

# FOOD SECURITY OF THE WORLD WITH SPECIAL REFERENCE TO RICE



Rice is the staple food for half the world's population across 234 countries spread over segmentation of population is given below:

REGION	POPULATION (MN)	REGION	POPULATION(MN)
Asia	3655	Africa	1382
Americas	968	S.E. Asia	624
E.U.	449	Gulf	396
Russia/CIS	286	Other Europe	200
Oceania	45	Caribbeans	36
Others	2.45	<b>Grand Total</b>	<b>8043.45</b>

**Gulf region has a population of 396 million of which UAE has 10 million. Asia and Africa account for 75% of global population. Asia accounts for 53.24% while Africa's share is 17.18%).**

It is note worthy that half the world population consumed rice as a staple food.

## Global Rice Scenario

Rice is the staple food for more than half the global population of 8 bn. Continent wise population break up is as under:

As per Statista, the global rice production along with Indian rice production (Source: Ministry of Agriculture & Farmers' Welfare) during the last five years has been as under:

Year	World Prodn- mn Ts	India Prodn- mn Ts	India' share (%)
2019-20	498.18	118.87	23.86
2020-21	508.80	124.37	24.44
2021-22	513.10	130.29	25.39
2022-23	512.96	135.75	26.46
2023-24	513.54	Na	-

It may be noticed that India accounts for a major chunk of share in global rice production and by each year it has been rising. The other top rice producing countries in the world are :

Country	Prodn-mn Ts	Country	Prodn-mn Ts
China	153.683	Philippines	15.400
India	109.166	Thailand	12.700
Bangladesh	36.733	Myanmar	10.367
Indonesia	35.367	Japan	8.183
Vietnam	21.450	Nigeria	7.333

Of the overall global rice production, Asia accounts for around 90% share with China and India, the two top countries, sharing 54.58%. Four types of rice are produced worldwide:

Type of rice	Growing region	% of global rice trade
Indica	Tropical and sub-tropical regions such as India, Pakistan, Thailand, Vietnam, Myanmar, Cambodia, Philippines, Indonesia, Malaysia, Southern China and Brazil	62 – 66
Aromatic (Jasmine and Basmati)	<b>Jasmine</b> : Thailand, Vietnam, Cambodia <b>Basmati</b> : India and Pakistan	23 – 25
Japonica	Regions with temperate climates such as Japan, North Korea, South Korea, Certain regions of China, California, the European Union, Russia, Australia and Egypt	9 – 10
Glutinous and other speciality rice types	Primarily Thailand, Vietnam, Cambodia and Laos	2 - 3

## Per Capita Consumption of Rice

As per World Health Organization the per capita consumption of rice in the 17 Country Groups is as under:

Cluster	Countries	Per capital ion gms
G01	Afghanistan, Algeria, Azerbaijan, <b>Iraq, Jordan</b> , Libya, Mauritannia, Mongolia, Morocco, <b>Occupied Palestinian Territory, Pakistan</b> , Syrian Arab Republic, Tunisia, Turkmenistan, Uzbekistan, <b>Yeman Arab Republic</b>	34.21
G02	Albania, Bosnia and Herzegovina, Georgia, Kazakhstan, Kyrgyztan, Montenegro, Republic of Moldova, Ukraine	10.39
G03	Angola, Benin, Burundi, Cameroon, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Ghana, Guinea, Liberia, Madagascar, Mozambique, Paraguay, Togo, Zambia	41.72

