

# **Global Wheat Supply Chain, Present Issues And Its Effect On Pakistan's Wheat Market**



By

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In

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## **Declaration**

I, Maham Majdy, hereby declare that the work presented herein is original work done by me and has not been published or submitted elsewhere. Any literature or work done by other and cited within this report has been given due acknowledgement and listed in the reference section

## **Acknowledgement**

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## **Abstract**

The study aims to highlight the prevalent issues being faced in Global Wheat Supply Chain and its effects on Pakistan's Wheat Market. In order to understand the supply chain of wheat problems, the report discusses deliberate details on the global wheat supply chain, its major importers, exporters, the various routes being used for its transportation and different means to transport wheat safely.

The efficiency of wheat supply chain has been affected adversely not only because of global weather conditions but also because of Russia - Ukraine War and its dire impact on overall supply chain of various crops including wheat. Consequently, the study discusses the alternates of Wheat being used by other countries owing to its shortage.

The overall global wheat and fertilizers supply chain issue has seriously affected wheat supply in Pakistan. In order to understand the dynamics of Pakistan's wheat market, the report will highlight the various reasons behind the worsening wheat production and supply in Pakistan. Furthermore, it will discuss the efforts of government of Pakistan in channelizing various means to ensure fulfillment of wheat demand of the country along with its safe containerization. Additionally, it highlights the storage issues being faced by the country and the initiatives taken by the government to device practical and long term solution for meeting the country's demand.

Additionally, to augment the knowledge base, it will also relate the future of global wheat situation, food security and the initiatives being taken globally to strive against the issues of global wheat supply chain.

## **Objective of the Study**

The report focuses on the prevalent issues of wheat supply chain in Pakistan. In order to conduct a detailed research on the topic, it was imperative to understand the global wheat supply chain and its various aspects which includes the major types of wheat being produced in the world and their usage, the major producers of wheat, its importers, exporters and the financial analysis of wheat production w.r.t country that can highlight the contribution by different countries globally in wheat supply chain.

Additionally, to give a clear perspective on how the wheat supply chain operates, the study also aims to build up on various aspects i.e political, global, social and economical that has over the years weakened the supply chain of wheat. Highlighting the various political and environmental aspects, it discusses in detail the Russia – Ukraine war and its impact on supply chain of wheat and fertilizers and also the flooding in Pakistan and its effect on crops and wheat production.

The prime objective of this report is to understand the dynamics of Global and Pakistan's supply chain of wheat and the elements that can play an important role in revival of wheat production and balance its supply and demand globally.



## **Chapter 1: Introduction on Global Wheat Supply Chain.**

The Global wheat supply chain is complex and intricate network that connects many countries globally together. To understand the global wheat supply chain, it is imperative to learn about the types of wheat that exists in the world, its major producers, importers, exporters and means of transportation. The unit to measure wheat is Bushel. 1 Bushel of wheat is equal to 60lbs or 27.216 kg. Next few chapters will shed light on all these aspects followed by the prevalent issues being faced by global wheat supply chain.

**Wheat** is type of cereal grasses of the genus *Triticum* and their edible grains. It is one of the oldest and most important type of the cereal crops. The major types of wheat includes :-

### **1.1 Wheat and its types.**

**Triticum Aestivum Wheat.** Wheat is widely cultivated around the globe because of its seeds. The cereal grain is being used as staple food. The most widely cultivated type of wheat is called *Aestivum*. As per research wheat for the first time was grown in the region of Fertile Crescent around 9600 BCE. (Tiffany, 2013)

#### **Durum Wheat.**

Durum wheat also known as Macaroni or Pasta wheat and is considered to be the second most cultivated type of wheat. Interestingly, it is only 5% to 8 % of the total wheat production globally. It is being considered as a crop for its economic importance. In recent years, its use has increased specially in countries experimenting with different types of wheat. The main production of Durum wheat takes place in Middle East, North Africa, Southern Europe, USA and India.

#### **Hard Red Winter**

Hard Red is known for its versatile usage, it is used in making wheat bread and all-purpose flour. It is the most common variation that is being grown in US. The majority of it is grown in mid west plains states and like all winter wheat it is being sown in fall and it grows only a few inches and later become dormant with the onset of winter.

## Hard Red Spring

Hard Red Spring is called the “aristocrat of wheat,” it is famous for its use in breads, bagels and croissants etc this variety is usually grown in the northern United States and Canada. It is planted in spring and harvested in the fall. It has the highest protein content of all the wheat varieties (13.5%).

## Soft Red Winter

Soft Red Winter is used in making cookies and biscuits. Grown in the eastern third of the United States, SRW is the third largest class of wheat grown in the United States. It can be shipped via Gulf, Atlantic (East Coast), and Great Lakes ports.

## Soft White

This type of wheat used in making cakes and pastries. Soft white winter and spring wheat varieties, including white club wheat, are grown in the Pacific Northwest states, where higher rainfall is prevalent, as well as in California under irrigation.

## Hard White

This is fairly a new type of wheat that is used in making Asian Noodles, tortillas and flatbreads. **Spring or winter growing seasons.** It is grown in the Pacific Northwest & North Plain zones.



*Our focus of the report will be on Hard Red Spring, Hard Red Winter, Soft red winter, Hard White and Soft white.*

## **1.2 Major Global Wheat Producers.**

The major global wheat producers which are as following:-

### **European Union.**

EU is considered the largest wheat producing region. France, Germany and the United Kingdom, from the last 10 years had been the largest wheat producing EU countries .Moreover, as per a recent study conducted by WHO, people of European Union prefer their wheat over wheat of other countries because of quality and health benefits. (NAVOSELVIC)

### **Canada.**

Canada is one of the world's greatest wheat producers. In 2021, the total wheat production of Canada fell 38.5% to 21.7 million tones. China is the biggest importer of Canadian Wheat.

### **Pakistan.**

Pakistan export Wheat to Afghanistan, United Arab Emirate, Somalia, and Uzbekistan. Its annual wheat production is approximately 28.75 million tones. Annual import to meet local requirements and also to keep strategic reserves is approximately 2.2 m tones.

