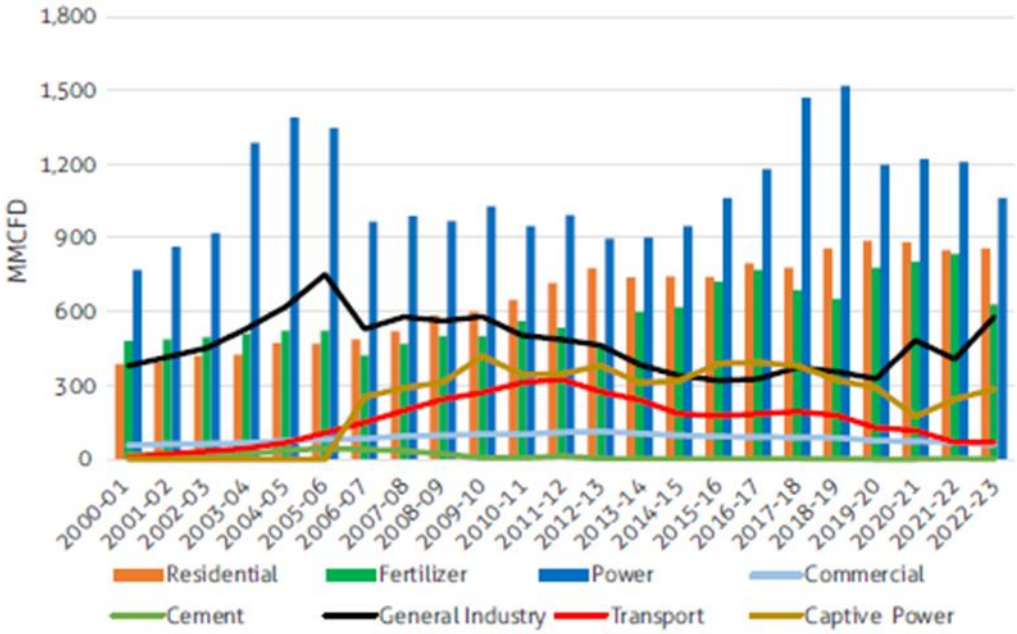
196. After a long-term holistic analysis of all the relevant factors relating to market forces and financials of the companies, it is identified that .the industry is sustaining in a comfort zone with a lack of competitive pressure, which is supported by the regulatory framework and favorable policies.

197. Based on the barriers to competition identified in the fertilizer market, the following recommendations are made to promote competition and efficiency in the industry.

6.1 A New Fertilizer Policy based on Sustainable Energy, Agriculture and Environment

197. The existing fertilizer policy, 2001 governing the fertilizer industry till date was implemented at a time when Pakistan's economy was not facing natural gas shortage. Figure 20 shows natural gas consumption trend of the last two decades. The economy has seen a continuous rise in natural gas demand coming from power, fertilizer and general industry, commercial and domestic consumers.

Figure 20: Natural Gas Consumption Trend (MMCFD)



Source: State of Regulated Petroleum Industry, 2022-23 (OGRA)

198. The Government has been giving billions of rupees of subsidy to multiple natural gas consumers. Resultantly, over the last decade the economy has seen a continuous rise in natural gas demand, a depletion in existing natural gas reserves and a supply constraint. Fertilizer industry is the third largest consumer of natural gas after power and the domestic sector. As per the Pakistan Energy Year Book 2022-2023, the power sector consumed 31.6%, domestic sector consumed 25.5%, and fertilizer industry consumed 17.3% (as feedstock) and 6% (as fuel use) of the natural gas.[135]

199. The Fertilizer Policy, 2001 laid down pricing and supply of natural gas parameters for the existing producers and for new investment based on indigenous gas sources. Owing to its significance in agriculture sector, under the policy directives, concessions on feed gas pricing, and continuous supply of natural gas has been supplied to the fertilizer industry. However, over the past one decade the country has faced natural gas shortage, and thus commenced the import of LNG in 2015. While the imported gas is supplied to key sectors, the fertilizer industry is also a recipient of RLNG.