G04	Antigua and Barbuda, Bahamas, Barbados, Brunei Darussalam, French Polynesia, Grenada, <b>Israel</b> , Jamaica, <b>Kuwait</b> , Netherlands Antilles, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, <b>Saudi Arabia</b> , <b>United Arab Emirates</b>	82.38
G05	Argentina, Bolivia Plurinational State of , Brazil, Cape Verde, Chile, Colombia, Costa Rica, Djibouti, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Honduras, <b>India</b> , Malaysia, Maldives, Mauritius, Mexico, New Caledonia, Nicaragua, Panama, Peru, Seychelles, South Africa, Suriname, Tajikistan, The former Yugoslav Republic of Macedonia, Trinidad and Tobago, Venezuela , Bolivarian Republic	150.24
G06	Armenia, Cuba, Egypt, Greece, <b>Iran</b> Islamic Republic of , <b>Lebanon</b> , Turkey	70.47
G07	Australia, Bermuda, Finland, France, Iceland, Luxembourg, Norway, Switzerland, United Kingdom, Uruguay	13.38
G08	Austria, Germany, Poland, Spain	10.80
G09	<b>Bangladesh</b> , Cambodia, China, Democratic People's Republic of Korea, Guinea Bissau, Indonesia, Lao People's Democratic Republic, Myanmar, Nepal, Philippines, Sierra Leone, Thailand, Timor Leste, Vietnam	262.08
G10	Belarus, Bulgaria, Canada, Croatia, Cyprus, Estonia, Italy, Japan, Latvia, Malta, New Zealand, Republic of Korea, Russian Federation, United States of America	57.16
G11	Belgium, Netherlands	12.83
G12	Belize, Dominica	62.75
G13	Ethiopia, Eritrea, South Sudan, Botswana, Burkina Faso, Central African Republic, Chad, Ethiopia PDR, Gambia, Haiti, Kenya, Malawi, Mali, Namibia, Niger, Nigeria, Senegal, Somalia, Sudan, Swaziland, United Republic of Tanzania, Zimbabwe	30.20
G14	Comoros, Fiji Islands, Kiribati, Papua New Guinea, Solomon Islands, <b>Sri Lanka</b> , Vanuatu	218.34
G15	Serbia, Czech Republic, Denmark, Hungary, Ireland, Lithuania, Portugal, Romania, Serbia and Montenegro, Slovakia, Slovenia, Sweden	12.77
G16	Gabon, Rwanda, Uganda	15.24
G17	Samoa, Sao Tome and Principe	15.35

## Production of Basmati Rice

Basmati rice is endemic to only two countries i.e India and Pakistan. India's share in production is estimated at 75% while the remainder 25% BELONGS TO Pakistan. It is estimated that of the total rice production of 135 mn tonnes in India 8 mn tonnes is Basmati rice and the balance is non-Basmati rice.

### India Rice Production

Market	Area	Milled Production	Rough Production	Yield
Year	(1000 Ha)	(1000 Tons)	(1000 Tons)	(T/Ha)
2014/2015	44,110	105,482	158,239	3.6
2015/2016	43,499	104,408	156,628	3.6
2016/2017	43,994	109,698	164,563	3.7
2017/2018	43,774	112,758	169,154	3.9
2018/2019	44,156	116,484	174,743	4.0
2019/2020	43,662	118,870	178,323	4.1
2020/2021	45,769	124,368	186,571	4.1
2021/2022	46,279	129,471	194,226	4.2
2022/2023	47,832	135,755	203,653	4.3
2023/2024	48,000	134,000	201,020	4.2
2024/2025	48,500	138,000	207,021	4.3

PS&D Online updated on May 10, 2024

### Pakistan Rice Production

Market	Area	Milled Production	Yield
Year	(1000 Ha)	(1000 Tons)	(T/Ha)
2014/2015	2,891	7,003	3.6
2015/2016	2,739	6,802	3.7
2016/2017	2,724	6,849	3.8
2017/2018	2,901	7,450	3.9
2018/2019	2,810	7,202	3.8
2019/2020	3,041	7,206	3.6
2020/2021	3,335	8,420	3.8
2021/2022	3,537	9,323	4.0
2022/2023	2,975	7,300	3.7
2023/2024	3,617	9,000	3.7
2024/2025	3,800	9,500	3.8

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### Thailand Rice Production

Market	Area	Milled Production	Yield
Year	(1000 Ha)	(1000 Tons)	(T/Ha)
2014/2015	10,270	18,750	2.8
2015/2016	9,444	15,800	2.5
2016/2017	10,247	19,200	2.8
2017/2018	10,756	20,577	2.9
2018/2019	10,830	20,340	2.8
2019/2020	9,890	17,655	2.7
2020/2021	10,509	18,863	2.7
2021/2022	10,702	19,878	2.8
2022/2023	11,072	20,909	2.9
2023/2024	10,650	20,000	2.8
2024/2025	10,700	20,100	2.8