### **Russia and Ukraine.**

Russia and Ukraine export **nearly 30%** of the world's wheat through Black Sea region which is also known as the “**breadbasket of the world.**” However, it has substantially decreased now owing to banned export of wheat owing to the recent war-crisis of Russia and Ukraine. The Russia-Ukraine war has not only disrupted wheat exports, but it has also increased wheat prices up by 60% in Africa. Overall, globally the price of wheat has gone up about 60%. (Mordar, 2023)

### **USA.**

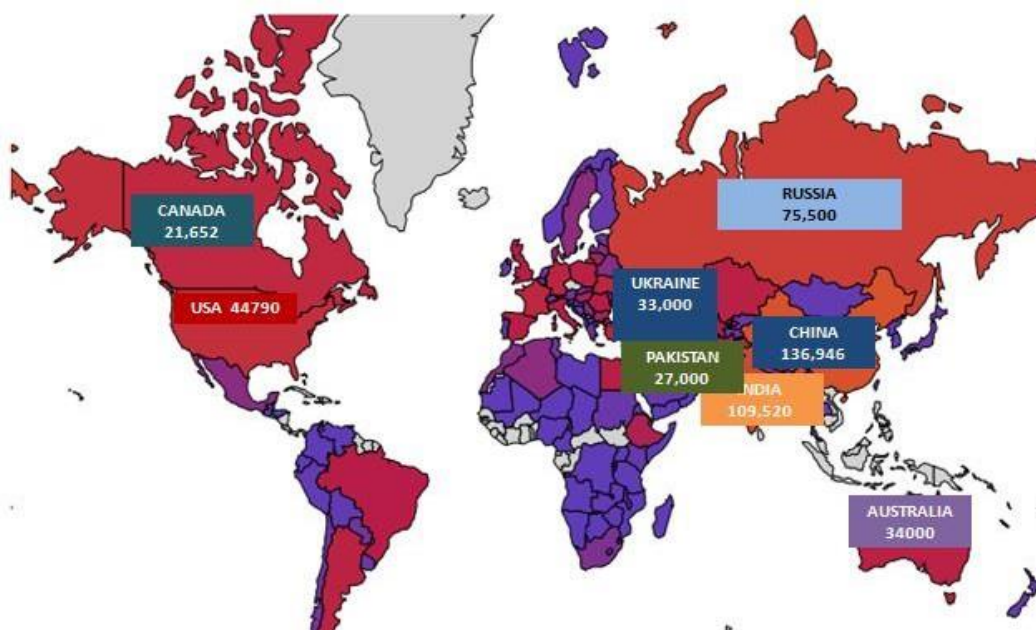
In USA, after corn and soybeans, wheat is the most produced. In the year 2021, the United States produced 1.65 billion bushels.

### China.

In China the production of Wheat crop is the largest. It is more than 80 % of the Wheat production in Russia. It is pertinent to mention that China is following the practice of keeping stockpiles of wheat and therefore, incentivizes the farmers for production of wheat to ensure food security.

### 1.3 Global Wheat Production in Tonnes.

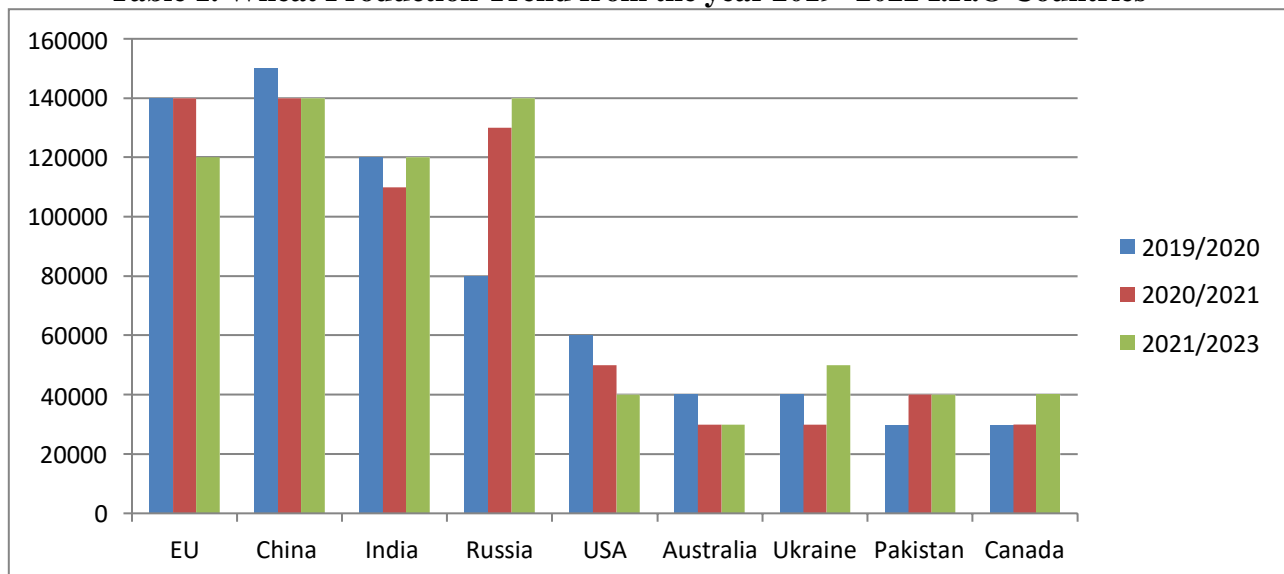
**Figure 1. Annual Wheat Production by Countries (Tonnes) in 2022**



#### 1.4 Global Wheat Production Trends.

More than 120 countries distributed across Europe, Africa, the Americas, Asia and Oceania cultivates wheat. These countries include both emerging as well as developed economies of the world. A number of factors contribute in yield of wheat, however, from an agronomic perspective; wheat performs better in temperate environments. Table 4.1 depicts that Asia contributes the most to global wheat production, followed by Europe and the Americas with small but similar shares for Russia and Ukraine. Over the last years, the relative production shares by region have remained largely similar, except for top 5 countries contributing the mostin wheat yield i.e. EU, China, India, Russia, USA etc. (Olaf Erenstein, 2022)

**Table 1. Wheat Production Trend from the year 2019 -2022 I.R.O Countries**



#### 1.5 Major Exporters of Wheat.

Russia as mentioned earlier is the biggest wheat exporter in the world; it is being followed by Canada and United States. Presently, these three countries export more than 20 million tons of wheat: In terms of percentage, Russia accounts for nearly 24% of the total of the top 20 largest wheat exporters.

