

## News Juice – 19<sup>th</sup> & 20<sup>th</sup> June, 2022

### 1. How is the crisis in Ukraine causing a global food shortage?

#### Relevant for GS Prelims & Mains Paper II; International Issues

The ongoing Ukraine-Russia war, which has intensified since it began in February, is leading to food crises in developing countries across the world. The stoppage of food exports from Ukraine has worsened pre-existing conditions.

The post-pandemic demand for food, extreme weather conditions, supply chain bottlenecks and export restrictions have negatively affected the food market. The invasion has added to the widespread inflation in food prices throughout the world, pushing the Food and Agriculture Organization's Food Price Index to an all-time high—the highest it has been since the index began in 1990.

The **FAO Food Price Index (FFPI)** is a measure of the monthly change in international prices of a basket of food commodities. It consists of the average of five commodity group price indices weighted by the average export shares of each of the groups over 2014-2016. The five commodity groups are cereals, vegetable oils, sugar, meats and dairy products.

FAO Food Price Index has become a critical and timely monthly indicator of the state of international food markets, gauging the change in food commodity prices over time in nominal and real terms.

The FFPI is calculated as the trade-weighted average of the prices of food commodities spanning the key agricultural markets for cereals, vegetable oils, sugar, meat and dairy products.

While these commodities represent about 40 percent of gross agricultural food commodity trade (FAOSTAT), they are chosen for their high and strategic importance in global food security and trade. The Laspeyres price index is used because it facilitates timely updates. Prices are combined in the various sectors using trade weights calculated from average export values over a chosen three-year base period, when the trade weights appear most stable relative to their trend values. A three-year period is chosen to minimize the impact of variation in both internationally traded prices and quantities.

Source: FAO

#### What countries are being affected and how?

Somalia is one of the countries facing the implications of the war. The country is facing an unprecedented shortage of wheat stemming from the halted exports from Russia and Ukraine, as the export route through the Black sea has been shut down since the war started on February 24. Other African countries, which also have little say in the ongoing conflict, are affected too. In Egypt, bread is a staple.

### **Contribution of Ukraine and Russia**

Ukraine and Russia provided for 85 percent of the country's imports in 2020-2021. Ukraine was expected to constitute approximately 12 percent of global wheat exports in 2022. The price of wheat globally has shot up by approximately 50 percent since the invasion began. About 20 countries have imposed food restrictions and taxes on food since late February.

### **How is Russia responding?**

Russia is strategically using the global food shortage and there is now increased pressure on the West to lift the sanctions imposed on it. Russian President Vladimir Putin blamed the West for the global food crisis.

The US alleges Russia seeks to benefit from the expected increase in demand for wheat from the Middle East and Africa. Regardless of sanctions, Russia is in the running to be the top wheat exporter with an estimated 40 million tons exported from July 2022 to June 2023.

Russia has also been accused of stealing Ukrainian grain, with the New York Times reporting the US alerted 14 countries of three vessels transporting stolen Ukrainian grain. Russia is denying the allegations, blaming Ukraine for not opening ports located on the Black sea for exports.

### **What next?**

According to the UN Secretary-General Antonio Guterres, the conflict between Russia and Ukraine is set to further massive food, energy and economic crises, with poorer countries bearing the worst of it. The 2022 Global Report on Food Crises said about 180 million people across 40 countries will face inescapable food insecurity, which can also lead to malnutrition, mass hunger and famine.

With people still struggling with post-Covid recovery, the governments of these countries having little cash at hand, and the war in Ukraine still ongoing, the global food crisis shows few signs of slowing.

**Source: The Indian Express**

## **2. Ukraine is one step closer to joining the EU. What happens next?**

### **Relevant for GS Prelims & Mains Paper II; International Issues**

#### **Status of Ukraine's membership**

The European Commission, the executive arm of the European Union, recommended on Friday (June 17) that Ukraine be formally granted candidate status in the EU, the first step in the long journey to become a member state of the bloc.