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### Vietnam Rice Production

Market	Area	Milled Production	Yield
Year	(1000 Ha)	(1000 Tons)	(T/Ha)
2014/2015	7,823	28,166	5.8
2015/2016	7,704	27,584	5.7
2016/2017	7,714	27,400	5.7
2017/2018	7,645	27,657	5.8
2018/2019	7,540	27,344	5.8
2019/2020	7,380	27,100	5.9
2020/2021	7,305	27,381	6.0
2021/2022	7,100	26,670	6.0
2022/2023	7,100	26,940	6.1
2023/2024	7,145	27,000	6.0
2024/2025	7,150	27,000	6.0

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### Indonesia Rice Production

Market	Area	Milled Production	Yield
Year	(1000 Ha)	(1000 Tons)	(T/Ha)
2014/2015	11,830	35,560	4.7
2015/2016	12,100	36,200	4.7
2016/2017	12,240	36,858	4.8
2017/2018	12,250	37,000	4.8
2018/2019	11,500	34,200	4.7
2019/2020	11,600	34,700	4.7
2020/2021	11,400	34,500	4.8
2021/2022	11,600	34,400	4.7
2022/2023	11,300	33,900	4.7
2023/2024	11,000	33,020	4.7
2024/2025	11,200	34,000	4.8

PS&D Online updated on May 10, 2024

### China Rice Production

Market	Area	Milled Production	Yield
Year	(1000 Ha)	(1000 Tons)	(T/Ha)
2014/2015	30,765	146,726	6.8
2015/2016	30,784	148,499	6.9
2016/2017	30,746	147,766	6.9
2017/2018	30,747	148,873	6.9
2018/2019	30,189	148,490	7.0
2019/2020	29,690	146,730	7.1
2020/2021	30,076	148,300	7.0
2021/2022	29,921	148,990	7.1
2022/2023	29,450	145,946	7.1
2023/2024	28,949	144,620	7.1
2024/2025	29,000	146,000	7.2

### Philippines Rice Production

Market	Area	Milled Production	Yield
Year	(1000 Ha)	(1000 Tons)	(T/Ha)
2014/2015	4,705	11,914	4.0
2015/2016	4,523	11,008	3.9
2016/2017	4,723	11,686	3.9
2017/2018	4,844	12,235	4.0
2018/2019	4,741	11,732	3.9
2019/2020	4,637	11,927	4.1
2020/2021	4,762	12,416	4.1
2021/2022	4,802	12,540	4.1
2022/2023	4,848	12,625	4.1
2023/2024	4,800	12,500	4.1
2024/2025	4,850	12,700	4.2

### Bangladesh Rice Production

Market	Area	Milled Production	Yield
Year	(1000 Ha)	(1000 Tons)	(T/Ha)
2014/2015	11,790	34,500	4.4
2015/2016	11,765	34,500	4.4
2016/2017	11,748	34,578	4.4
2017/2018	11,272	32,650	4.3
2018/2019	11,770	34,909	4.4
2019/2020	11,830	35,850	4.5
2020/2021	11,500	34,600	4.5
2021/2022	11,620	35,850	4.6
2022/2023	11,600	36,350	4.7
2023/2024	11,750	37,000	4.7
2024/2025	11,900	38,000	4.8

### Myanmar Rice Production

Market	Area	Milled Production	Yield
Year	(1000 Ha)	(1000 Tons)	(T/Ha)
2014/2015	7,040	12,600	2.8
2015/2016	6,900	12,160	2.8
2016/2017	7,030	12,650	2.8
2017/2018	7,100	13,200	2.9
2018/2019	7,080	13,200	2.9
2019/2020	6,900	12,650	2.9
2020/2021	6,900	12,600	2.9
2021/2022	7,000	12,400	2.8
2022/2023	6,800	11,800	2.7
2023/2024	6,860	11,950	2.7
2024/2025	6,800	12,100	2.8