**Table 2. Major Countries as Exporters of Wheat (Tonnes)**

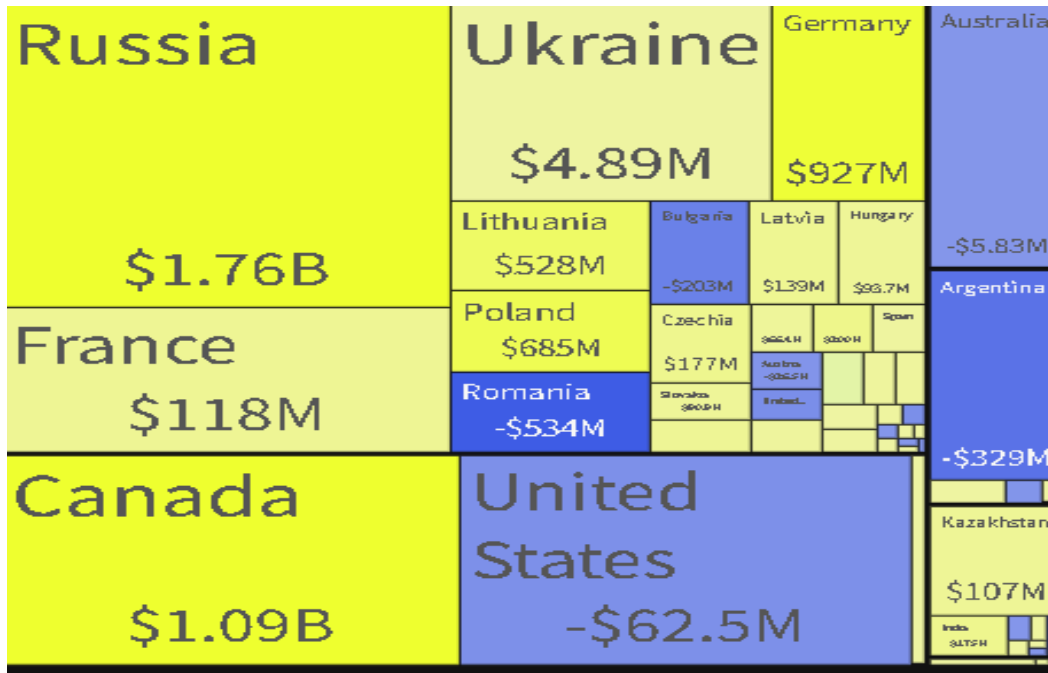
<b>Rank</b>	<b>Countries</b>	<b>Tonnes</b>	<b>% of Top</b>
1	Russia	43,965,626	23.02
2	Canada	22,874,184	12.44
3	US	22,499,006	12.24
4	France	18,940,343	10.30
5	Ukraine	16,373,380	8.91
6	Australia	12,352,837	6.72
7	Argentina	11,724,765	6.38
8	Kazakhstan	6,198,354	3.37
9	Romania	5,880,518	3.20
10	Germany	5,228,857	2.84

**1.6 Financial analysis of wheat exports w.r.t Counties.**

In the year 2019 and 2020, the exports of *Wheat* were fastest for three countries in Russia (\$1.76B), Canada (\$1.09B) and Germany (\$927M). From perspective of continents, European countries were responsible for supplying half of worldwide their wheat exports especially during 2021. The total shipments from these countries amount to \$28 billion which is about 50.2% of the global wheat exports. United States and Canada exported 25.2% worth of wheat. Australia by value explored 13% of wheat by value. However, Asia made it to only 5.3 %, Latin America about 6.2% and Africa about 0.2%.

Financial value for the rest of the wheat exports is shown in the following figure:-

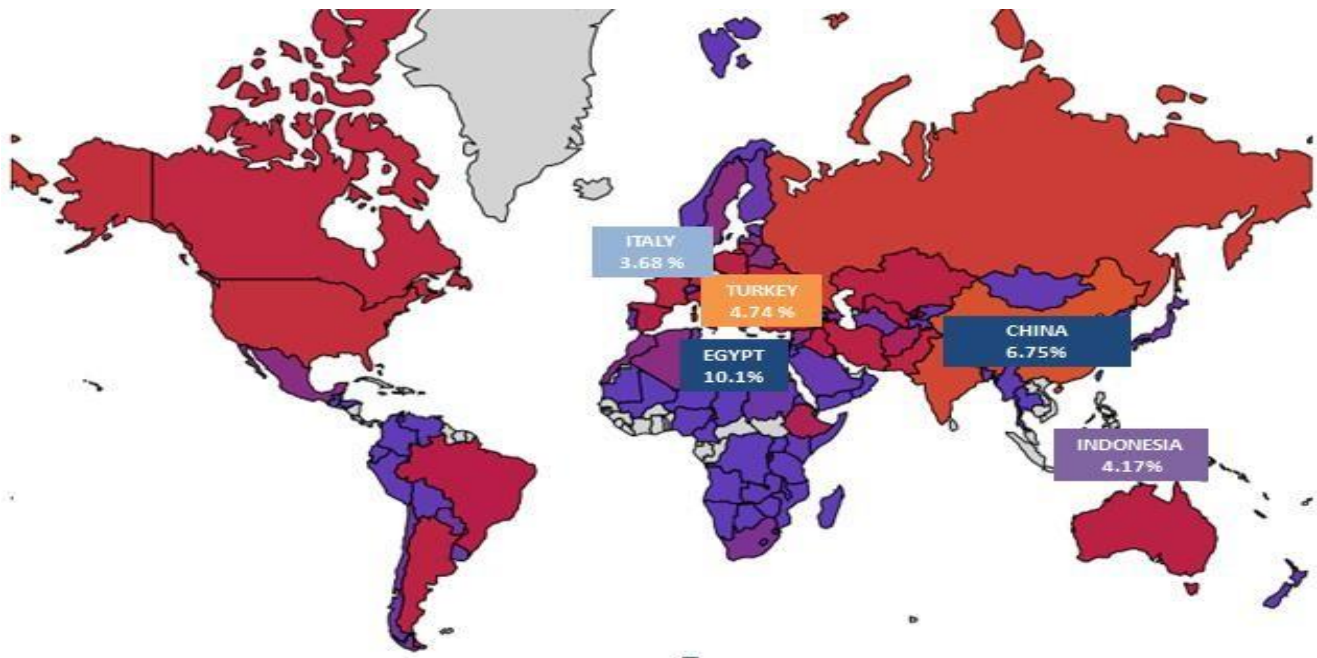
**Figure 2. Financial value of wheat exports Country wise.**



### 1.7. Major Importers of Wheat.

Wheat is considered to be the world's No 64 most traded product. In just 2020, as per trade data the top importers of Wheat included Egypt (\$5.2B), China (\$3.47B), Turkey (\$2.44B), Nigeria (\$2.15B), and Indonesia (\$2.08B).

