



Third Positive Indigenisation List

For Prelims: Positive Indigenisation List, Defence Acquisition Procedure 2020, Initiatives in the Defence Sector.

For Mains: Significance of Indigenisation of Defence and associated challenges.

Why in News

Recently, the Ministry of Defence (MoD) has restricted the import of 351 systems and components as a part of **third Positive Indigenisation List to boost Indigenisation in Defence Manufacturing.**

- In June 2021, the MoD had notified the [second negative import list](#), renamed as the **'positive indigenisation list' of 108 items.**
- The ['First Negative Indigenisation'](#) List comprising 101 items was notified in August 2020.

Key Points

- **Procurement:**
 - All the 351 items will now be procured from indigenous sources as per provisions given in [Defence Acquisition Procedure \(DAP\) 2020.](#)
 - The DAP 2020 includes the following procurement categories: Buy (Indian - Indigenous Designed Developed and Manufactured), Buy (Indian), Buy and Make (Indian), Buy (Global - Manufacture in India) and Buy (Global).
- **Timeline:**
 - The import of 172 systems and components will be stopped from December 2022, while curbs on another batch of **89 items will come into effect from December 2023.** The import of a **further 90 items will be stopped from December 2024.**
- **Items Included:**
 - It **includes components such as a** missile approach warning sensor, shells, propellants, electrical parts, missile containers, a torpedo tube launcher and a gun fire control system.
- **Significance:**
 - This Atmanirbhar (self-reliance) initiative will save foreign exchange **approximately equivalent to Rs 3,000 cr every year.**
 - It will give a boost to indigenisation with active participation of the public and private sector for **fulfilling the twin objectives of achieving self-reliance. (Atmanirbhar Bharat) and promoting defence exports.**
 - Not only does the list recognise the potential of the local defence industry, it will also invigorate impetus to domestic Research & Development by attracting fresh investment into technology and manufacturing capabilities.
 - It also provides an excellent opportunity for **'start-ups', as Micro, Small, and Medium Enterprises (MSMEs)** will get a tremendous boost from this initiative.

Indigenisation of Defence

- **About:**

- Indigenisation is the **capability of developing and producing any defence equipment within the country** for the dual purpose of achieving self reliance and reducing the burden of imports.
- **Self-reliance in defence manufacturing is one of the key objectives** of Department of Defence Production.
 - **Defence Research Development Organisation (DRDO), Defence Public Sector Undertakings (DPSUs)** and private organisations are playing a critical role in indigenisation of defence industries.
- India is among the **world's largest arms importers, and the armed forces are expected to spend about USD 130 billion** on defence purchases over the next five years.
- **Background:**
 - Overdependence on the Soviet Union brought about a change in India's approach to defence industrialisation.
 - From the **mid-1980s, the government pumped resources into R&D (Research and Development)** to enable the DRDO to undertake high profile projects.
 - A significant beginning in defence indigenisation was made in 1983, when the government sanctioned the **Integrated Guided Missile Development Programme (IGMDP)** to develop 5 missile systems (Prithvi, Agni, Trishul, Akash, Nag).
 - The indigenous efforts were not adequate to meet the requirements of the armed forces, this resulted in the shift of focus towards co-development and co-production in partnership with foreign companies.
 - **A beginning was made in 1998, when India and Russia signed** an inter-governmental agreement to jointly produce **Brahmos supersonic cruise missile.**
- **Need:**
 - **Reducing Fiscal Deficit:**
 - India is the **second largest arms importer** in the world (after Saudi Arabia).
 - Higher import dependency leads to an increase in the fiscal deficit.
 - Despite having the fifth largest defence budget in the world, **India procures 60% of its weapon systems** from foreign markets.
 - **Security perspective:**
 - Indigenisation in defence is **critical to national security** also. It keeps intact the technological expertise and **encourages spin-off technologies and innovation** that often stem from it.
 - Indigenisation is needed in order **to avert the threats associated with the frequent ceasefire violations** like that of the Uri, Pathankot and Pulwama attacks..
 - **Employment Generation:**
 - It will lead to the generation of satellite industries that in **turn will pave the way for generation of employment opportunities.**
 - As per government estimates, a reduction in 20-25% in defence related imports could **directly create an additional 100,000 to 120,000 highly skilled jobs in India.**
 - **Strategic Capability:**
 - A self sufficient and self reliant defence industry will **place India among the top global powers.**
 - **Notion of Patriotism:**
 - **Nationalism and Patriotism can increase** with indegenious production of defence equipment, that in turn will not only boost the trust and confidence of the Indian forces but will **also strengthen a sense of integrity and sovereignty in them.**
- **Challenges:**
 - **Lack of an institutional capacity and capability** to take different policies aimed at indigenisation of defence to its logical conclusion.
 - Infrastructural deficit **increases India's logistics costs thus reducing the country's cost competitiveness** and efficiency.
 - Land acquisition issues restrict entry of new players in the defence manufacturing and production.
 - **Policy dilemma offset requirements under the DPP** (Defence Procurement Policy, now