### US Rice Production

Market	Area	Milled Production	Yield
Year	(1000 Ha)	(1000 Tons)	(T/Ha)
2014/2015	1,187	7,106	8.5
2015/2016	1,046	6,131	8.4
2016/2017	1,253	7,117	8.1
2017/2018	961	5,659	8.4
2018/2019	1,177	7,105	8.6
2019/2020	1,002	5,873	8.4
2020/2021	1,205	7,205	8.5
2021/2022	1,003	6,066	8.6
2022/2023	877	5,082	8.3
2023/2024	1,155	6,931	8.6
2024/2025	1,167	6,992	8.6

## Global Trade in Rice

Global trade is roughly 10% of overall global production of rice and the estimated global trade in rice during 2022-23 is 561.5 mn tonnes which is down from 52.7 mn tonnes in the previous year. The downtrend is due to lower rice utilization trend.

Principal **rice exporting countries** worldwide in 2023/2024 have been

Country	Mn MTs	Va; \$ bn	Share %	Country	Mn MTs	Va; \$ bn	Share %
India	16.500	10.80	36.8	Thailand	8.200	4.00	13.50
Vietnam	7.600	2.50	8.60	Pakistan	5.000	2.40	8.00
USA	2.675	1.70	5.80	China	2.200	1.00	3.50
Cambodia	1.950	0.40	1.40	Myanmar	1.800	0.78	2.70
Brazil	1.300	0.65	2/20	Uruguay	0.950	0.50	1.70

Major **importing countries** in 2023-24 are

Country	Import - mn Ts	Country	Import - mn Ts
Philippines	3.800	China	2.800
Indonesia	2.500	EU	2.400
Nigeria	2.100	Iraq	2.000
Code D'Ivoire	1.400	Senegal	1.400
Vietnam	1.400	Saudi Arabia	1.400
USA	1.325	Malaysia	1.200
Iran	1.150	South Africa	1.100
Bangladesh	0.900	Brazil	0.900
UAE	0.875	Kenya	0.650
Guinea	0.850	Mexico	0.825

## Global Rice Consumption

Between 2008 and 2022, global rice consumption increased by over 80 million metric tons, from 437 million metric tons to around 520 million metric tons. In 2022/2023, the top three countries for rice consumption were China, India, and Bangladesh. China's consumption of rice was 155 million metric tons.

India has been a major player in global trade in rice. Since 2012, India remained the largest exporter. India's rice exports increased by almost 49% in 2020 and then rose 46% more in 2021 registering more than 21 mn tonnes before peaking in 2022 at 22.1 mn tonnes.

Year wise rice consumption in the world since 2013-14 till 2023-24 is tabulated below:

Year	Mn Ts	Year	Mn Ts	Year	Mn Ts
2012-13	480	2013-14	484	2014-15	485
2015-16	480	2016-17	490	2017-18	489
2018-19	490	2019-20	495	2020-21	516
2021-22	518	2022-23	519	2023-24	520

Source: Statista

### Rice in relation to hunger eradication

According to International Rice Research Institute (IRRI), Rice is probably one of the most strategic commodities for the world, closely connected with food security, economic growth, employment and culture. Being staple food for half of humanity or more than 4 billion people globally, it has been an instrumental crop for many countries not only to meet their food demand but also contribute to their economy by exporting the rice.

## Global Food Security Scenario

**The Global Food Security Index 2022 published by CORTEVA Agrisciences mentions** that the overall food security environment continues to deteriorate for 113 nations. The early years of the GFSI (2012-15) saw the biggest improvements, with the average overall food security environment score jumping by 6%. However, the GFSI saw slower growth between 2015 and 2019 and then has weakened from 2019 to 2022, plateauing over the past three years as the world faces its highest-ever food prices and hunger on an unprecedented scale.<sup>1</sup> The GFSI score topped 62.6 out of a possible 100 in 2019 but currently stands at 62.2. In 2022 the index was dragged down by falls in two of its strongest pillars—affordability, and food quality and safety—and saw continued weakness in its other two pillars—availability, and sustainability and adaptation.