**Figure 3. Major Wheat Exporters (% of total wheat exports in world)**

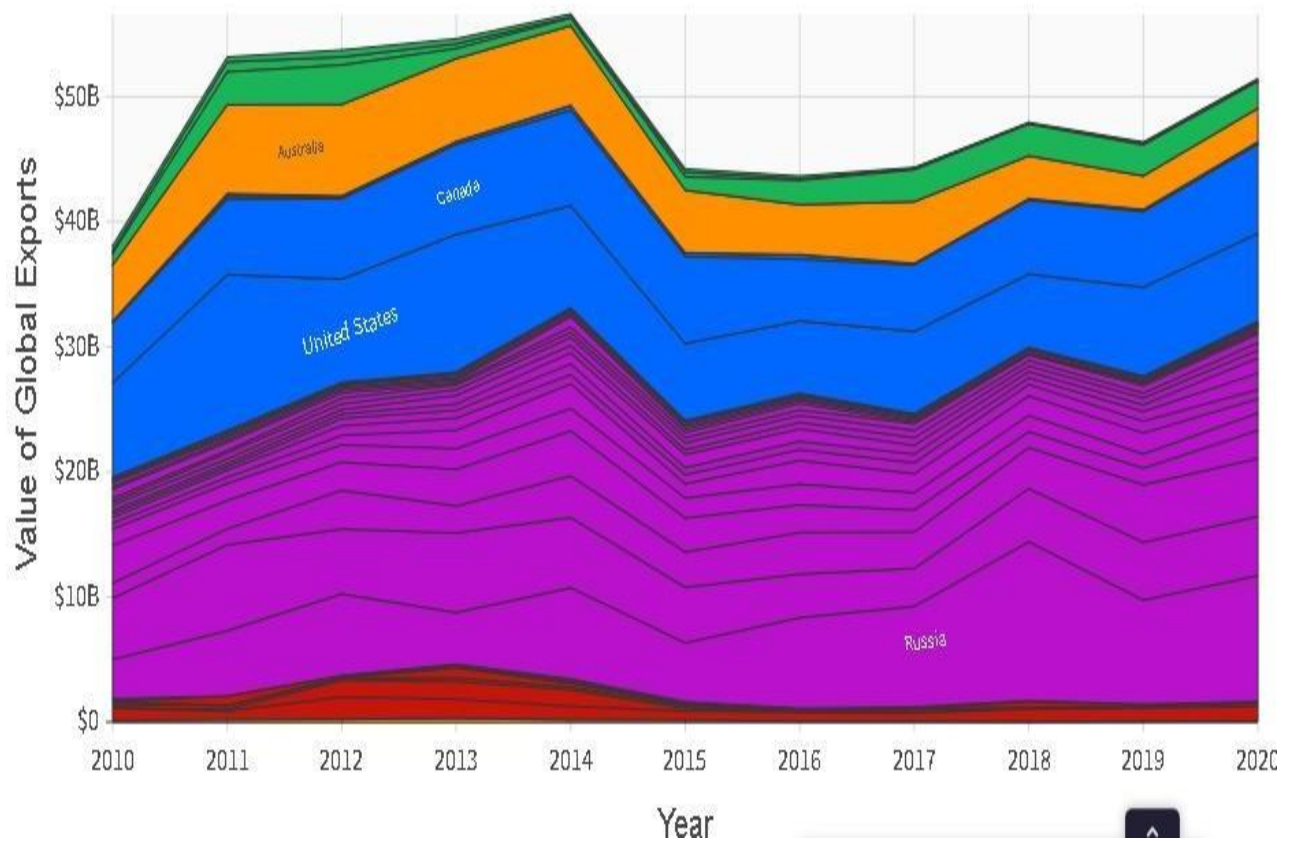


### **1.8 Financial analysis of wheat imports w.r.t countries**

In 2021, the global wheat import amounted to US \$58.6. Since 2017, the value of the wheat imports on average increased to 38.4 %. In terms of value, the major wheat importers included Indonesia, China, Nigeria, Turkey and Egypt. All these countries make up about 25 % of the world wheat imports. In terms of dollar worth, the Asian countries accounted for about 43% of global wheat imports and African countries about 27%. In recent years the fastest-growing markets for wheat since last two years had been Bangladesh, Algeria, Vietnam and South Korea.



**Figure 4. Value of Global Wheat Exports.**



### 1.9 Market Concentration for Wheat Exports

Wheat is one of the top cereal grains that are produced globally. It is one of the crops that can be cultivated in different types of weather, land elevation and soil. According to the report by world Food and Agriculture Organization, the global area which was harvested for wheat production was about 215.9 million hectares. **However, the global wheat production has reduced by 0.54% compared to the previous year.** The market concentration of wheat was concentrated by Russia, United States, Canada, Australia etc

## Chapter 2: Typical Wheat Supply Chain.

Typical players in wheat value supply chains are wheat cultivators / wheat producers, wheat suppliers, assemblers, wholesalers, retailers, wheat product consumers, retailers of processed food and service providers.

The major elements in Bulk Transport System of Wheat includes:

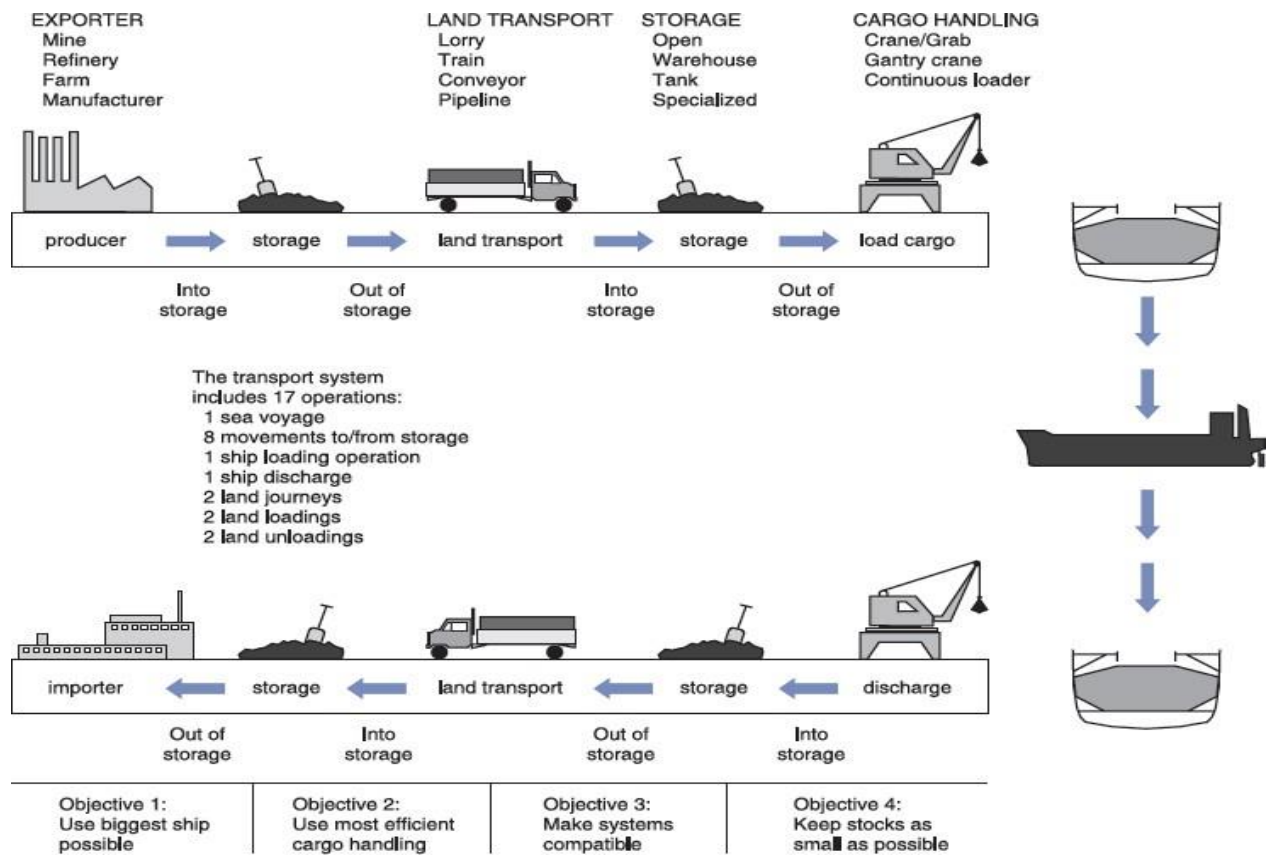


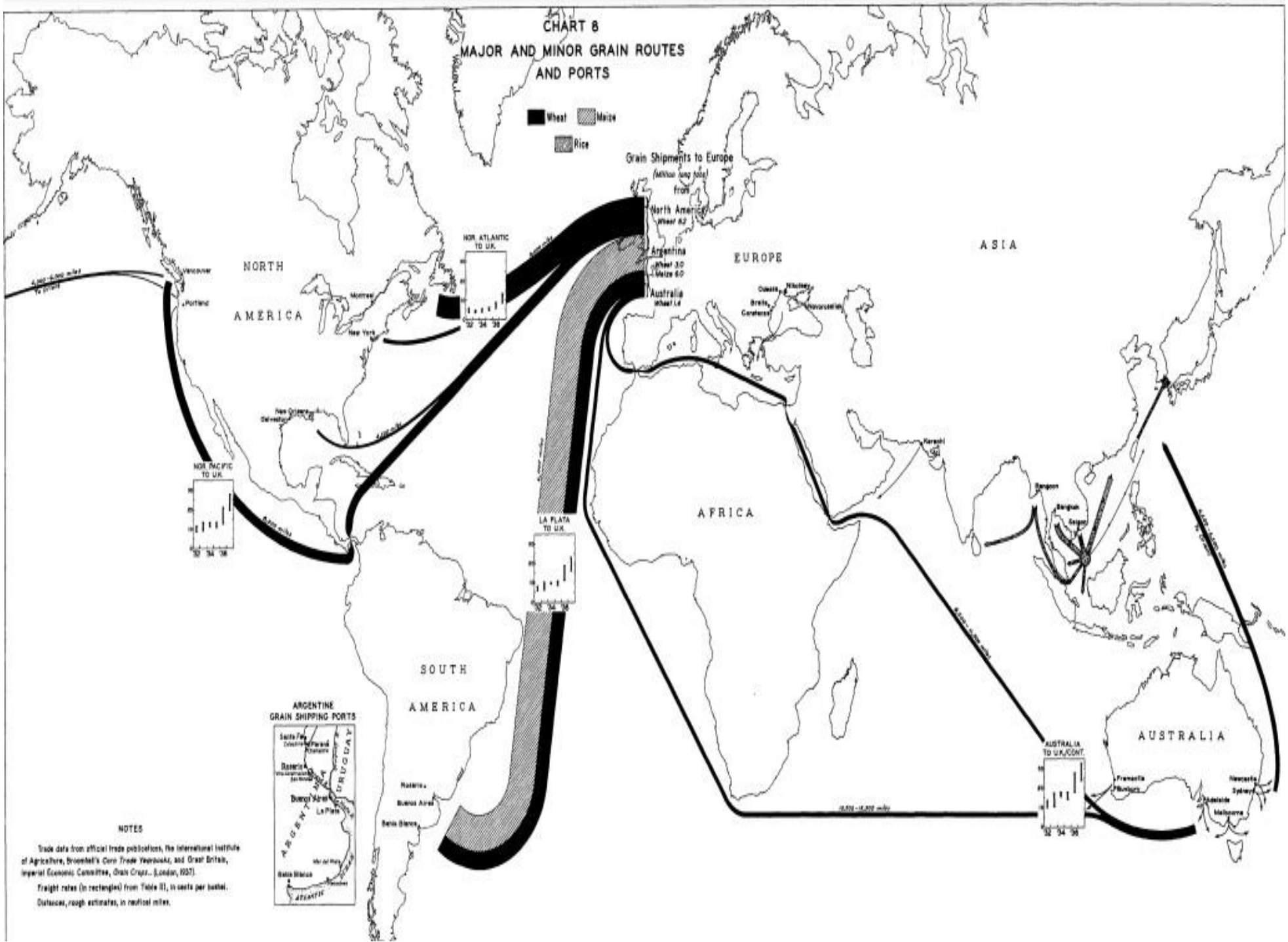
Figure 5: Typical Wheat Supply Chain

Wheat was always transported in Bulk cargo, but recently owing to Shrinkage, cost perspective and pilferage containerized shipping method is being used.

### 2.1 Major sea routes for Wheat transportation.

Detailed shipping route plan for wheat transportation is depicted below in the chart. The black route relates the transportation of wheat.

CHART 8  
MAJOR AND MINOR GRAIN ROUTES  
AND PORTS



■ Wheat  
▨ Maize  
▩ Rice

Grain Shipments to Europe  
(Metric long tons)  
from  
North America  
Wheat 42  
Argentina  
Wheat 30  
Maize 60  
Australia  
Wheat 14

NOR ATLANTIC  
TO UK

NOR PACIFIC  
TO UK

LA PLATA  
TO UK

AUSTRALIA  
TO UK/CONT

ARGENTINE  
GRAIN SHIPPING PORTS



NOTES

Trade data from official trade publications, the International Institute of Agriculture, Brownell's *Cereals Yearbook*, and Great Britain, Imperial Economic Committee, *Grain Crops*... (London, 1937).  
Freight rates (in rectangles) from Table 31, in cents per bushel.  
Distances, rough estimates, in nautical miles.

### **Chapter 3: Containerization of Wheat.**

This aspect is very important to understand the supply chain of wheat as it elaborates how the wheat is being transported. Containerization is efficient as it saves time and money. Moreover, containers are considered multipurpose as they are able to hold various types of goods from port to port. (Kim, 2023)

Considering, the two ways shipping, container is considered cheaper. Containerization has recently begun in Asia, as per sources this helps in importing smaller amount of goods which are cheaper per ton.

The suppliers are also increasing the use of containers as they save on costs and helps in delivering grains without using barges and other break bulk facilities. As per source, a standard 20-foot container is able to keep approximately 23-24 tons of grains. This is ideal for smaller volume of grains importation.

Apart from the cost benefits, containers are considered more elastic and are also compatible to the fluctuating supply of grain. The present system being adopted of break bulk is quite rigid and is not able to adapt to good harvesting. Therefore, containers can be used additionally for shipping excess bulk system.

Lastly, the safe carriage of wheat requires certain conditions. They include certain temperature, humidity/moisture and most importantly ventilation conditions. There is apparently no lower temperature limit and the optimum temperature is around 20 °C.