[135] Pakistan Energy Yearbook, 2022-23, available at: https://www.hdip.com.pk/pakistan-energy-yearbook

200. The Fertilizer Policy, 2001 came into effect at a time when the country had a total demand of 2000 MMCFD and over the last two decades there has been an exponential growth in the natural gas demand owing to subsidized lower pricing compared to competing fuels. In 2021-22, the consumption of natural gas doubled to 4000 MMCFD. In order for the fertilizer industry to be competitive, natural gas plays a key role, and therefore as the dynamics of the natural gas sector have completely altered over the last two decades, a new fertilizer policy is proposed to come in effect, comprehensively covering the various aspects of natural gas availability, access to LNG import, and pricing for both domestic and imported LNG based on the weighted average cost of gas. Fertilizer is an energy intensive industry and there is a greater need for this sector to be energy efficient. Globally there is an increasing focus on Green House Gas (GHG) emissions and on reducing carbon footprint, the new fertilizer policy needs to incorporate incentives for companies to come up with investment plans to optimize gas use to produce fertilizer, be energy efficient, and reduce the environmental impact of fertilizer production.

6.2 Removal of the Discriminatory Feed & Fuel Gas Pricing to Improve Competition

201. To keep the local fertilizer prices below the international prices, the Fertilizer Policy, 2001 provided for subsidized natural gas (feed & fuel) to the existing and new investments in the industry. However, due to the depleting indigenous gas resources, reliance on imported RLNG, and the rising gas circular debt the government has reduced the subsidy amount over the last few years. However, some fertilizer plants are still receiving subsidized feed & fuel gas. This discriminatory pricing policy adopted under the Fertilizer Policy 2001 to encourage indigenous fertilizer production distorts the level playing field, as same homogenous output is produced but under different pricing of input. The current pricing and supply of natural gas to the fertilizer industry is uneven and discriminatory. While pricing is different, the natural gas supply is also not ensured to all fertilizer producers equally, creating a barrier to fair competition in the industry. The plants supplied imported gas/RLNG do not have a secure supply of natural gas. The principle of competition demands that all fertilizer plants be treated equally. To encourage investment, it is important that the government may chalk out a plan to incentivize fertilizer investors without distorting the level playing field through the natural gas pricing and its supply. In this regard, instead of discriminatory gas pricing, the government may incentivize them in other ways e.g. on investment in import of machinery and R&D. Else, other countries' model of no-subsidy at the production level can be followed, where government chips in to reduce logistics cost, when the product is transported for distribution to the farmers. The net benefit is thus transferred to the farmers directly, whereas in the case of Pakistan, the subsidy at the production level helps companies increase their profits and the farmers keep on getting the commodity at higher prices. Further, the analysis of GSAs indicates that the duration of GSAs may also be reviewed and set for medium term instead of long term.

6.3 Removing the Natural Gas Subsidy to Improve Competition and Efficiency in the Sector

202. The Federal Government has been giving an aggregate subsidy of Rs. 200 billion/annum to the fertilizer industry. This indirect subsidy to the fertilizer industry is in the form of subsidized gas to keep the domestic price of fertilizer low. Natural gas is the major input

in manufacturing urea fertilizer, and accounts for 60 percent of the cost of production (for details, see chapter 3). Additionally, to increase domestic DAP production, there is exemption of various duties and taxes on the import of raw materials. Currently, about 97 percent of the domestic urea fertilizer demand and 52% of DAP demand is met by the domestic production, and the remaining is met through the imports and the carryover inventory.

203. A comparison of international and domestic urea prices (discussed earlier in report) shows that the domestic urea prices have remained lower than the international prices in the country during FY2019-2023 period. However, during the same period, the domestic DAP prices remained higher than the international prices. For domestic DAP production, the federal government provides subsidized natural gas, and the provincial governments also provide subsidy equal to Rs. 300-500 per 50 kg bag. If these subsidies on the domestic DAP production are withdrawn by the federal and the provincial government, the price difference between the domestic and the international DAP prices will further widen. Table 25 shows the average cost of production of 5 major crops cultivated in the country. A comparison of various input costs to produce these crops shows that fertilizer accounts for 21 percent of the input cost only in the production of maize, as the hybrid seed of maize used is highly responsive to fertilizer use. In the remaining crops, fertilizer cost is on average 15 percent. The other major input costs include land rent, irrigation and harvesting (including labour costs).

