

INTERNATIONAL RELATION**Iran Nuclear Deal**

Recently, the diplomats from Iran and world powers reconvened in Vienna (Austria) to seek a deal reviving Iran's (Tehran's) 2015 Nuclear Accord. The 2015 Iran nuclear deal, signed under President Barack Obama, and dismantled in 2018 by President Donald Trump.

- The US said it will rejoin the agreement if Iran complies with the terms of the original deal, and if it addresses other issues related to alleged ballistic missile stockpiles and the proxy conflicts that it backs across the region.

What was the 2015 Iran nuclear deal?

- The deal, formally known as Joint Comprehensive Plan of Action (JCPOA).
- The JCPOA was the result of prolonged negotiations from 2013 and 2015 between Iran and P5+1 (China, France, Russia, the United Kingdom, the United States + Germany).
- Under the deal, Iran agreed to significantly cut its stores of centrifuges, enriched uranium and heavy-water, all key components for nuclear weapons.
- Iran also agreed to implement a protocol that would allow inspectors from the International Atomic Energy Agency (IAEA) to access its nuclear sites to ensure Iran would not be able to develop nuclear weapons in secret.
- While the West agreed to lift sanctions related to Iran's nuclear proliferation, other sanctions addressing alleged abuses of human rights and Iran's ballistic missile programme remained in place.
- The US committed to lifting sanctions on oil exports, but continued to restrict financial transactions, which have deterred international trade with Iran.
- Nonetheless, Iran's economy, after suffering years of recessions, currency depreciation, and inflation, stabilized significantly after the deal took effect, and its exports skyrocketed.
- Israel, America's closest ally in the Middle East, strongly rejected the deal, and other countries like Iran's great regional rival Saudi Arabia, complained that they were not involved in the negotiations even though Iran's nuclear programme posed security risks for every country in the region.
- After Trump abandoned the deal and reinstated banking and oil sanctions, Iran ramped up its nuclear programme in earnest, returning to approximately 97% of its pre-2015 nuclear capabilities.

What happened after the US pulled out of the deal?

- In April 2020 the US announced its intention to snap back sanctions. However, the other partners objected to the move, stating that since the US was no longer part of the deal, it could not unilaterally reimpose sanctions.
- Initially following the withdrawal, several countries continued to import Iranian oil under waivers granted by the Trump administration. A year later, the US ended the waivers to much international criticism and, by doing so, significantly curbed Iran's oil exports.
- The other powers, in an attempt to keep the deal alive, launched a barter system known as INSTEX to facilitate transactions with Iran outside the US banking system. However, INSTEX only covered food and medicine, which were already exempt from US sanctions.
- In January 2020, after the US assassinated the top Iranian general Qasem Soleimani, Iran announced that it would no longer limit its uranium enrichment.

What are the Challenges to the Restoration of JCPOA?

- The regional cold war between Saudi Arabia and Iran is a major hurdle to the restoration.
- The US and Saudi Arabia have strengthened their relationship per US's Middle East policy and to counter Iran as well.
- The traditional Shia vs Sunni conflict between these countries has made it difficult to negotiate peace in the region.
- Iran is currently in violation of several of its important commitments, such as the limits on stockpiles of enriched uranium, and the farther it goes, the more challenging the deal becomes.
- Iran is blaming US sanctions for its economic losses due to the Trump administration's pullout from the deal and imposing sanctions again.

What is the Significance of JCPOA for India?

- **Boost to Regional Connectivity:**
 1. Removing sanctions may revive India's interest in the Chabahar port, Bandar Abbas port, and other plans for regional connectivity.
 2. This would further help India to neutralize the Chinese presence in Gwadar port, Pakistan.
 3. Apart from Chabahar, India's interest in the International North-South Transit Corridor (INSTC), which runs through Iran, which will improve connectivity with five Central Asian republics, may also get a boost.

- **Energy Security:**
 1. Due to the pressure linked to the US' Countering America's Adversaries Through Sanctions Act (CAATSA), India has to bring down oil imports to zero.
 2. Restoration of ties between the US and Iran will help India to procure cheap Iranian oil and aid in energy security.

Way Forward

- The US would have to factor in not only Iran's nuclear programme but also its increasingly hostile behavior in the region. It would also have to take into consideration the reality of the new multipolar world, in which its unilateral leadership is no longer guaranteed.
- Iran would have to consider the rapidly changing dynamics in the Middle East, given that Israel has recalibrated its relations with several Middle Eastern Arab countries in recent years.