replaced with DAP 2020) didn't help achieve its goal. (Offsets are a portion of a contracted price with a foreign supplier that must be re-invested in the Indian defence sector, or against which the government can purchase technology).

- Only government-to-government agreements (G2G), ab initio single vendor contracts or inter-governmental agreements (IGA) will not have offset clauses anymore.
- According to DAP 2020, all other international deals that are competitive, and have multiple vendors vying for it, will continue to have a 30% offset clause.

▪ **Related Initiatives:**

- **Increased the FDI limit:**
 - **In May 2020**, the foreign direct investment (FDI) limit under the automatic route in the defence sector was hiked **from 49% to 74%**.
- **Corporatization of the Ordnance Factory Boards:**
 - In October 2021, the government dissolved the **four-decade-old Ordnance Factory Board (OFB) and amalgamated 41 factories** under seven new state-owned companies to **manufacture defence hardware** ranging from munitions to heavy weapons and vehicles.
- **Defence India Startup Challenge**
 - DISC aims at **supporting Startups/MSMEs/Innovators to create prototypes and/or commercialize products/solutions** in the area of National Defence and Security.
 - It has been launched by the Ministry of Defence in partnership with **Atal Innovation Mission**.
- **SRIJAN Portal:**
 - It is a one stop shop online portal that provides access to the vendors to take up items for indigenization.
- **E-Biz Portal:**
 - Process of applying for Industrial License (IL) and Industrial Entrepreneur Memorandum (IEM) has been made completely online on ebiz portal.

Way Forward

- **A Permanent Arbitration Cell can be set up** to deal with all objections and disputes.
- **Private Sector boost is necessary** as it can infuse efficient and effective technology and human capital required for modernisation of indigenous defence industry.
- Software Industry and technologies like **Artificial intelligence and cyber security should be used** to develop and manufacture the “chip” indigenously.
- **Providing Financial and Administrative autonomy** to DRDO in order to enhance its confidence and authority.
- The staff at the Department of Defence Production **need to be trained and given longer tenures** to ensure continuity.
- In-house design capability **should be improved amongst the three services**, the Navy has progressed well on the path of indigenisation primarily because of the in-house design capability, the Naval Design Bureau.
- **Robust supply chain is critical for a defence manufacturer** looking to optimize costs.

Source: [HT](#)

India's Achievements of Renewable Energy Target

For Prelims: Schemes and programmes for Achieving Renewable Energy Target

For Mains: India's achievements in renewable energy sector, India's renewables energy targets,

challenges and initiatives taken to achieve it.

Why in News

India has achieved its target of achieving **40% of its installed electricity capacity from non-fossil energy sources by 2030** in November 2021.