The announcement by EU President Ursula von der Leyen, who was dressed in yellow and blue, the colours of the Ukrainian flag, came a day after representatives of France, Germany, and Italy,

the most powerful member states of the organisation, visited Kyiv for the first time, where they backed Ukraine's bid to join the bloc.



### **What is the current relationship between Ukraine and the EU?**

Four days after Russia invaded Ukraine, Zelenskyy requested the EU on February 28 to allow his country to become a member through a special procedure immediately, after which he officially signed an application for Ukraine's membership.

Currently Ukraine, along with Moldova, Georgia, Armenia, Azerbaijan, and the Republic of Moldova are categorised under the **Eastern Partnership**, which formed in 2009. This joint policy partnership seeks to strengthen and deepen political and economic ties between the EU member states and the six "partner countries".

### **What is the requirement for joining the EU?**

Article 49 of the EU treaties state that any European nations that seek to join the bloc, must be committed to respecting and promoting the EU's fundamental values set out in Article 2. These include respect for freedom, democracy, equality, the rule of law, etc. After the application is received, the EU members judge the suitability of the nation on the basis of these terms.

The European Council meeting in Copenhagen in 1993 set out more specific criteria. Called the Copenhagen Criteria, these include essential conditions that all candidate countries must satisfy. Among them are a functioning market economy, a stable democracy and rule of law, and the acceptance of all EU legislation, including that of the Euro.

### **What is the process of joining the EU?**

The procedure to gain membership of the EU consists of **three stages**.

In the first stage, the country is given the status of an official candidate.

In the second stage, formal membership negotiations with the candidate begin, which involves the adoption of EU law into national law, and the implementation of judicial, administrative, economic and other reforms, called the accession criteria.

Once the negotiations are completed and the candidate has met all the accession criteria, they can join the EU.

Becoming a member of the bloc involves a long and complex process. Even after candidate status is granted, the rest of the process takes years to complete. The negotiation in particular goes on for long, and its duration can vary from country to country. The EU's most recent member Croatia joined the EU in 2013, and it took 10 years to complete the process.

### **What happens with Ukraine's application hereon?**

Currently, the European Commission has only recommended that Ukraine (and Moldova) be granted candidate status.

This recommendation will be discussed by the EU's 27 member states during a summit that will be held in Brussels on June 23-24. To proceed to the accession talks, all member states have to unanimously approve of the prospective country. For Ukraine's bid to move forward, the bloc will have to agree that Ukraine has met the Copenhagen Criteria.

Negotiations (the next step) take place in an intergovernmental conference, involving ministers and ambassadors of the EU government and the candidate nation.

CNN reported concerns that Ukraine does not meet the Copenhagen Criteria yet. According to Transparency International's 2021 Corruption Perceptions Index, Ukraine is placed 122nd on its list of 180 countries.

Some EU countries are reluctant to grant Ukraine candidate status. Denmark and Portugal have argued that if Ukraine was not at war, it would not be able to meet the qualifications for initiating membership talks.

**Source: The Indian Express**

### **3. Agnipath scheme: Why age relaxation can also become a problem**

#### **Relevant for GS Prelims & Mains Paper II; Polity & Governance**

Moving to allay concerns and dial down anger on the streets over the short-term Agnipath recruitment scheme for the armed forces, the government announced a one-time relaxation in the upper age limit for entrants this year, raising it from 21 to 23 years, saying there had been no recruitment in the last two years. But this one-time waiver can also become a problem.

#### **More competition**

Recruitment data shows that the intake of 46,000 recruits this year — that's the number specified for recruitment in the first year of the Agnipath programme — will be the lowest since 2015 for the three services together.

The age relaxation for the first year will see more candidates vie for the 46,000 positions being offered after two years of zero-recruitment — the government has not mentioned or shown any willingness yet to raise this number for 2022.