SCIENCE & TECHNOLOGY**Kavach: Automatic Train Protection System**

Recently, the Indian Railways tested 'Kavach'-Automatic Train Protection System by making two trains move towards each other at full speed. The Kavach system was announced in the 2022 Union Budget as a part of the Atmanirbhar Bharat initiative. Around 2,000 km of rail network is planned to be brought under the indigenous system to enable safety and capacity augmentation in 2022-23.

What is Kavach?

- It is India's own automatic protection system, which is in development since 2012, under the name Train Collision Avoidance System (TCAS), which got rechristened Kavach or "armour".
- It is a set of electronic devices and Radio Frequency Identification (RFID) devices installed in locomotives, in the signalling system as well as the tracks.
- They connect to each other using ultra high radio frequencies to control the brakes of trains and also alert drivers, all based on the logic programmed into them.
 1. TCAS or Kavach includes the key elements from already existing, and tried and tested systems like the European Train Protection and Warning System, and the indigenous Anti Collision Device.
 2. It will also carry features of the high-tech European Train Control System Level-2 in future.
- The current form of Kavach adheres to the highest level of safety and reliability standard called Safety Integrity Level (SIL)4.
 1. SIL comes from two voluntary standards used by plant owners/operators to quantify safety performance requirements for hazardous operations.
 2. There are four SIL Levels (1-4). A higher SIL Level means a greater process hazard and a higher level of protection required.
- In the new avatar, India wants to position Kavach as an exportable system, a cheaper alternative to the European systems in vogue across the world.
- While now Kavach uses Ultra High Frequency, work is on to make it compatible with 4G Long Term Evolution (LTE) technology and make the product for global markets.
- Work is on to make the system such that it can be compatible with other already installed systems globally.

What is the Significance?

- **Safety:** The Kavach system will help prevent accidents on rail tracks like collision of trains. Once the system is activated, all trains within a 5-km range will halt to provide protection for trains on adjacent tracks. Currently, the loco-pilots or assistant loco-pilots have to look out for caution signs and signals.
- **Cost:** It will only cost Rs 50 lakh per kilometre to operate in comparison to about Rs 2 crore worldwide.
- **Communication:** It will also include stationary equipment to gather signalling inputs and relay them to a central system to enable seamless communication with the train crew and stations.

What are the Initiatives Related to Railways?

1. Overhead Traction System
2. Railway Energy Management Company Limited
3. Transit Oriented Development
4. National Rail Transportation Institute

ENVIRONMENT**State of India's Environment Report 2022: CSE**

Recently, the Centre for Science and Environment (CSE), released the State of India's Environment Report 2022. The report is the annual publication of the Centre for Science and Environment, and Down To Earth

(magazine).The report focuses on climate change, migration, health and food systems. It also covers biodiversity, forest and wildlife, energy, industry, habitat, pollution, waste, agriculture and rural development.

- CSE is a public interest research and advocacy organisation based in New Delhi.

Where does India Stand on Achieving its National Targets?