Table 25: Average Cost of Production 2023-24 (%)

Crop	Land Preparation	Seed & Sowing	Irrigation	Fertilizer	Harvesting	Land Rent	Others*
Wheat	10.6	6.5	7.7	17	16.4	33.6	8.2
Sugarcane	5.6	7.4	14.1	12	10.2	31.6	19.1
Maize	9.5	15.1	15.5	21	9	21.2	8.7
Rice (non basmati)	12.6	8	26	13	8	24	8.4
Cotton	8.6	9.2	18.6	14.3	11	24.4	14

Source: Authors' calculation based on AMIS data (amis.pk)
** Others include cost of dung, weeding, pesticides, transportation & labor*

204. The analysis presented above shows that fertilizer is one of the input cost incurred by the farmers, and there are other inputs that contribute equally or more significantly in the cost of production of crops. Therefore, if the subsidy on natural gas is removed, the fertilizer prices will rise. However, it will not have a significant effect on cost per acre to the farmers. It is estimated that the impact of the rise in crop prices will be an estimated Rs.5-10/kg.

205. The analysis in Table 25 on cost of production of major crops shows that the economic implications of removing the natural gas subsidy on the farmers and the end consumers will be less than the government's indirect subsidy to the fertilizer industry. It is therefore proposed that the gas subsidy be removed, this will not only promote a more competitive fertilizer market, but the industry will also focus on efficient production processes leading to competitive domestic fertilizer prices.

206. The same subsidy that is given to the fertilizer industry if used on R&D, better irrigation and harvesting, and farmers' training will result is higher returns to the farmers and the

agriculture sector. The other countries experience also shows that where the fertilizer prices are deregulated, subsidies in the sector are given at the post production stage such as in improving the distribution channels, storage facilities and R&D.

207. Furthermore, the fertilizer manufacturers, owing to their monopoly power have received billions of rupees under the GIDC from the farmers. However, the same has not been paid to the government. The non-payment of the GIDC by the fertilizer industry is a critical issue as the total outstanding dues of the industry are around PKR. 200 billion that requires urgent attention of the ECC and the Federal Government to address.

6.4 Monitoring of the likely Anti-Competitive Practices under the Competition Act, 2010

(a) Possible Abuse of Dominance

208. In the downstream fertilizer market, to guarantee sale of fertilizer stock, the fertilizer manufacturers obligate the fertilizer dealers to buy DAP with urea or *vice versa*. Similarly, to buy slow moving micronutrients with Urea/DAP. To stay in the business, the dealer is obligated under the dealership agreement. This is an abuse of dominant position by the fertilizer manufacturers, and therefore a violation of Section 3 (2)(e) of the Competition Act. Therefore, this Report suggests the CCP to monitor the conduct of the fertilizer manufacturers under Section 3(2)(e) of the Act.

209. (b) Possibility of Collusive Behaviour by the Fertilizer Manufacturers The probability of cartel formation is higher for products that are homogenous like various types of fertilizers. This possibility increases even more when the number of players is low and the market is concentrated. Therefore, as per Section 4 of the Competition Act, 2010, the CCP needs to monitor closely the possibility of a cartel to fix prices and production. This is even more crucial when the industry depicts a pattern of price parallelism for urea and high profit margins.

210. Natural gas is a major input (feed gas) in the production of urea fertilizer. Fertilizer plants are receiving natural gas at different prices, thus the cost of gas is different. However, the difference in cost of gas does not reflect in the prices of the urea sold by different players in the market. As per the OGRA notified gas prices, FFC and Fatima Fertilizer are charged Rs. 580 per MMBTU, for feed gas they use as urea input and sold the product at Rs. 4400 per 50 kg bag in August 2024. On the other hand, Fatimafert and Agritech are charged Rs. 1,597 per MMBTU for feed gas, and they sold their product at Rs. 4,649 per 50 kg bag in the same month. The brand wise pricing and cost analysis of the industry reveals that although the feed gas price charged to FFC and Fatima Fertilizer is 2.75 times lower as compared to the feed gas price charged to other urea manufacturers but they are selling the product at a price that differs by only around 6 percent. The comparison of feed gas price and the retail price of urea charged to different players is provided in Table 26.