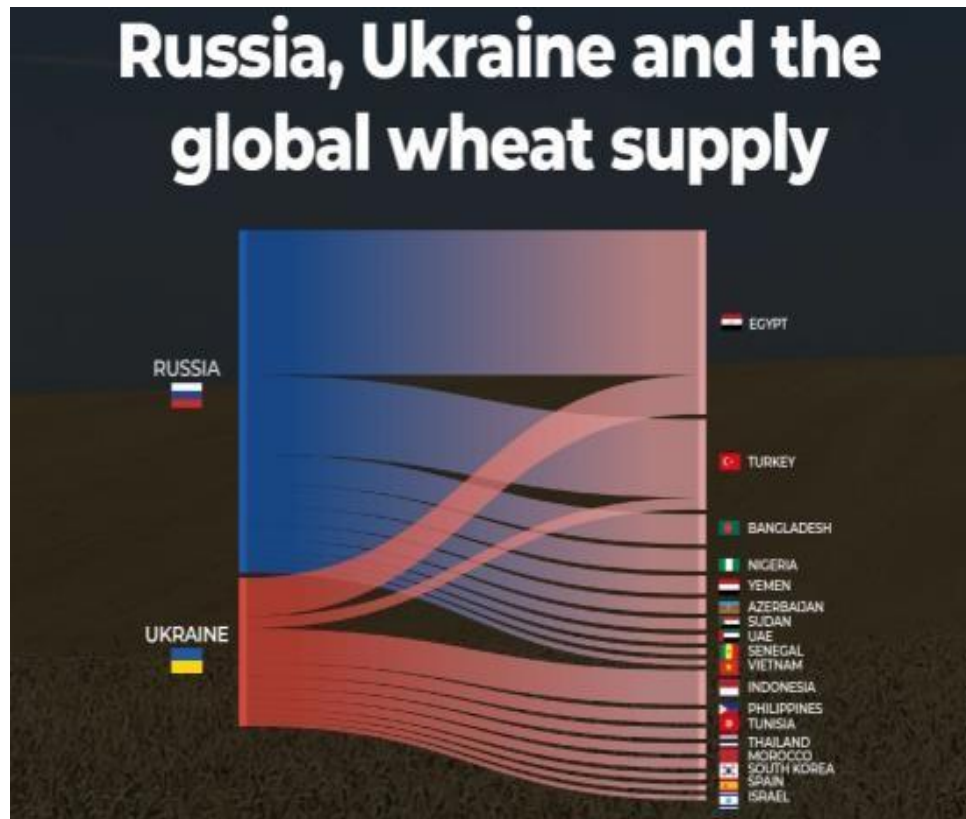
## Chapter 4: Risks and Opportunities.

While understanding the global supply chain, one needs to learn about the major players in the global supply chain of wheat. These players not only meet the supply and demand of wheat globally but a slight change in their production pattern can cause huge disruption across the world. Russia is indeed the world's largest exporter of wheat, and is responsible for about more than 18% of wheat exports to countries. Just in 2019, both Russia and Ukraine were responsible for exporting approximately 30 % of global wheat supply. (Janzen, 2022)

Globally, the top importer of wheat is Egypt. It spends approximately about more than \$4bn annually to feed its growing population. Russia and Ukraine both together fulfilled 70 % of Egypt's wheat demand.

A chart depicting the annual export of wheat by Russia and Ukraine globally is depicted below:

**Figure 6. Russia – Ukraine Global Wheat Supply**



#### **4.1 Ukraine Russia War.**

The Black Sea is considered as a key geo-economic region both for Russia and Ukraine. Both their ports rely heavily on black sea for industrial and all the agricultural products exports. Odessa, Kherson and Mycelia are the most important ports for international trade flows for Ukraine. (Kulu, 2023)

Presently, in the event of war, wheat transportation has been affected alot, as approximately 95% of the wheat is transported from Black Sea by Ukraine Region. Owing to war and high prices of wheat now the importers are finding suitable alternatives of wheat supply.

There is some trading activity happening at Romanian and Bulgarian ports in the Black Sea region, but comparing the grain volumes, it is substantially lower than the grains volumes of Ukrainian and Russian grains exports.

Owing to slow transportation and lower trade, as per reports, there are no shipments on Panamax or Supramaxes, but there transportation is taking place on smaller sizes.

Many suppliers are also using rail routes for grains parcels from Ukraine to ports in Romania and Bulgaria which are being shipped through Black Sea on sub-Supramax vessels to their delivering regions.



**Figure 7 Importance of Black Sea for Wheat transportation**

#### 4.2 Population Growth.

With global population increase, the demand of wheat has only increased over the years. Therefore, after the Russia and Ukraine war, the European Union is relying on Australia, United States on Argentina, Egypt on India, because of its relative proximity and low shipping costs, and also because Egypt is dependent on India for other agricultural products. China, however, is relying on multiple sources i.e. Canada, Australia, Argentina and France.

#### 4.3 Climatic Disruptions.

With the ongoing climatic change and disruption the balance of ecosystem has been completely disturbed. Wheat being a staple food is highly affected by temperature and weather changes. It not only affects wheat production but also make wheat sensitive to several diseases. As the high temperature causes a high rate of transpiration, resultantly chances of drought and low

Productivity increases. Presently the drought affects 15% of wheat productivity. Moreover, as per research, every 2°C shift of temperature will result in severe water shortage in the coming 20 to 30 years.



## **Chapter 5 : SWOT Analysis of Pakistan's Wheat Market.**

Wheat is of significant importance in Pakistan, as about 80 % of the country's farmers are growing it on an area of more nine million hectares. Wheat is Pakistan's staple so whether it is profitable crop or not, Pakistan's farmers will keep growing it. Wheat accounts for 37.1 % of the crop area, 65 % of the food grain acreage, and 70 % of the production. As per research, the wheat's water requirements range from 20-21 in/acre. The Indus Plains with their favorable topography, rich soil, and good agricultural facilities have a much greater acreage planted to wheat.

In Pakistan, spring wheat is grown as a Rabi crop in the Sindh, Punjab, NWFP, and Balochistan provinces. In the northern parts of Balochistan, some winter wheat is cultivated on a small scale. The major production area is in Punjab (71.17 %), followed by the Sindh province (13.38 %). However, the yield per acre is slightly higher in Sindh as compared to Punjab. (Salam, 2010)

### **5.1 Strengths.**

Agriculture has itself always remained the mainstay strength in Pakistan. Owing to its geographical location and favorable weather condition, it has been contributing in more than 30 % of the country's GDP. Wheat is one of the most important agricultural crops here along with Rice, cotton and Sugarcane and collectively these four crops account for nearly 80% of value added crop in the country. Over the years, we have seen a noticeable increase in wheat production across the country, because of strong agricultural research coupled with development of high yielding wheat varieties. Moreover, with the advent of modern wheat seed adapted to Pakistani conditions, the introduction of chemical fertilizers, the spread of tractors, and the development of massive water infrastructure for agriculture, has made Pakistani market indeed ideal for wheat production. (Khan M. A., 2022)

### **5.2 Weakness.**

Owing to cropping pattern, disease prevalence and climate conditions, Pakistan has been divided into a ten production zones. Thus considering the situation, wheat in Pakistan is grown in different cropping systems, such as; cotton wheat, rice wheat, sugarcane wheat, maize wheat,

fallow wheat. However, since years, Pakistan is facing shortage of wheat and one of the major reasons is 'black marketing'. Black marketing is the illegal economy selling products at higher price, often by creating a false shortage by hoarding, which subsequently creates a heightened demand, and then selling it at a higher price in violation of all established regulations. Apart from these factors, lack of modern agricultural infrastructure and machines specially to sustain flooding conditions are also significant factors that are considered weakness for the Wheat market.