- **Economy:** The target for the economy is to raise the Gross Domestic Product (GDP) to nearly USD 4 trillion by 2022-23. But by 2020, the economy has grown only to USD 2.48 trillion.The economy has largely shrunk during the Covid-19 pandemic, making it even more difficult to meet the deadline.
- **Employment:** The target is to increase the female labour force participation rate to at least 30% by 2022-23.It stood at 17.3% in January-March 2020.
- **Housing:** The targets are to construct 29.5 million housing units under Pradhan Mantri Awas Yojana (PMAY)-Rural and 12 million units under PMAY-Urban.Only about 46.8% and 38% respectively of the targets under 'Housing for All' have been achieved.
- **Drinking Water:** The target is to provide safe piped drinking water to all by 2022-23.Only 45% of the target has been achieved.
- **Agriculture:** The target is to double farmers' income by 2022. While the average monthly income of an agricultural household has increased to Rs 10,218 from Rs 6,426, this increase is largely due to increase in wages and income from farming animals.The share of income from crop production in the average monthly income of an agricultural household has, in fact, dropped — to 37.2% in 2018-19, from 48% in 2012-13.
- **Digitisation of Land Records:** Another target is to digitise all land records by 2022. While states like Madhya Pradesh, West Bengal and Odisha have made good progress, states like Jammu and Kashmir, Ladakh and Sikkim languish at 5%, 2% and 8.8% digitisation of land records, respectively.Overall, the target is unlikely to be met, particularly because 14 states have witnessed deterioration in the quality of land records since 2019-20.
- **Air Pollution:** The target is to bring down Particulate Matter (PM) 2.5 levels in Indian cities to less than 50 micrograms per cubic metre ($\mu\text{g}/\text{m}^3$). In 2020, when vehicular movement was restricted due to the pandemic, 23 of the 121 cities monitored for PM2.5 exceeded 50 $\mu\text{g}/\text{m}^3$.
- **Solid Waste Management:** The target is to achieve 100% source segregation in all households.
 1. The overall progress is 78%; and while states like Kerala and Union territories like Puducherry have achieved the target, others like West Bengal and Delhi are woefully behind.
 2. Manual scavenging is targeted for eradication, but India still has 66,692 manual scavengers.
- **Forest Cover:** The target is to increase it to 33.3% of the geographical area, as envisaged in the National Forest Policy, 1988.By 2019, 21.6% of India was under forest cover.
- **Energy:** The target is to achieve 175 GW of renewable energy generation capacity by 2022.Only 56% of this target has been achieved thus far.

What was India's Performance on Sustainable Development Goals?

- India has slipped three spots to rank 120 on the 17 Sustainable Development Goals (SDG) adopted as a part of the 2030 agenda by 192 United Nations member states in 2015.
 1. In 2021 India ranked 117 among 192 nations.
 2. India's overall SDG score was 66 out of 100.
- India's rank dropped primarily because of major challenges in 11 SDGs including zero hunger, good health and wellbeing, gender equality and sustainable cities and communities.
- India also performed poorly in dealing with quality education and life on land aspects.In 2021, India had suffered on the fronts of ending hunger and achieving food security, achieving gender equality and building resilient infrastructure, promoting inclusive and sustainable industrialisation and fostering innovation.

How did the Indian States Perform?

- Jharkhand and Bihar are the least prepared to meet the SDGs by the target year 2030.
- Kerala ranked first, followed by Tamil Nadu and Himachal Pradesh in the second position.
- The third position was shared by Goa, Karnataka, Andhra Pradesh and Uttarakhand.
- Among the Union Territories, Chandigarh was ranked first, followed by Delhi, Lakshadweep and Puducherry in the second place and the Andaman and Nicobar Islands on the third

PRELIMS FACT

DefExpo-2022

Recently, the Defense Expo 2022 has been postponed, due to logistics problems being experienced by participants.

What are the Key Points?

- It were to be the 12th edition of DefExpo held in Gandhinagar, Gujarat in March 2022. The 11th edition of DefExpo was held at Lucknow (Uttar Pradesh) in 2020.
- DefExpo is a flagship biennial event of the Ministry of Defence, showcasing the land, naval, air as well as homeland security systems.
- Spread over 1 lakh sq m., this year's defexpo was to be the largest since its inception in 1996.
- The event is expected to help boost investment, expand manufacturing capacities and capabilities, discover avenues for technology absorption and thus, contribute to furthering the target of USD 5 billion defense export by 2024 under Atmanirbharta' in defence.

DAILY ANSWER WRITING PRACTICE

Qns. The transformation of Indian agriculture towards chemical free, natural farming needs a structured a roadmap with government as an active partner to generate demand, sustain production and manage supply chains. Discuss. (250 words)

Introduction

As India abstained on a US-sponsored UN Security Council resolution that “deplores in the strongest terms” Russia’s “aggression” against Ukraine, one must look at the reasons behind India’s decision to be quiet on the international forum of security council.

India’s statement at the UNSC that appealed for diplomacy and de-escalation, while making no critical comment about Mr. Putin’s announcement is a reflection of the difficult position New Delhi finds itself in over the conflict, which appears to have now entered a new phase.