- India had committed to this target at [COP 21](#) (UNFCCC), as part of its [Nationally Determined Contributions \(NDCs\)](#) (**Paris Agreement**).

Key Points

- Renewable Energy (RE) Capacity of India:**
 - The country's installed Renewable Energy (RE) capacity stands at 150.54 GW (solar: 48.55 GW, wind: 40.03 GW, Small hydro Power: 4.83, Bio-power: 10.62, Large Hydro: 46.51 GW) as on 30th Nov. 2021 while its nuclear energy based installed electricity capacity stands at 6.78 GW.
 - India has the **4th largest wind power capacity in the world.**
 - This brings the **total non-fossil based installed energy capacity** to 157.32 GW which is 40.1% of the total installed electricity capacity of 392.01 GW.
 - At the [COP26](#) India is committed to achieving **500 GW of installed electricity capacity from non-fossil fuel sources by the year 2030.**
- Challenges in Achieving the Target:**
 - Mobilization of the Necessary Finance:**
 - Gearing up the banking sector for arranging finances for larger deployment goals, exploring low-interest rate, long-term international funding, and developing a suitable mechanism for risk mitigation or sharing by addressing both technical and financial bottlenecks are major challenges.
 - Land Acquisition:**
 - Identification of land with Renewable Energy potential, its conversion (if needed), clearance from land ceiling Act, decision on land lease rent, clearance from revenue department, and other such clearances take time.
 - State governments have to play a major role in acquisition of land for RE projects.
 - Creating Ecosystem:**
 - Creating an innovation and manufacturing eco-system in the country.
 - Other:**
 - Integrating a larger share of renewables with the grid.
 - Enabling supply of firm and dispatchable power from renewables.
 - Enabling penetration of renewables in the so called hard to decarbonize sectors.

Initiatives Taken	
PM-KUSUM	<ul style="list-style-type: none">It was launched by the Ministry of New and Renewable Energy (MNRE) to support solar power in rural areas and reduce dependence on grid, in grid-connected areas.
Production Linked Incentive (PLI) Scheme	<ul style="list-style-type: none">Production Linked Incentive Scheme "National Programme on High Efficiency Solar" with an outlay of Rs. 4500 crores to support and promote manufacturing of high efficiency upstage vertical components like cells, wafers, ingots and polysilicon in India and thus boost the Solar PhotoVoltaic (PV) sector.
Solar Parks Scheme	<ul style="list-style-type: none">To facilitate large scale grid connected solar power projects, a scheme for "Developing 100 Mega Solar Power Projects" is under implementation with a target capacity of 40 GW.
Roof Top Solar programme Phase-II	<ul style="list-style-type: none">It provides for financial assistance of upto 4 GW of solar roof top capacity to the states. It also has a provision to incentivise the power distribution companies for incremental achievement.
Central Public Sector Undertaking (CPSU) Scheme	<ul style="list-style-type: none">A scheme for setting up 12 GW Grid- Connected Solar PV Power Projects by Central Public Sector Undertakings with domestic cells and modules is under implementation. Viability Gap Funding scheme is also being implemented.

Hydrogen Mission	<ul style="list-style-type: none"> ▪ The Prime Minister announced the launch of the National Hydrogen Mission and set up a global hub for Green Hydrogen production and export.
International Solar Alliance	<ul style="list-style-type: none"> ▪ The ISA is an intergovernmental treaty-based organisation with a global mandate to reduce the cost of financing and technology. Recently, the United States of America joined the ISA.
OSOWOG	<ul style="list-style-type: none"> ▪ The OSOWOG was jointly released by India and UK at the COP26 Climate Meet in Glasgow.
National Wind-Solar Hybrid Policy	<ul style="list-style-type: none"> ▪ The main objective of the National Wind-Solar Hybrid Policy, 2018 is to provide a framework for connecting wind-solar PV hybrid systems for optimal and efficient utilization of wind and solar infrastructure and land.
National Offshore Wind Energy Policy	<ul style="list-style-type: none"> ▪ The National Offshore wind energy policy was notified in October 2015 with an objective to harness wind energy in the Indian Exclusive Economic Zone (EEZ) along the Indian coastline of 14,500 km.
Other Renewables for Power Generation	<ul style="list-style-type: none"> ▪ Programme on Energy from Urban, Industrial and Agricultural Wastes/Residues ▪ Scheme to support Promotion of Biomass based cogeneration in sugar mills and other industries ▪ Biogas Power (Off-Grid) Generation and Thermal application Programme (BPGTP) ▪ New National Biogas and Organic Manure Programme (NNBOMP)