Clearly, affordability is related to economic situation which is impinged upon by availability. As for rice, it is the most important commodity in regard to food security around the world. In the context of UAE the following can be mentioned:

## Rice Consumption in UAE

Rice is widely consumed by majority of population in UAE. Basmati rice is the most popular rice variety in the UAE and consumed by locals, expatriates, and international visitors. Most rice is bulk bag packaged and sold through hyper and supermarkets. Indian and Pakistani basmati rice is prevalent but other rice varieties from other origins like the United States, Australia, Thailand, Egypt, and the Philippines are available.

Rice consumption is expected to be 975,000 metric tons. It is also anticipated that a quantity of 9,50,000 tonnes is required to be imported into UAE to meet its domestic consumption.

This is based on the premise that with a total population of around 9 mn, and per capital consumption of rice in UAE being around 83 Kg/person/year keeping in view also the rising population both local inhabitants and immigrants.

The primary drivers of the rice consumption are the country's growing population and the annual increase in foreign visitors. The IMF projected the UAE's population to increase to 10.24 million in 2024 versus 10.06 million in 2023, an increase of 1.78 percent. Population is projected to grow yearly to reach 11 million by 2028. Around 90 percent of the UAE's population are foreign nationals, a dynamic that is unlikely to change. More than 200 nationalities live in the UAE of which around 12 percent of the population are UAE citizens and the remaining 88 percent of the population made up of expatriates. The largest group of foreign nationals in the UAE hail from India and Pakistan, representing more than 50 percent. For these groups and UAE citizens, wheat and rice are staple foods, and various wheat- or rice-based items, including bread, pasta, pastries, and rice dishes are an integral part of their local diet.

## Rice Imports by UAE

In 2022, UAE total rice imports from the world amounted to **878.34 thousand metric tons**. This marked a 20 percent increase compared to 725 thousand metric tons imported in the previous year.

During the period 2017-2022 UAE's import of rice has been as under:

Year	Import-MTs	Year	Import-MTs
2017	9,61,450	2018	8,78,010
2019	8,59,310	2020	7,91,950
2021	7,25,180	2022	8,78,340

Source: Statista

## Overall Export of Rice from India

Year	Basmati rice			Basmati rice	
	Qty-MTs	Val-\$ mn		Qty-MTs	Val-\$ mn
2019-20	4454657	4331		5040708	2015
2020-21	4630463	4019		13095130	8819
2021-22	3948161	3540		17262235	9665
2022-23	4558972	4788		17786093	6356
2023-24	5242048	5837		11116534	4570

Source: DGCIS

## India's Export of Rice to UAE

During the last five years India's export of rice to UAE has been as follows:

Product	2019-20		2020-21		2021-22		2022-23		2023-24	
	Qty-MTs	Val-\$ mn	Qty-MTs	Val-\$ mn	Qty-MTs	Val-\$ mn	Qty-MTs	Val-\$ mn	Qty-MTs	Val-\$ mn
Basmati Rice	208519	207	229471	204	257258	221	315313	335	308663	333
Non-Basmati Rice	249533	130	289751	143	229962	116	281821	153	226847	120
<b>Total</b>	<b>458052</b>	<b>338</b>	<b>519222</b>	<b>346</b>	<b>487220</b>	<b>337</b>	<b>597134</b>	<b>487</b>	<b>535510</b>	<b>453</b>

Source: DGCIS

The above statistics translates into the growth trajectory as under:

Product	Growth 20-21 Vs 19-20		Growth 21-22 Vs 20-21		Growth 22-23 Vs 21-22		Growth 23-24 Vs 22-23	
	Qty	Val	Qty	Val	Qty	Val	Qty	Val
Basmati Rice	10.04	1.45	12.11	8.33	22.56	51.58	(2.11)	(0.60)
Non-Basmati	16.11	10.00	(20.63)	(18.88)	22.51	31.89	(2.85)	(21.56)

The above tables shows that from India UAE has imported in 2023-24 a total quantity of 535510 MTs of which 58% is Basmati rice and 42% is non-basmati rice.