Table 26: Comparison of Company-wise Feed Gas Price and Retail Urea Price

Company/Plant	Annual Installed Capacity (000 tonnes)	Gas Price (Rs. Per MMBTU)	Company Retail Price (Rs./50 kg bag) August '24	Validity of Gas Supply Agreement
FFC (3 Plants)	2,358	580	4,400	June, 2024

EFERT (Old)	950	580	4,649	June, 2024
EFERT (New)	1,325	1,597	4,649	June, 2024
Fatima Fertilizer	500	580	4,400	June, 2024
Pak Arab	99	510		June, 2024
Agritech	429	1,597	4,649	-
Fatimafert	445	1,597	4,649	-
FFBL	551	1,597	4,500	Dec, 2025

Source: OGRA/ NFDC, MNFS&R

211. The fertilizer industry is prone to cartelization having oligopolistic market structure and homogenous inputs required for production.[136] Therefore, a brand-wise competition review reveals 'price parallelism' in the industry, even when applicable gas prices are different thus raising competition concerns. The behavior of the fertilizer manufacturers may attract certain provisions of the Competition Act, 2010, Section 3 and 4 in particular. It is therefore recommended that the CCP may strengthen its regulatory oversight of the industry. Furthermore, the SECP under its current regime may seek cost audit of the fertilizer industry to gauge any irregularities. This eventually will help CCP determine a patterns indicative of anticompetitive behaviour. The CCP, vide its Policy Note "Reinstatement of Requirement for Cost Audit under Companies Act, 2017" dated 8th May, 2020, has recommended the SECP to reinstate the requirement of cost audit for Fertilizer industry, among others to facilitate policy interventions in a fair, transparent, and independent manner. However, the same has yet to be implemented.[137]

(b) Exemptions granted to the Fertilizer Industry under the Competition Act

212. The fertilizer producers make contracts with the dealers downstream and negotiate certain terms for granting distributorships. At times, these terms and conditions are alleged to be anticompetitive due to the oligopolistic market structure. Therefore, the terms of these contracts need to be reviewed such that the manufacturers do not abuse their dominant position. Under Section 5 of the Competition Act, the CCP grants exemption to parties involved in the agreement. Earlier, two fertilizer manufacturers; FFC and EFERT have taken exemption from the CCP on their agreements with their distributors. However, the exemption of FFC has expired and currently only EFERT holds a valid exemption on their agreements with their distributors. The remaining manufacturers, however, have not sought exemption from the CCP for their distributorship agreements. The binding agreements are against the spirit of competition. Therefore, the CCP needs to review the agreements to grant exemption. This Report recommends the CCP to evaluate the agreements of all fertilizer manufacturers with their distributors for any violation of the Competition Act, 2010.

6.5 Improving the Fertilize Supply Chain, Ensuring Timely Imports, and Monitoring Movement

213. For sustainable agriculture growth, an efficient supply chain management of the fertilizers in the country is critical. When the Urea supply is insufficient to meet the demand in the country, the ECC on the recommendation of the concerned ministries allows TCP to imports urea which takes around 90 days before it is available in the market to be distributed through