### **5.3 Opportunities.**

Wheat market requires very small steps to be taken to grow and expand it. Two major factors that create opportunity for the wheat market is its availability and pricing. For the availability side, the government will have to ensure regulation of its seed and fertilizer sector and ensure supply of input. (Hussain., 2023). New varieties circulated in the market would open greater opportunities for development. Likewise, with the advent of new technologies and genetic engineering techniques new seed and fertilizer varieties can be introduced in the market that can play an important role in revamping the wheat situation of the country.

### **5.4 Threats.**

Owing to geo-political situation and inclement weather condition, this year Pakistan has majorly missed the government target. The 2022 wheat production has been estimated as 26.8 million tones. This production target had been mainly affected because of heavy flooding, heat waves and lack of fertilizer and water supply for irrigation. This year's wheat production is about 4 % lower than the previous year and it is expected to lower more next year. (Khan A. F., 2023) The flooding and lack of fertilizers is indeed a threat to Pakistan's wheat market.

#### **5.4.1 Reasons for wheat production shortage in Pakistan.**

#### **5.4.2 Flooding: 2022.**

There are two main crop seasons in Pakistan, namely the Kharif, with a sowing season from April to June and harvest in October to December; and the Rabi. The production of Rabi crop usually takes place between October and December. Owing to flooding of many areas, it is expected that planting of this crop will face more impediments. (Shakoori, 2023). The floodings as estimated is likely to reduce the wheat production for the next year by 50% in Sindh, the

country's second-largest wheat producer Punjab. As per research, estimated 50% reduction in Baluchistan's wheat production is expected next year as huge portions of cropland is inundated in flood.

Moreover as per Mahmood Nawaz Shah, official of Sindh Abaadgar (farmers) Board

“Only 50% to 60% of the land will be available for crop production this season due to inundation of huge swathes of farmlands.” – (Source -The NEWS)

Therefore, being a major wheat producer, Pakistan still imports wheat majorly from the war-hit Ukraine and other countries.

### **5.4.3 Controlled Wheat Market.**

Pakistan having controlled wheat marketing system and is being considered strategic commodity. Therefore the federal government is responsible for setting a minimum guaranteed price or procurement price then that price is being set for the wheat to be sold to flour mills. Basically, the purpose of setting the price is also associated with capturing much of the cost of buying and storage of wheat. This system aims to protect the farmers not only from price fluctuations but also to ensure minimum return during cyclical price fluctuations. (Ahmed, 2020)

Also the farmers in Pakistan keep about 60 percent of their wheat production for their seeding and own consumption. The marketed wheat is mostly the one that is being bought by the government. The main purpose of GOP involving itself in such dynamics is to basically for food protection and market intervention purpose. Rest of the wheat is being procured by the private sector.

Market Year	Area (1000 Ha)	Production (1000 Tons)	Yield (T/Ha)
2011/2012	8,901	25,214	2.8
2012/2013	8,650	23,473	2.7
2013/2014	8,660	24,211	2.8
2014/2015	9,199	25,979	2.8
2015/2016	9,204	25,086	2.7
2016/2017	9,224	25,633	2.8
2017/2018	8,973	26,674	3.0
2018/2019	8,797	25,076	2.9
2019/2020	8,678	24,349	2.8
2020/2021	8,805	25,248	2.9
2021/2022	9,168	27,464	3.0
2022/2023	9,000	26,400	2.9
<b>5-year Average 2017/18 - 2021/22</b>	<b>8,884</b>	<b>25,762</b>	<b>2.9</b>
<b>Percent Change From 5 Year Average (%)</b>	<b>1</b>	<b>2</b>	<b>1</b>

PS&D Online updated on November 9, 2022

**Table 3. Area, Production and Yield of Wheat in Pakistan.**

In recent years, Pakistan's wheat production has been approximately about 22 to 26 million tons per year. The crop is grown by predominantly small. Owing to climatic conditions, the wheat yields in Pakistan has remained very low. This production can be increased, however, the policies need to take into account the prevalent hindrances in the wheat supply chain, most importantly the lack of storage facilities, which shed lights that storage of wheat is another important factor and challenge to be considered in the supply chain of wheat.

#### **5.4.4 Wheat Storage Issues.**

The maximum storage capacity at Punjab Food Department is about 2.18 million tons of wheat. Moreover, the Pakistan Agricultural Storage and Services Corporation can store about 0.8 million tone. This year the storage has been reduced by 2 million as Passco has saved more capacity for rice storage than wheat storage. Likewise, the storage capacity of Sindh Food authority is also negligible. (Momena Abdur REHMAN, 2018)

Therefore there is dire need of wheat storage facilities all across Pakistan, the higher management also tried to persuade the flourmill owners in not only buying but also storage of wheat but the deal could not be materialized.

The prime reason of flourmill owner declining to support government is based on variety of reason. As a last resort, the department is now trying to rent godowns in the provinces for rent. But again the government imposition to lower the rent rates was not supported by the goddown owners and most of them decline to rent their warehouse for the storage. Although the government is in talks with the District Coordination Officer in every region to reach an amicable rent price to fulfill the storage requirements. However, it is not a long term solution.

“If you have ample storage capacity, let’s say according to the procurement target, you will enter the market with confidence and will buy aggressively,” – said an expert in the wheat supply chain management” (Tiwari, 2022)

Another pertinent matter to highlight is that despite of government trying to reach out a solution to the problem , on the other hand, will you imagine that a modern silo having capacity of 30,000 tones was completed in Islamabad a couple of years back but it is not being used by the food department. In this regards, the then secretary food had given go ahead to a private company to complete state-of-the-art silo after carrying out proper tender process. Moreover, despite completion of the project, millions of rupees are yet to be paid to the company. Concerned sources claimed that local staff of the food department was not happy with the construction of such silos as manipulation with stored grains would not be possible for them.

It is pertinent to mention here that construction of such modern silos will also significantly reduce dependence on gunny bags because grains can be stored in bulk at such facilities. The fumigation of grain can also be carried out with a great ease in them.

Thus to increase the storage capacity, now the government has to approve the PC-1 for construction of 0.5 million tones silos. Likewise, another PC -1 had been approved by federal government last year but the construction of the same has not yet started.

During an interview with a senior government official (Punjab Food Secretary Irfan Ilahi) when asked about the wheat storage issues, he said :

“Our focus is to utilize the available silos in Islamabad. Moreover, if required the wheat could be stored in open with proper coverage with tarpaulins and polythene sheets”- (Source – Business Recorder Article)

Thus, understanding the perspective of government officials, one can judge that the government is not making or planning to make any big reforms in this sector.