According to recruitment data shared by the Ministry of Defence with Parliament in March this year, the recruitment of soldiers for the Army, below the rank of officers, through recruitment rallies in the last seven years, topped at 80,572 in 2019-2020. No recruitment has been done in the years since. Data shows that between 2015 and 2020, the Army hired more than 50,000 soldiers every year.

### **Expected Agniveer jobs**

Sources said the total induction in the three services over the first four years of the Agnipath scheme will be a little over 2 lakh — 202,900 Agniveers, of which around 175,000 will be for the Army. This works out to an average of around 50,000 Agniveers recruited every year for all three services over the next four years.

### **Contributing regions**

The data shared with Parliament also shows that just eight states account for more than 60 per cent of all recruitment in the Army since 2015.

Since 2015, according to the data, 186,795 people have been recruited in the Army from Punjab, Haryana, Bihar, Uttar Pradesh, Maharashtra, Rajasthan, Himachal Pradesh and Uttarakhand. Total recruitment in the Army for these years was 308,280. The share of these states in the total recruitment was a little over 60 per cent.

The anger against the new policy is also likely to be more in the villages because recruitment data for the Army shows that more than three quarters of the recruits come from villages. In 2018-2019, recruits from villages accounted for 78.32 per cent of the total intake of the Army, and in 2019-2020, this share stood at 77.20 per cent.

The Ministry of Defence had informed Parliament that recruitment rallies had been suspended due to the Covid-19 pandemic since July 2021. In 2020-2021, the Army had conducted 47 rallies across the country but again, because of the pandemic, the process was not completed and the rallies did not result in any recruitment that year either.

**Source: The Indian Express**

## **4. The key takeaways from the 12th Ministerial Conference of the World Trade Organization**

### **Relevant for GS Prelims & Mains Paper II; International Organizations**

After days of protracted negotiations, the 12th Ministerial Conference of the World Trade Organization on June 17, agreed to a series of deals relating to the temporary waivers on Covid-

19 vaccines, a moratorium on e-commerce trade, food security and setting limits on harmful fishing subsidies. The agreements passed by the WTO come after an intense week of negotiations.

### **What is WTO**

The World Trade Organization is the only international organization that deals with the rules of trade between countries. Founded in 1995, the WTO is run by its 164 members, and according to its rules, all decisions are taken through consensus and any member can exercise a veto.

Its aim is to promote free trade, which is done through trade agreements that are discussed and signed by the member states. The WTO also provides a forum for countries to negotiate trade rules and settle economic disputes between them.

### **What is Ministerial Conference**

The Ministerial Conference is the WTO's top decision-making body and usually meets every two years. All members of the WTO are involved in the MC and they can take decisions on all matters covered under any multilateral trade agreements.

The WTO's 12th Ministerial Conference was held in Geneva from 12-17 June. It was supposed to end on 15 June, but with intensifying negotiations, the conference was extended by two days.

### **A look at some of the key takeaways from the meeting.**

#### **Curtailling harmful fishing subsidies**

The WTO passed a multilateral agreement that would curb 'harmful' subsidies on illegal, unreported and unregulated fishing for the next four years, to better protect global fish stocks. Since 2001, member states have been negotiating the banning of subsidies that promote overfishing.

India and other developing countries were able to win some concessions in this agreement. They successfully lobbied to remove a section of the proposal that would threaten some subsidies which would assist small-scale artisanal fishing. Critics argued that this agreement would only restrict and not eradicate subsidies on illegal fishing.

#### **Global Food Security**

Members agreed to a binding decision to exempt food purchased by the UN's World Food Programme (WFP) for humanitarian purposes, from any export restrictions. In light of the global food shortages and rising prices caused by the war between Ukraine and Russia, the group's members issued a declaration on the importance of trade in global food security and that they would avoid bans on food exports. However, countries would be allowed to restrict food supplies to ensure domestic food security needs.