Way Forward

- **Identification of Areas:** Renewable resources specially wind cannot be set up everywhere, they require specific location.
 - Identification of these specific locations, integrating them with the main grid and distribution of powers, A combination of these three is what will take India forward.
- **Exploration:** More storage solutions need to be explored.
- **Agriculture Subsidy:** [Agricultural subsidy](#) should be rectified in order to ensure that only the required amount of energy is consumed.
- **Hydrogen Fuel Cell Based Vehicles and Electric Vehicles:** These are the most suitable options when it comes to shifting towards renewable sources of energy, that's where we need to work upon.

[Source: PIB](#)

Turkey's Stand in Russia- Ukraine Crisis

For Prelims: NATO, European Union, United Nations, Turkey, Organisation for Security and Cooperation in Europe, Minsk peace process, location of black sea and countries surrounding it.

For Mains: Global Impact of Russia- Ukraine crisis and its impact on India, Role that India can play in such situations, US' role in Russia- Ukraine crisis.

Why in News

Recently, Turkey urged Russia to drop its one-sided demands regarding [North Atlantic Treaty Organisation \(NATO\)](#) and Ukraine.

- It also requested **Russia to take a moderate approach** in its demands with the western alliance (US and other western countries).
- Earlier, the US intelligence reports said the [tension on the Russia-Ukraine border represents a major security crisis](#) for the region, with the potential to snowball into a broader conflict.



Key Points

- **Background:**
 - **History:**
 - Ukraine and Russia **share hundreds of years of cultural, linguistic and familial links.**
 - For many in Russia and in the ethnically Russian parts of Ukraine, the shared heritage of the countries is an emotional issue that has been exploited for electoral and military purposes.
 - As part of the Soviet Union, **Ukraine was the second-most powerful Soviet republic after Russia**, and was crucial strategically, economically and culturally.
 - **The Conflict:**
 - Ever since Ukraine split from the Soviet Union, **both Russia and the West have vied for greater influence in the country** in order to keep the balance of power in the region in their favour.
 - Also the unique geography of the [Black Sea](#) region confers several geopolitical advantages to Russia.
 - The **Donbass region (the Donetsk and Luhansk regions) of eastern Ukraine** has been facing a **pro-Russian separatist movement since 2014.**
 - In 2014, **Russia seized Crimea from Ukraine** in what was the first time a European country annexed territory from another country since [World War-2 \(1939 - 1945\).](#)
 - In 2015, an open conflict was averted after the **'Minsk II' peace agreement** was signed by Representatives of Russia, Ukraine, the [Organisation for Security and Cooperation in Europe \(OSCE\)](#) and the leaders of two pro-Russian separatist

regions, under the mediation of France and Germany.

- Recently, **Ukraine urged NATO to speed up his country's membership** in the alliance.
- Russia **declared such a move a "red line"**, and worried about the consequences of the US-led military alliances expanding right up to its doorstep.