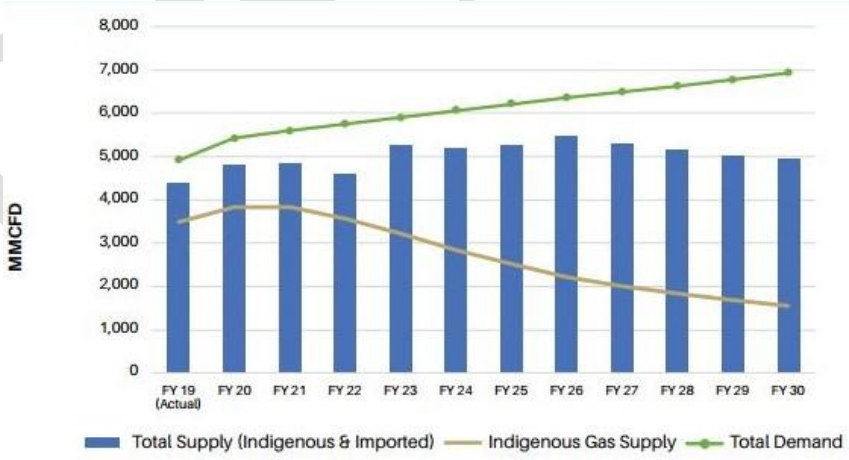
[136] https://www.econstor.eu/bitstream/10419/145777/1/VfS_2016_pid_6804.pdf
[137] Available at: https://cc.gov.pk/assets/images/policy_notes/cost_audit_policy_note.pdf

NFML If this import does not reach the market at the time of sowing a shortage is created that leads to black marketing, and availability of substandard and counterfeit fertilizers in the market. The availability of counterfeit fertilizers are a risk to the farmers and the farm yield. Farmers located in the remote areas of Khyber Pakhtunkhwa (KP) and Baluchistan also faces challenges in accessing fertilizers due to limited financial resources and location. Smuggling of locally produced fertilizer to neighboring countries also creates shortage in the market and contributes to higher fertilizer prices. To overcome these barriers in the fertilizer industry's competitive landscape, the government and the private sector must work together and invest in the storage facilities, distribution channels, implement technological solutions and data analytics to monitor inventory levels and demand forecasting in order to optimize logistics and reduce waste. Strict monitoring mechanism should also be in place to monitor the stocks and movement of fertilizer in the country. FBR has already implemented track and trace system (TTS) in the fertilizer industry. Currently, the TTS only monitors the movement of urea out of the plant, and there is no mechanism to monitor the movement beyond that point. In this regard, the track and trace system beyond the production plant may also be introduced, which may monitor the movement of product across country.

6.6 Removal of Entry Barriers in the Gas Market

214. The demand for natural gas has increased over the last two decades by the power generation, domestic use and fertilizer industry. During FY 2021-22, 246,763 thousand consumers were added to the gas network[138], resulting in shortage of gas. Figure 21 shows the natural gas supply/demand forecast from FY 2019 (actual) to FY 2030.

Figure 21: Natural Gas Demand- Supply Forecast (MMCFD)



Source: OGRA

215. Figure 21 shows that during the next decade Pakistan's indigenous natural gas supplies will reduce by about 50 percent of the current supplies. On the other hand, the demand will continue to rise and expected to be more than triple, corresponding to the indigenous supply.

[138] *Ibid*, Page 41

This gap, will have to be filled by imported LNG or regional pipeline developments (gas sourcing). Over the years, the reliance on the imported fuel is forecasted to rise.

216. Owing to the severity of the natural gas shortage, it is recommended that greater efforts are made for domestic exploration activities, both inland and offshore. For this, incentives are a prerequisite for both the public and the private sector companies, as well as foreign oil and gas E&P companies to invest in Pakistan's gas sector. The private sector may also be encouraged to import LNG under the Third-Party Access (TPA) Rules of natural gas developed by OGRA. Under the TPA mechanism, both the access to pipeline network of Sui companies, and utilization of excess capacity at the LNG regasification terminals will be available to the private sector.

217. Internationally, more than 80 million tons of LNG is handled under the TPA mechanism.[139] Furthermore, development on new LNG import terminals by the private sector and LNG import are the way forward to increase the natural gas supplies at more competitive price. Additionally, the fertilizer manufacturers may be encouraged to invest offshore in the natural gas sources like the Middle East and the Central Asian Republics. This could allow them to source long term cheap natural gas internationally for their fertilizer plants.