## Current Government of India Policy for export of Rice

### a) Non-Basmati rice

100% broken rice export stands banned  
 Brown and white rice is banned  
 Parboiled non-Basmati rice is subject to 20% export duty effective 25.8.2023

But based on G2G transactions both 100% broken and white non basmati rice can be exported through National Cooperative Export Limited

As is seen from the table above despite ban, Indian has managed to export 11.12 mn tonnes of non-Basmati rice which is drastically down from previous year's figure of 17.78 mn tonnes.

### b) Basmati rice

Basmati rice export is subject to a Minimum Export Price (MEP) of \$ 950/Tonne.

Despite MEP Indian has touched a record 5 mn tonnes+ during 2023-24.

## Strengths, Weaknesses, Opportunities and Threats (S.W.O.T.) analysis

As far as UAE Market for Basmati rice is concerned, SWOT analysis is given below:

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Large number of Indian expats vying for better quality Basmati rice</li> <li>• Industry attuned to global compliance norms</li> <li>• Increase in production and distinguishing fragrant quality features of basmati rice made India a promising country in the world export market.</li> <li>• Annual compound growth rate varied from 5 to 12 percent in terms of export quantity of basmati rice during the last three decades</li> </ul>	<ul style="list-style-type: none"> <li>• Intermittent disruptions due to sanitary measures</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• No dearth of Basmati production</li> <li>• Close proximity easing logistics costs</li> <li>• Affluence driving higher demand for Indian Basmati rice in UAE</li> <li>• Increasing trend of eating out with Basmati in UAE</li> <li>• Enhanced awareness about living healthy life driving demand in UAE</li> </ul>	<ul style="list-style-type: none"> <li>• Pesticide Residue Issue</li> <li>• Cost competition with Pakistan</li> </ul>

## Political, Economical Social, Technological, Law and Environment (PESTLE) analysis

The **PESTLE** analysis reveals the following facts:

### Political

- i) UAE is politically a very stable country with cosmopolitan social fabric being very predominant
- ii) Over the years, the UAE has taken many steps to develop its political system, make it more receptive to the needs of the socio-economic progress of the country and to ensure that that UAE's population is equipped to cope with the challenges of global development.
- iii) The Government of UAE has already entered into a Free Trade Agreement with the Government of India.
- iv) There is no tax in UAE for import of rice from India.
- v) UAE is considered to be a politically stable region.

### Economical

- i) The UAE's economy is the 3rd largest in the Middle East (after Turkey and Saudi Arabia), with a GDP of \$ 415 billion equivalent to AED 1.83 trillion in 2021-2023. The nominal estimated GDP for 2023 is rated at \$ 895.17 billion.
- ii) The **UAE Central Bank's exchange rates** refer to the official values at which the UAE dirham can be exchanged for other currencies. The Central Bank publishes daily exchange rates for several major currencies, including the US dollar, euro, pound sterling, Japanese yen, and Swiss franc. The Central Bank determines these rates based on various factors such as market demand, economic indicators, and global geopolitical events. It aims to maintain a stable exchange rate regime to support the UAE's economic growth and maintain its competitiveness in the global market.

### Social

- i) The social diversity of UAE shows that more than 200 nationalities co-exist in a harmonious manner in the region. The Government of UAE has set up a specific Ministry to oversee social harmony in the country. The Ministry of Tolerance, led by His Excellency Sheikh Nahyan bin Mubarak Al Nahyan, implements programs that foster respect, peaceful coexistence and mutual understanding among people in the UAE. There are 3.9 MN Indians in UAE which constitutes 37.96% of its population.

- ii) Dubai is known for its vibrant business environment and diverse cultural offerings, but it's also recognized for its fast-paced lifestyle. The work-life balance in Dubai can vary depending on the industry and individual circumstances. Many expatriates and locals in Dubai work long hours, especially in corporate and professional sectors. However, efforts have been made to promote a healthier work-life balance, and some companies offer flexible working arrangements and wellness initiatives. Ultimately, work-life balance is a personal consideration and can differ from person to person.