▪ **Current Situation:**

- Russia is seeking assurances from the US that **Ukraine will not be inducted into NATO**. However, the US is not prepared to give any such assurance.
 - This has left the countries in a stand-off, with tens of thousands of Russian troops ready to invade Ukraine.
- Russia is keeping the **tensions high at the Ukraine border** in order to get sanctions relief and other concessions from the West.
- **Any kind of military action by the US or [European Union \(EU\)](#) against Russia would precipitate a major crisis for the whole world**, and has so far not been mooted by any of the parties involved.
- However, the US has **offered to re-open talks between the NATO alliance and Russia** to ease Russia's concerns.
 - A meeting of the NATO-Russia Council has been proposed for January 2022, though **Ukraine has not publicly agreed**.

▪ **Turkey's Stand:**

- Turkey has **irritated Russia by supplying combat drones to Ukraine** that Russia fears could be used by Ukraine in its conflict with separatists in two eastern regions.
- Turkey has also **upset the US and NATO by acquiring an advanced missile defence system from Russia** that resulted in sanctions from the United States.
- It has **urged Russia and the Western defence alliance to remove their differences in direct negotiations** proposed by NATO chief Jens Stoltenberg.

▪ **India's Stand:**

- India **did not join the Western powers' condemnation** of Russia's intervention in Crimea and kept a low profile on the issue.
- In November 2020, **India voted against a Ukraine-sponsored resolution** in the [United Nations \(UN\)](#) that condemned alleged human rights violations in Crimea thereby backing old ally Russia on the issue.

North Atlantic Treaty Organisation

- It is a **military alliance established by the North Atlantic Treaty** (also called the **Washington Treaty**) of April, 1949, by the United States, Canada, and several Western European nations to provide collective security against the Soviet Union.
- A key provision of the treaty, the so-called **Article 5**, states that if one member of the alliance is attacked in Europe or North America, it is to be considered an attack on all members. That **effectively put Western Europe under the "nuclear umbrella" of the US**.
 - NATO has only **once invoked Article 5, in September, 2001 following the 9/11 attacks** on the World Trade Centre in the US.
- As of 2019, there are **29 member states**, with Montenegro becoming the latest member to join the alliance in 2017.

Organisation for Security and Co-operation in Europe

- It is the **world's largest security-oriented intergovernmental organisation**. Its mandate includes issues such as arms control, promotion of human rights, freedom of the press, and fair elections. Its **headquarters are in Vienna**.
 - It was **established in 1972**, and its first conference (1973–75) was attended by all 33 countries of Europe (with the exception of Albania) and by the United States and Canada.
- All 57 **participating States enjoy equal status**, and decisions are taken by consensus on a politically, but **not legally binding basis**.
 - **India is not a participating state**.
- The **Open Skies Consultative Commission regularly meets at the OSCE in Vienna**.
 - It is the **implementing body of the [Open Skies Treaty](#)**, which in 2002 established a regime of unarmed aerial observation flights over the territory of its 33 signatories.

Way Forward

- A practical solution for the situation is to **revive the Minsk peace process**. Therefore the West (US and Other western Countries) should push both sides to resume talks and live up to their commitments as per the Minsk agreement to restore relative peace on the border.
- The US should also **seek agreement from all parties to engage more directly in an OSCE-mediated process** to stem the ongoing damage to European security, the deepening human and economic costs, and the threat to Ukraine's sovereignty.

[Source: TH](#)

India- US: Technology-based Energy Solutions

For Prelims: Net Zero, Climate change and Impacts, Clean Energy, United States-India Science & Technology Endowment Fund, Various partnerships on climate change.

For Mains: India-US cooperation, Tackling climate and clean energy challenges, Efforts to promote clean energy

Why in News

Recently, India and the US launched a programme titled '**Technology-based Energy Solutions: Innovations for [Net Zero](#)**' to tackle **climate and clean energy challenges**.

- It constitutes a **call for Ignition Grants** by the **United States-India Science & Technology Endowment Fund (USISTEF)**.