6.7 Cooperation & Collaboration between Government Organizations

218. The fertilizer industry in Pakistan falls within the jurisdiction of multiple federal and provincial departments owing to its intricate forward and backward linkages. At the pre-production stage, the oil and gas sector is governed under the policy directives of Ministry of Energy (Petroleum Division) MOE (PD). At the production stage, the fertilizer industry falls under the Ministry of Industries & Production (MOI&P). At the consumption stage, the agriculture sector falls under the Ministry of National Food Security & Research (MNFS&R). The final decision on natural gas supply to the fertilizer industry is taken by the ECC. However, the decision of the ECC is based on the working and the information/data shared by the mentioned ministries governing the energy sector, fertilizer industry, and the agriculture sector.

219. The supply-demand gap, shortage of fertilizer and sudden price hikes reflect the need for a close cooperation and collaboration between these departments in policy making and governing the industry upstream, midstream and downstream, in a coherent way. Upstream MOE (PD) needs to work closely with the MOI&P to address the issues in the supply of natural gas, pricing mechanism and gas availability to the fertilizer industry. In the mid and downstream levels, the MOI&P has to work in close collaboration with MNFS&R, to address the issues of fertilizer availability to farmers, fertilizer shortage, and timely decision to import. At the provincial level, the agriculture extension departments should invest in farmers training programs and educate them about efficient fertilizer use to increase crop yield, land overuse and reduce environmental impact.

220. It is, therefore, proposed that there should be close collaboration and cooperation between these governmental bodies at federal level, which would reduce distortions in the short to medium run, and would ensure greater competition in the long run. At the provincial level,

[139] https://www.brecorder.com/news/40026659/soes-reluctant-to-import-lng-as-per-govt-policy

the provincial agriculture extension departments can ensure the availability of fertilizers to the farmers and its application in the right proportion.

6.8 Promoting Corporate Agriculture

221. An important development that can occur, in the context of strengthening competition, through corporate farming is the enhancement of the bargaining power of fertilizer-users. More private sector involvement in the form of corporate discipline in the rural areas can yield better results. Agricultural corporates will have better awareness of the legal system, and could approach the authorities more vigorously in case of malpractices in the supply chain. Therefore, initiatives to promote investment in agriculture by large scale corporations are in fact critical to enhance sustainable competition in the long run.

222. The above recommendations are summed up in the table below indicating the responsible authority and the priority to implement the recommendation.

Table 27: Entry Points to Improve Competition in the Fertilizer Industry

No.	Recommendations	Responsibility	Priority
1.	A New Fertilizer Policy based on Sustainable Energy, Agriculture and Environment	ECC, MOI&P	High
2.	Removal of the Discriminatory Feed & Fuel Gas Pricing to Improve Competition	ECC, MOI&P	High
3.	Removing the Natural Gas Subsidy to Improve Competition and Efficiency in the Sector	ECC, MOI&P	High
4.	Monitoring the likely Anti-Competitive Practices under the Competition Act, 2010 (a) Possible Abuse of Dominance (b) Possible Collusive Behaviour of Fertilizer Manufacturers (c) Exemptions granted to the Fertilizer Industry under the Act	CCP	High
5.	Improving the Fertilize Supply Chain, Ensuring Timely Imports, and Monitoring Movement	MOI&P, TCP, NFML	Medium
6.	Removal of Entry Barriers in the Gas Market	ECC, Petroleum Division, MOI&P	Low
7.	Increased Cooperation & Collaboration between Government Organizations	MOI&P, MNFSR	Medium
8.	Promoting Corporate Agriculture	MNFSR, MOI&P	Low