## Technology

- i) The UAE has a flourishing start-up and entrepreneurial business culture, with more than [40% of the country's start-ups being technology-based](#).

By 2032 the UAE aims to nurture 20 tech unicorns and it already has an incredibly successful track record. Two prime examples of this are Careem a ride-hailing company acquired by Uber for \$3.1 billion in 2019, and [Souq.com](#), an e-commerce platform acquired by Amazon for \$580 million in 2017. The country's success in fostering a start-up culture can be attributed to several factors, including government support, access to funding, and a highly skilled workforce.

## Law

- i) UAE is progressively getting liberal on laws. Business activities in UAE covered under professional category can be 100% owned by expat / foreigners but it is mandatory to have UAE national as a service agent.
- ii) **Employment Laws:** 'UAE Labour law' governs the employer-employee relations in the private sector. The new law aims to protect both parties in the employment relationship and enables them to obtain their rights in a balanced manner. It covers matters related to working hours, overtime, leaves, vacation and public holidays, employing juveniles, employee records, safety standards, minimum wage, termination of employment, end of service gratuity payments, work injuries amongst others. The new law introduces several work models such as full-time, part-time, temporary and flexible. It abolishes the 'unlimited' type of contracts and admitted only limited or fixed-term contracts. It grants new types of leaves and tackles issues related to harassment, bullying, physical violence and psychological abuse against employees. The law prohibits forced labour and discrimination on the basis of gender, race, colour, sex, religion, national or social origin or disability. It also spells out employers' obligations towards employees.

## Environment

- i) UAE has seen a shift from being a logistics hub to a supply chain nerve centre primarily for Asia, Europe, and MEA. The shift has resulted from Iso digital transformation by private and public entities across the region. Investments in the logistics and supply chain sector are also key reasons for developing UAE's supply chain industry.

## Factor contributing to price volatility in Rice sector

In India the various channels in the supply/value chain of rice are :

- a) Farmers
- b) Middlemen or Commission Agents
- c) Agri Produce Markets (Mandis)
- d) Processors/Exporters
- e) G2G

### Factors that contribute to price volatility

In India a traditionally followed basic framework for rice supply chain management generally follows the multi stage supply chain system. During the long supply chain process many activities take place at every stage which affect the function of next stage and requires it to co-operate in the customised manner:

1. **Farmers** as the basic supplier of paddy, who supply paddy to the rice processing companies, which is supplied both directly and through intermediaries, depending on the type of farmers and their productivity. Inorganic farmers with small land holding either sell their paddy in 'Mundi', a marketplace in the town areas where the small farmers of nearby villages sell their yields from farms and the processing units purchase the grains either directly or through agents, which is considered as a convenient place for the small paddy farmers to sell and also for rice processing companies to procure.
  - (a) Basmati paddy is brought to Mandies where auction takes place
  - (b) for non-Basmati rice is procured by the Government for Public Distribution System (PDS) to ensure food security of the masses (d) Remaining quantity of non-basmati rice comes to mandis for auction. At the Mandis auction of the farmers' lots occurs and the sale of the paddy takes place accordingly.
2. **Intermediaries/Middlemen or agents:** In some instances the Paddy farmer with with large land holding, are not able to directly supply the inorganic paddy because of: low demand, or the quantity supplied in bulk has not covered all the quantity of paddy prepared for sales, or paddy has been stored to be sold in lower quantities in different seasons to generate more revenue, or some other reasons. Therefore, they require following an indirect mode of distribution generally through various forms of intermediaries for the sale of their paddy.
3. **Rice processing industries:** The rice processing companies procure the paddy through Middlemen or Agents, who purchase the paddy from small farmers in small quantities and then sell them in bulk to the rice processing companies. Direct procurement is not profitable for the rice processing companies from the small farmers, as their cost of logistics and supply chain will be very higher comparatively the cost of sourcing through 'Mundies' and 'Agents'

The traditionally practiced supply chains lack in efficiency due to one or more reasons, out of which major issue is the existence of many intermediaries existing between the farmer and the rice processing company, and again between the processing company and the customer, resulting in greater complexity, lower efficiency, reduced margin and increased cost on the product.