United States-India Science & Technology Endowment Fund

- The governments of the US (through the Department of State) and India (through the [Department of Science & Technology](#)) have established the **US-India Science & Technology Endowment Fund (USISTEF)**.
- It has been established **for the promotion of joint activities that would lead to innovation and entrepreneurship** through the application of science and technology.
- The aim of the Fund is **to support and foster joint applied R&D to generate public good through the commercialization of technology** developed through sustained partnerships between U.S. and Indian researchers and entrepreneurs.
- The U.S.-India Science and Technology Endowment Fund activities are implemented and administered through the bi-national [Indo-U.S. Science and Technology Forum \(IUSSTF\)](#).

Key Points

- **About:**
 - It is a programme to support **India-US S&T (Science and Technology)-based entrepreneurial initiatives** that address the development and implementation of next-

- generation **clean and renewable energy, energy storage, and carbon sequestration.**
- The new program aligns with the **goals of the [U.S.-India Strategic Clean Energy Partnership](#)** (SCEP) and will be administered by the bi-national Indo-U.S. Science and Technology Forum (IUSSTF).
 - The SCEP was launched in accordance with the **US - India Climate and Clean Energy Agenda 2030 Partnership** announced by both countries at the **[Leaders' Summit on Climate](#)** held earlier this year (2021).
 - The IUSSTF is a bilateral organisation under the **Department of Science and Technology (DST)**, Government of India, and U.S. Department of State.
- It will **identify and support 'technology showstoppers'** or promising joint India-US S&T-based entrepreneurial initiatives in this area.
- Climate Change is **one of the biggest challenges facing our world today**, spurring the call for global collaborations to tackle this crisis.
- **Recent Developments in US-India Relations:**
 - **Malabar Exercise:** The Navies of the **[Quad \(Quadrilateral Framework\) Nations](#)** (India, the United States, Japan, and Australia) participated in the 25th edition of the exercise.
 - **India-US Agreement on ALUAV:** India and the US have signed a Project Agreement (PA) to jointly develop an **Air-launched Unmanned Aerial Vehicle (ALUAV)** or **drones** that can be launched from an aircraft.
 - **Issues in Free Trade Agreement:** The US administration has indicated that it is no longer interested in securing a bilateral **Free Trade Agreement (FTA)** with India.
 - **NISAR: NASA and ISRO** are collaborating on developing an **SUV (Sport Utility Vehicle)-sized satellite called NISAR**, which will detect movements of the planet's surface as small as 0.4 inches over areas about half the size of a tennis court.
- **Partnership on Climate Change with Other Nations:**
 - **US-India Strategic Clean Energy Partnership.**
 - **India-European Union: Paris Agreement, Coalition for Disaster Resilient Infrastructure, Conference of the Parties (COP 26).**
 - **[Glasgow Leaders' Declaration on Forests and Land Use.](#)**
 - **[Kunming Declaration on Biodiversity.](#)**

Climate Change

- The term 'climate change' refers to **change in the longer term pattern of behaviour of the atmosphere** over millennia or, more recently, as a result of natural processes or human activity.
 - Climate is **distinguished from weather, which is the specific behaviour of the climate at a particular time.** Weather is made up of specific events, for example, a particular storm, the rainfall over a particular period, the temperature at a particular time.
- There are, however, many possible ways by which climate may be described. These are generally associated **with averages or variability in temperature, precipitation, wind and cloud.**
- The climate varies spatially, for example, depending on the distance from the equator or the sea, and temporally, for example, depending on seasonal and daily variations.

Some Indian Initiatives to Fight Climate Change

- **[National Clean Air Programme \(NCAP\)](#)**
- **[Bharat Stage-VI \(BS-VI\) emission norms](#)**
- **[UJALA scheme](#)**
- **[National Action Plan on Climate Change \(NAPCC\)](#)**

Way Forward

- We have **to grow the innovation pipeline at an unprecedented pace** and invest heavily to reduce green premiums on critical clean technologies and attract entrepreneurial talent to create new markets and industries to transition to Net Zero.
- Focus should be on the **global initiatives and transformative strategies needed to advance**

rapidly scalable clean energy solutions, such as **smarter energy use, renewable technologies, and the electrification of transportation and buildings.**

- There is an **urgent need** for every country, city, business and financial institution **to adopt concrete plans for transitioning to net-zero.**
- Even more **urgent is for governments to match this long-term ambition with concrete actions now**, as trillions of dollars are mobilised to overcome the [Covid-19 pandemic](#). Revitalising economies is our chance to re-engineer our future.