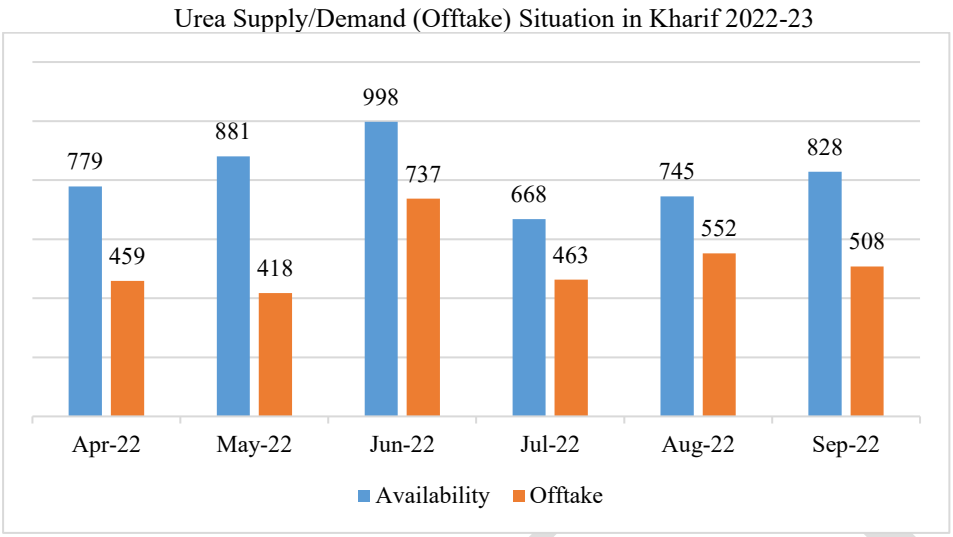
ANNEX - I

PRODUCT-WISE FERTILIZER OFFTAKE (000' tonnes)

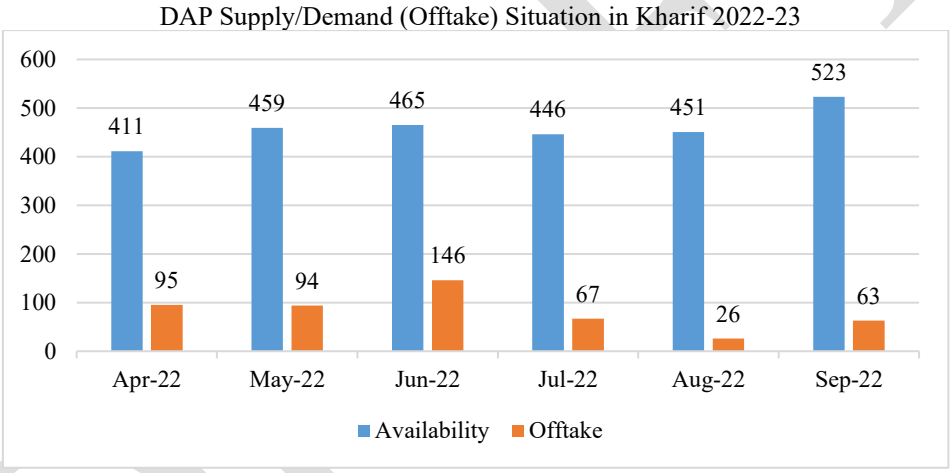
Products	2021-22 Offtake	Percentage Share	2022-23 Offtake	Percentage Share	Percentage Change
Urea domestic	6676	63.2	5985	63.2	-10.4
Urea Imported	14	0.1	485	5.1	3364.3
Total Urea	6691	63.4	6470	68.3	-3.3
CAN Domestic	820	7.8	841	8.9	2.6
NP Imported	-	-	-	-	-
NP Domestic	838	7.9	856	9.0	2.1
Total NP	838	7.9	856	9.0	2.1
SSP domestic	107	1.0	65	0.7	-39.3
SSP imported	-	-	-	-	-
DAP domestic	871	8.2	624	6.6	-28.4
DAP imported	992	9.4	517	5.5	-47.9
Total DAP	1863	17.6	1141	12.1	-38.8
TSP imported	-	-	-	-	-
SOP domestic	10	0.1	13	0.1	30.0
SOP imported	33	0.3	20	0.2	-39.4
NPK's	88	0.8	36	0.4	-59.1
MOP imported	56	0.5	10	0.1	-82.1
MAP imported	23	0.2	2	0.0	-91.3
AS	33	0.3	15	0.2	-54.5
Grand Total	10561	100.0	9468	100	-10.3
Total Domestic	9410	89.1	8419	88.9	-10.5
Total Imported	1151	10.9	1049	11.1	-8.9