Supply chain management also requires the mutuality and co-operation among its upward and downward members where especially the rice supply chain in India is lacking.

Demand of rice for a period of time doesn't change dramatically and it can be predicted easily, and profits earned are very marginal, which make it a functional product in nature, and therefore it requires to have an efficient supply chain. An efficient supply chain requires proper forecasting International Journal of Managing Value and Supply Chain of customer demand, if lacking, it will result in stock outs of demanded and overstocking of un-demanded variety of rice.

The price gets added at every stage of the supply chain e.g. when farmer sells through intermediaries , when processor buys from mandies , when processor transports the goods to factory etc.. Logistics costs in India are supposed to be 14% as compared to around 8% in Thailand.

## Mauritania scenario

### Production of rice in Mauritania has been as under

Market	Area	Milled Production	Yield
Year	(1000 Ha)	(1000 Tons)	(T/Ha)
2014/2015	57	176	5.1
2015/2016	43	134	5.2
2016/2017	43	124	4.8
2017/2018	59	181	5.1
2018/2019	62	194	5.2
2019/2020	73	154	3.5
2020/2021	68	175	4.3
2021/2022	77	257	5.6
2022/2023	71	242	5.7
2023/2024	86	275	5.3
2024/2025	80	276	5.8

The population of Mauritania is 4.74 million and the rice consumption per capita is 73 Kg . Going by this calculation the requirement of rice would be 3,46,020 MTs. 2024-25 production being 2,76,000 MTs , Mauritania is short in supply of 70,020 MTs.

## Rice import by MAURITANIA

Mauritania imports Rice primarily from: Thailand (\$10.7M), India (\$5.88M), Japan (\$3.11M), Pakistan (\$1.1M), and United States (\$337k). The fastest growing import markets in Rice for Mauritania between 2021 and 2022 were Thailand (\$5.33M), Singapore (\$125k), and Senegal (\$99.6k).

### Export of rice from India to Mauritania

Year	Basmati Rice		Non-Basmati Rice	
	Qty-MTs	Val-\$mn	Qty-MTs	Val-\$mn
2019-20	4855	5	655	0.35
2020-21	5931	5	3874	1.27
2021-22	5449	5	1096	0.38
2022-23	7534	7	1080	0.5
2023-24	9076	10	698	0.37

### Morocco Scenario

Market	Area	Milled Production	Yield
Year	(1000 Ha)	(1000 Tons)	(T/Ha)
2014/2015	4	23	8.8
2015/2016	8	44	8.5
2016/2017	8	37	7.1
2017/2018	8	40	7.8
2018/2019	8	44	8.5
2019/2020	8	45	8.6
2020/2021	8	42	8.1
2021/2022	8	45	8.6
2022/2023	6	42	10.8
2023/2024	8	45	8.6
2024/2025	8	45	8.6

The population of Mauritania is 37.40 million and the rice consumption per capita is 6.4 Kg . Going by this calculation the requirement of rice would be 2,39,360 MTs. 2024-25 production being 45,000 MTs , Morocco is short in supply of 1,94,360 MTs.

## Rice import by MAURITANIA

Morocco imports Rice primarily from: India (\$14M), Thailand (\$10.1M), Pakistan (\$2.16M), Italy (\$1.81M), and Portugal (\$1.72M). The fastest growing import markets in Rice for Morocco between 2021 and 2022 were Thailand (\$6.91M), India (\$1.55M), and Portugal (\$1.01M).

### Export of rice from India to Mauritania

Year	Basmati Rice		Non-Basmati Rice	
	Qty-MTs	Val-\$mn	Qty-MTs	Val-\$mn
2019-20	7345	3	892	1
2020-21	16437	6	1661	2
2021-22	26154	10	1568	1.5
2022-23	36893	15	3092	4
2023-24	44050	20	2553	3