[Source: PIB](#)

Online Certificate of Origin for Merchandise Export

For Prelims: Certificates of Origin (CoO), Types of Trade Agreements.

For Mains: Export Promotion Schemes and significance of trade agreements signed by India.

Why in News

The **Centre has suspended till 31st January 2022, a mandatory obligation imposed on exporters to obtain online Certificates of Origin (CoO)** for every outbound consignment.

Key Points

- **About:**
 - The online CoO system, put in place in late 2019 **for exports to countries with whom India had a [Preferential Trade Agreement \(PTA\)](#)**, was expanded to cover all merchandise exports from November 2021.
 - This platform acts as a **single access point for all exporters, all Free Trade Agreements (FTAs)/Preferential Trade Agreements (PTAs)**, and all concerned agencies.
- **Devised By:**
 - The platform has been designed and developed by the **Director-General of Foreign Trade (DGFT)** and Regional & Multilateral Trade Relations (RMTR) Division, Department of Commerce, **Ministry of Commerce and Industry.**
- **Significance:**
 - This online facility provides **'[ease of doing business](#)'** to the exporting community and gives a verifiable authentication mechanism to the partner countries to confirm the genuineness of the issued CoOs through a QR code which adds credibility to the issued e-CoO.
- **Status of Merchandise Export:**
 - India's monthly merchandise exports have crossed USD 30 billion for seven months in a row and are largely on course to reach the government's target of a record USD 400 billion in 2021-22.
 - Export merchandising is **a method of offering retail goods for sale in a foreign consumer market.**
- **India's Export Promotion Schemes:**
 - **Merchandise Exports from India Scheme:**
 - **MEIS** was introduced in the **[Foreign Trade Policy \(FTP\)](#) 2015-20**, under MEIS, the government provides duty benefits depending on product and country.
 - **Service Exports from India Scheme:**
 - Under it, incentives are given by the Ministry of Commerce and Industry to Service

Exporters based in India to promote the export of services from India.

- **Remission of Duties or Taxes on Export Product (RoDTEP):**
 - It is a fully automated route for Input Tax Credit (ITC) in the [GST \(Goods and Service Tax\)](#) to help increase exports in India.
 - It was started in **January 2021 as a replacement for the MEIS**, which was not compliant with the rules of the [World Trade Organisation](#).
- **Rebate of State and Central Taxes and Levies:**
 - Announced in March, 2019, RoSCTL was offered for embedded state and central duties and taxes that are not refunded through Goods and Services Tax (GST).
 - It is available only for garments and made ups. It was introduced by the Ministry of Textiles.
 - Previously, it was Rebate for State Levies (ROSL).

Types of Trade Agreements

- **Free Trade Agreement (FTA):**
 - A free trade agreement is an agreement in which two or more countries agree to provide preferential trade terms, tariff concession etc. to the partner country.
 - India has negotiated FTA with many countries e.g. Sri Lanka and various trading blocs as well e.g. [ASEAN](#).
- **Preferential Trade Agreement (PTA):**
 - PTAs or Generalized System of Preferences (GSP) is **a special status given in trade by various countries**. In this type of agreement, two or more partners give preferential right of entry to certain products by reducing duties on an agreed number of tariff lines.
 - Tariffs may even be reduced to zero for some products even in a PTA. India signed a PTA with Afghanistan.
- **Comprehensive Economic Partnership Agreement (CEPA):**
 - Partnership agreement or cooperation agreement are more comprehensive than an FTA.
 - CEPA covers negotiation on the trade in services and investment, and other areas of economic partnership.
 - India has signed CEPAs with South Korea and Japan.
- **Comprehensive Economic Cooperation Agreement (CECA):**
 - CECA generally covers negotiation on trade tariff and TRQ (Tariff Rate Quotas) rates only. It is not as comprehensive as CEPA. India has signed CECA with Malaysia.