Source: Fertilizer Review 2022-23, NFDC

ANNEX-II



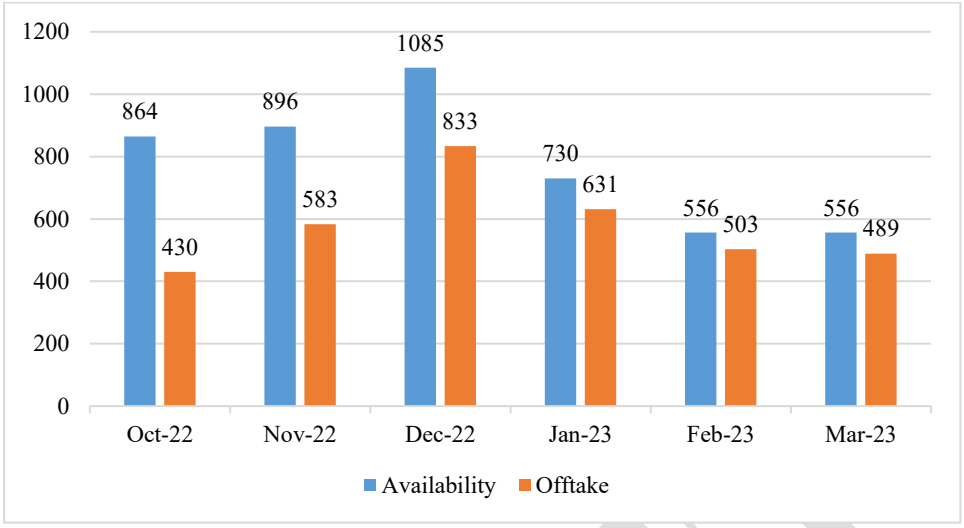
Source: Fertilizer Review 2022-23, NFDC, MNFS&R



Source: Fertilizer Review 202-23, NFDC, MNFS&R

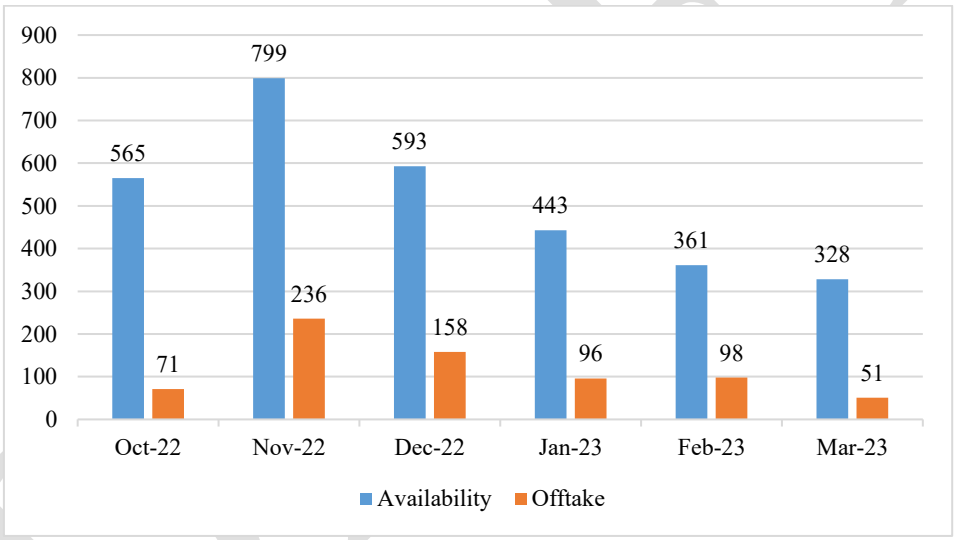
The above figures show the demand (offtake) and supply situation of the two main fertilizer products in Pakistan, urea and DAP in Kharif season (April- September). The supply includes both domestic and imported fertilizers. It is clear that the total availability of urea and DAP in Kharif is much greater than the total offtake.

Urea Supply/Demand (Offtake) Situation in Rabi 2022-23



Source: Fertilizer Review 2022-23, NFDC, MNFS&R

DAP Supply/Demand (Offtake) Situation in Rabi 2022-23



Source: Fertilizer Review 2022-23, NFDC, MNFS&R

The above figures show urea and DAP supply and offtake in Rabi (October-March) 2022-23. These indicate sufficient availability of urea and DAP for Rabi crops as compared to demand.

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