Body**Background: Russia-Ukraine war**

- The increasing aggression on part of Russia started with news of eastward expansion of NATO, especially Ukraine’s membership to NATO. This would mean deployment of western missiles and weapons in Russia backyard and its borders.
- Russian President Vladimir Putin has played a major move by announcing formal recognition for the Donbas region enclaves (Oblasts) of Donetsk and Luhansk in Eastern Ukraine, one which changes the course of the present diplomatic efforts.
- Post this, Russian troops have started full scale invasion and have reached the capital city Kyiv.
- The recognition of the two separatist groups that control parts of the Donbas region as governments signals that Russia is no longer interested in talks on the basis of the “Minsk accords”. The agreements — negotiated in 2014 and 2015, but never fully implemented — had secured a “special status” for the Donbas enclaves.

India-Russia relations in backdrop of Russia-Ukraine war

- **Beyond all weather friendship:** For India, Russian ties are important. It must be recalled that Ukraine was against India during 1998 nuclear tests and had spoken against India with issue of Kashmir.
 1. India’s Russia tilt should be seen not just as a product of its time-tested friendship with Moscow but also as a geopolitical necessity.
 2. If in the future there is Chinese aggression or Pakistan tries adventurism on India, India will need all hands on the deck. Russia being the most important.
- **Russia’s support to solve continental problems:** There is an emerging dualism in contemporary Indian strategic Weltanschauung: the predicament of a continental space that is reeling under immense pressure from China, Pakistan and Taliban-led Afghanistan adding to its strategic claustrophobia; and, the emergence of a maritime sphere which presents an opportunity to break out of the same.
- **Defence supplies:** New Delhi needs Moscow’s assistance to manage its continental difficulties through defence supplies, helping it ‘return’ to central Asia, working together at the Shanghai Cooperation Organization (SCO) or exploring opportunities for collaboration in Afghanistan.
 1. Russia, to put it rather bluntly, is perhaps India’s only partner of consequence in the entire Asian continental stretch.
 2. Therefore, having Russia on its side is crucial for India, more than ever.
 3. Moscow may or may not be able to moderate Chinese antagonism towards New Delhi, but an India-Russia strategic partnership may be able to temper New Delhi’s growing isolation in a rather friendless region.

Analysis of India’s response

- India did not endorse the harsh language used in the resolution condemning Russia’s actions. It wants to maintain a balance between the Western bloc led by the US, and Russia, since it has strategic partners on both sides.

- India's past record has been maintaining balance between the West and Russia. On January 31, India abstained on a procedural vote on whether to discuss the issue of Ukraine.
- New Delhi had then articulated its position on "legitimate security interests" that echoed with a nuanced tilt towards the Russian position, and had abstained along with Kenya and Gabon.
- Despite abstention, India has reiterated and has called for cessation of violence in no ambiguous terms.
- India has also quoted the international charter on sovereignty, highlighting that all nations must respect the same, intended towards Russia.
- For India, Russian ties are important. It must be recalled that Ukraine was against India during 1998 nuclear tests and had spoken against India with issue of Kashmir.

Conclusion

Dialogue is the only answer to settling differences and disputes, however daunting that may appear at this moment. India maintained its "consistent, steadfast and balanced position on the matter". India has been in touch with all sides, urging the parties concerned to return to the negotiating table. By abstaining, India retained the option of reaching out to relevant sides in an effort to bridge the gap and find a middle ground with an aim to foster dialogue and diplomacy.

DAILY QUIZ

Q1. Consider the following statements about Bomb Cyclone:

1. It is a mid-latitude cyclone that intensifies rapidly.
2. It has high pressure at its center.

Which of the statements given above is/are correct?

- a) **1 only**
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

Q2. The Tenth Schedule of the Indian Constitution was added to the Constitution by

- a) The Constitution (Twenty-fourth Amendment) Act, 1971
- b) The Constitution (Forty -second Amendment) Act, 1976
- c) The Constitution (Forty-fourth Amendment) Act, 1978
- d) **The Constitution (Fifty-second Amendment) Act, 1985**

Q3. With reference to Sea of Marmara, consider the following statement:

1. It is an inland sea located entirely within the borders of Turkey.
2. It connects the Black Sea to the Sea of Azov.

Which of the statements given above is/are correct?

- a. **1 only**
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Q4. 'Operation Ganga' is an initiative launched by the government of India to bring back Indians stranded in.

- a. Russia
- b. **Ukraine**
- c. Germany
- d. China

Q5. Which of these water bodies witnesses sun rise at the earliest?

- a. Red Sea
- b. Black Sea
- c. **Caspian Sea**
- d. Mediterranean Sea