India's key demand to allow it to export food from its public stockholdings to other countries will reportedly be discussed in the next Ministerial Conference in 2023.

### **E-commerce transactions**

During the MC12 session, India has asked the WTO to review the extension of the moratorium on custom duties on e-commerce transactions, which include digitally-traded goods and services.

Piyush Goyal, the commerce and industry minister who led the Indian delegation, argued that developing countries faced the brunt of the financial consequences of such a moratorium. From 2017-2020, developing countries lost a potential tariff revenue of around \$50 billion on imports from only 49 digital products, he said.

WTO members had first agreed to not impose custom duties on electronic transmissions in 1998, when the internet was still relatively new. The moratorium has been periodically extended since then.

However, all members agreed to continue the long standing moratorium on custom duties on e-commerce transmissions until the subsequent Ministerial Conference or until March 31, 2024, depending on whichever comes first.

### **Covid-19 vaccine production**

WTO members agreed to temporarily waive intellectual property patents on Covid-19 vaccines without the consent of the patent holder for 5 years, so that they can more easily manufacture them domestically.

The current agreement is a watered down version of the original proposal made by India and South Africa in 2020. They had wanted broader intellectual property waivers on vaccines, treatments and tests.

Rich pharmaceutical companies had strongly opposed this, arguing that IP's do not restrict access to Covid vaccines and that the removal of patent protections gives researchers that quickly produced life saving vaccines, a negative message.

The waiver agreed by the WTO was criticized by advocacy groups for being narrow in scope, as it did not cover all medical tools like diagnostics and treatments.

**Source: The Indian Express**

## **5. Quantum diamond microscope to image magnetic fields**

**Relevant for GS Prelims & Mains Paper III; Science & Technology**

### **Microscope that can image magnetic fields change over milliseconds**

Researchers from the Indian Institutes of Technology (IIT) at Mumbai and Kharagpur have built a microscope that can image magnetic fields within microscopic two-dimensional samples that change over milliseconds. This has a huge potential for scientific applications, such as in measuring biological activity of neurons and dynamics of vortices in superconductors. This is the first time that such a tool has been built to image magnetic fields that change within milliseconds.

### **Why is this microscope special?**

The ideal frame rate to capture a changing magnetic field is one that captures data at twice the frequency of the changing field. Signals in nature exhibit a range of frequencies — magnetism in geological rock samples and rare earth magnets can be constant over months; magnetic nanoparticle aggregation inside living cells takes place in minutes; action potentials in neurons are fast, taking milliseconds, whereas precession of atomic spins in complex molecules takes only microseconds. The microscope built by researchers works in the millisecond range.

### **How does this microscope work?**

The key aspect of this sensor is a “nitrogen vacancy (NV) defect centre” in a diamond crystal. Such NV centres act as pseudo atoms with electronic states that are sensitive to the fields and gradients around them (magnetic fields, temperature, electric field and strain).

The fluorescence emitted from these NV centres encodes the magnetic field information. During the measurement of ultra-small magnetic fields, the change in the fluorescence levels is extremely small and therefore, limits the imaging frame rate and degrades the signal-to-noise ratio of the measurement.

In order to overcome this limitation, the researchers employed a “lock-in detection scheme” which selects light fluctuations of a small frequency range, rejecting others, and thereby improving the sensitivity to small changes in fluorescence.

A special diamond crystal, one micrometre thick, embedded with a high density of such NV centres is created. This acts as a sensor when a thin two-dimensional sample is brought close to it — less than 10 micrometre. Using this technique, the researchers can image a 150 micrometre by 150 micrometre field of view, which is quite an achievement.

### **Improved frame rates**

Earlier reported magnetic field imaging frame rates were close to 1-10 minutes per frame. This would increase to about half an hour per frame for challenging samples like biological cells. The instrument built by this group exhibits an imaging frame rate of about 50-200 frames per second, which would translate into a frame acquisition time of about 2-5 milliseconds. It enables imaging of millisecond scale magnetisation changes in micro-magnets.