## **Chapter 6: Future of Pakistan's wheat supply chain: 2023**

Despite of facing multitude of challenges in the year 2022 i.e. persistent flooding, inadequate drainage and other economical challenges. The harvest of wheat in the year 2023 is positively expected to ease out the burden and fulfill the shortage of wheat owing to damage induced by flooding to seeds and fertilizers. As per research, the seeding of wheat for the year 2023/24 has gone well and is in last phases of completion. The credit to manage the seeding process has to be given to combined efforts of government associated agencies. The crop will be ready to be harvested in April / May 2023.

Based on the forecast for harvesting output, it is estimated by FCA (Federal Committee on Agriculture) that wheat production would be around 28.4 million tons. However, the final output would be based on fertilizer supply and weather conditions. If the output is same as expected, it would be 2 million tons higher than 2022/23 output.

### **6.1 Import of Wheat; way forward for Pakistan.**

On the basis of forecasted demand and supply of wheat, considering the production targets the FCA has expected that this year the wheat import would be reduced from 3 to 2.6 million tons.

Moreover, on 5 December, 2022 the Economic Coordination Committee (ECC) has approved about 500, 000 tons at the rate of 372 \$ / ton. Additionally, another contract of 450,000 tones import from Russia at the same rate is also approved which us due for delivery on 31<sup>st</sup> march, 2023.

Therefore, the government is quite satisfied that about 2.6 million tons of import along with domestic supply of wheat be sufficient for the year 2023/24. Additionally the Ministry of National Food security is on its toes to evaluate any probable shortage of wheat in the year and accordingly augment its supply through various sources.

The Federal Minister of National Food Security has assured that despite of the challenges, Pakistan has achieved 91% of the wheat sowing target for the year 2023/24 on 21 million acres. Moreover, as per the Minister, he is trying to engage of the provincial government to encourage the support price being proposed by the ministry for smooth supply of wheat. (SAEED, 2022)

Presently, Pakistan Agricultural Storage and Services Corporation are procuring about 20 % of the wheat to supply to AJK. Rest 80 % is being procured by private and government sector. The Ministry of National Food Security is also trying to stabilize the flour price to be provided to the residents of capital specially. The reason to stabilize the flour price in Capital is the soaring prices of wheat bags. Presently, the demand in Islamabad per day is 38000 bags; however, only 21000 bags are being provided which created supply and demand problem that inflates prices. Another reason of high prices is when the fluctuation in supply and demand of wheat occurs it is met out of open market.

Despite of all above mentioned issues, the government has created various sale points for wheat sale at affordable prices. Along with that, the government is in continuous strive to assess the grinding capacity of flour mills to operate at their maximum capacity as earlier the mills were not operating at their full capacity. The most important solution to increasing wheat prices owing to shortage of wheat in certain areas is to ensure coordinated efforts by the provincial government to manage wheat stock and support prices. However, the government has ensured that not only the provinces would be supplied with sufficient wheat through domestic production but would also be given their due share through wheat imports.

## **6.2 Storage of Wheat.**

China, due to its stockpiling habit is planning to keep 53% of the world's wheat in storage by next year. Likewise it is expected that France, India, Canada wheat exports will also be lowered owing to dry weather.

Lastly, 54 countries depend on Russia and Ukraine for wheat and over 11 of the countries import fertilizer from Russia. Therefore, owing to geo-political issues, huge fertilizers and wheat shortages are expected in coming years. (Tiwari, 2022)



### **6.3 Seed Research and Zoning for wheat cultivation.**

Wheat is considered as second most important cereal crop in the world as it provides daily calorie and protein. As per WHO, there is a dire need for farmers to move to Green Revolution for wheat. Apart from that scientists at national and international research institutions are all exploring new technologies and doing research to increase the rate of genetic gain in wheat. Moreover, Pakistan has been divided into ten production zones but to increase the yield the production zones need to be revisited. Presently, wheat is grown in different cropping systems, such as; cotton wheat, rice wheat, sugarcane wheat, maize wheat, fallow wheat. Amongst them Cotton-Wheat and Rice-Wheat systems together account about 60% of the total wheat area. Therefore, rotation in Maize-Sugarcane, Pulses and fallow can play an important role in improving the situation.

### **6.4 Yield increase through Scientific Agriculture.**

With the introduction of semi dwarf wheat , wheat productivity has been substantially increased in all the major cropping systems. One of the major reasons is diverse and varying agro- ecological conditions and new scientific techniques. Moreover, a large number of experiment stations and on-farm demonstrations have also been set up to experiment the yield potential of various varieties of wheat.

### **6.5 Alternatives of Wheat.**

Above in view, the world needs to find out alternative solution to wheat shortages. Like in U.S. during World War I, owing to scarcity of wheat, the Federal Food organization asked the people to switch to ground oats, corn meal, rice, barley, potato and buckwheat in place of wheat flour. The reason of stating this fact is that wheat scarcity is not a new issue rather it has been there since World War-I. Presently, corn, maize, barley, Potato Starch, etc are alternatives of wheat used by countries i.e. China, Africa, Brazil, Congo etc. Therefore, in addition to exploring genetic solutions, green revolution and managing wheat storage, the countries need to evaluate as switch to other healthy alternatives of wheat.

## **Chapter 7: Conclusion.**

In Pakistan, the prime goal of food policy is to achieve the food security and to provide low- price food to consumers. Additionally, owing to strict government policies, they also have to assure reasonable prices to farmers, and boost agricultural infrastructure in the country. The various policies adopted to achieve the above mentioned objectives was to ensure support to the producers, provision of wheat to customers through ration shops and most important supply of fertilizers at reasonable prices.

Overall, the economy of Pakistan is going through tough times. However, seeing the past trends Pakistan's government has always managed to strive through tough times. Therefore, the country can come out from this because of increased agricultural productivity occurred largely due to the deployment of high-yielding seeds and increased fertilizer usage. Moreover, with the introduction of semi dwarf wheat, wheat productivity has been increased in all the major cropping systems representing the diverse and varying agro-ecological conditions. Moreover, as mentioned earlier, a large number of experiment stations and on-farm demonstrations have repeatedly shown high yield potential of the varieties.

It is pertinent to mention that, wheat production in Pakistan can be seen as three distinct periods: The first phase was from 1947-65, prior to the release of semi-dwarf wheat; then from 1966-76, the "Green Revolution" period in which High Yielding Varieties (HYVs) with chemical fertilizers were rapidly adopted on about two thirds of total wheat area; and then from 1977 to date, post green revolution period in which HYVs having disease resistance continued to cover the major wheat area through coordination efforts at national level. (Ihsan Elahi, 2022)

The reason of mentioning the phases of the wheat market is that with persistent efforts of government in establishing storage facilities to assuring stable prices for wheat and provision of quality seeds and fertilizers at lower cost to farmers, Pakistan will be able to meet the futuristic demand of wheat and fight the wheat shortage through taking both short and long term ventures successfully as discussed in the report.

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