**Source: The Hindu**



## 6. The 5G auction plan: Expected Timeline, Concerns of Telcos and Captive private networks

### Relevant for GS Prelims & Mains Paper III; Science & Technology

The Union Cabinet approved auction of 5G spectrum bands, and said it has reserved a portion of airwaves for captive private networks, a proposal opposed by telecom service providers. The auction of over 72 GHz of airwaves is set to be held by the end of July.

#### What set the ball rolling for 5G technology in India?

The world's second-largest telecom market is one of the few major countries without 5G service. The Union government's delay in auctioning off spectrum bands is a result of its rounds of consultations with various stakeholders to decide on bands that can be sold, block sizes, and the reserve price. The telecom service providers are ready to commercially roll out 5G to customers. In January, Reliance Jio said it completed next generation network coverage planning for nearly 1,000 cities in the country. A year ago, Airtel demonstrated 5G over a live commercial network in Hyderabad. Vodafone, before its merger with Idea, in 2017 said it had "upgraded entire radio network to all-IP technology, ready even for 5G".

#### What are captive private networks and why do they need spectrum bands?

Private wireless networks are cellular networks built specifically for individual enterprises. These networks are often deployed at a single unit, for example a factory. They can also be used in a wide-area setting, for instance to monitor a mine in real-time. Airports and ports can also have their own private 5G cellular network to process imaging data coming from surveillance cameras to manage the facility. Several enterprises around the world are working on setting up private 5G networks as they offer reliable, fast, and secure wireless communication.

According to an Economist Impact survey of 216 technology executives in Germany, Japan, the U.K. and the U.S., over half said they plan to deploy a private 5G network within six-24 months. That is on top of nearly 30% executives who have already deployed or are in the process of deploying private 5G networks in their organisations. The key reason driving this adoption is the need for greater data privacy and security. Unlike unlicensed Wi-Fi service available at several private places, licensed spectrum bands offer greater data privacy, security and faster connection speeds.

#### How does Industry 4.0 relate to 5G?

Cellular technology has come a long way in the last four decades. Each generation has added a layer of sophistication over another starting with voice. Over the years, three generations of cellular airwaves enabled users to text, use Internet and view live-streaming video all at the same time.

Unlike its predecessors, the latest wireless iteration opens a new paradigm in cellular connectivity. That's because the true benefits of 5G largely apply to industrial enterprises than individual users. Think about industrial AI-enabled robots on shop floors and warehouses, autonomous vehicles

on the road, and mixed-reality headsets with advanced mobile applications that train workers. Each of these scenarios require high-speed computing using real-time data at low latency. This is at the core of the fourth industrial revolution where devices talk to each other to perform various tasks. Big tech firms like Google have been seeking direct allocation of spectrum to use in machine learning applications, connected devices and general AI advancement.

### **How does the government plan to set aside spectrum for private network operators?**

The Department of Telecommunications (DoT) has said that private firms can set up a 5G network by either getting a slice of public network from a licensed telecom company, establishing an isolated on premises network from the telecom service provider's spectrum, or obtaining spectrum directly from the Department of Telecom or by sub-leasing it from telcos.

The notice inviting the offer also states that spectrum auction to private enterprises will follow after a demand study and based on TRAI's recommendation on pricing and modalities of block allocations. The telecom regulator expects its recommendations to result in increased sharing of network resources.

### **Is it a setback for telcos?**

The Cellular Operators Association of India (COAI) is of the firm view that "there is no justification whatsoever for allocating spectrum to industry verticals for operating private captive networks. It said that there will be no business case for 5G rollout in such a scenario. This stems from their concern that 5G technology has more industry use case than for individual consumers. So, telcos worry that providing industries 5G spectrum allocation to set up private networks will diminish their own revenue from the next generation of cellular services.

**Source: The Hindu**