[Source: TH](#)

New Vaccines and Drug for Covid

For Prelims: Vaccines and types, Virus Strain and Mutation. Corbevax and Covovax, Molnupiravir, Spike Protein.

For Mains: Mechanism of Vaccine in treating viral infection. Types of Vaccines.

Why in News

Recently, India has approved two **Vaccines [Corbevax](#) and [Covovax](#)**, one pill **Molnupiravir** for treating **[Covid-19](#)** patients.

Key Points

▪ Corbevax - Protein Subunit Vaccine:

◦ About:

- It is a **protein subunit vaccine**, which means that instead of the whole virus, it uses **fragments of it to trigger an immune response**.
- In this case, the subunit vaccine contains a **harmless [Spike \(S\) protein](#)**.
 - The S protein is a **highly glycosylated and large type I transmembrane fusion protein that is made up of 1,160 to 1,400 amino acids**, depending upon the type of virus.
 - The S protein plays a crucial role in penetrating host cells and initiating infection.
- Once the immune system recognises the protein, it **produces antibodies to fight a real infection** when it happens.

◦ Efficacy:

- Neutralising antibodies against [Delta strain](#) indicates a vaccine effectiveness of **more than 80 % for the prevention of symptomatic infections** based on published studies.
- In the pivotal Phase III study conducted with an endpoint of immunogenic superiority, it demonstrated **superior immune response in comparison with [COVISHIELD vaccine](#)** when **assessed for Neutralizing Antibody (nAb) Geometric Mean Titers (GMT)** against the Ancestral-Wuhan strain and the globally dominant Delta variant.

▪ Covavax - Recombinant Nanoparticle Vaccine:

◦ About:

- Manufactured by **Serum Institute of India (SII)**, is also a protein subunit vaccine, **but uses Recombinant Nanoparticle Technology (RNT)**. It has been developed by **US-based Novavax**.
 - Recombinant protein vaccine is another proven approach against Covid-19 virus. This technology teaches the body **how to develop immunity against the virus using spike protein**.
- **Harmless copies of the spike protein are grown** in insect cells; the protein is then extracted and assembled into virus-like nanoparticles.
- Novavax has used an immune-boosting compound (adjuvant). The same technology is used in HPV and the Hepatitis B vaccine.

◦ Efficacy:

- The vaccine has been evaluated in two Phase 3 trials: a trial in the UK that demonstrated **an efficacy of 96.4% against the original virus strain**, 86.3% against Alpha and 89.7% efficacy overall.

▪ Molnupiravir - Oral Antiviral Drug:

◦ About:

- It works **by introducing errors into the virus's genetic code, which prevents [replication](#)**.

◦ Efficacy:

- The UK cleared molnupiravir as **“safe and effective”**.
- The US did not authorise it **for use for longer than five consecutive days, or in patients younger than 18** as it may affect bone and cartilage growth.
- In India, the recommendation is **for treatment of adult Covid patients with oxygen level over 93%**, and who have a high risk of progression of the disease, and that the drug be sold by retail only under prescription.

Types of vaccines

▪ Inactivated vaccines:

- Inactivated vaccines use the **killed version of the germ** that causes a disease.
- Vaccines of this type are created by **inactivating a pathogen, typically using heat or chemicals such as formaldehyde or formalin**. This destroys the pathogen's ability to replicate, but keeps it **“intact” so that the immune system can still recognize it**. (“Inactivated” is generally used rather than “killed” to refer to viral vaccines of this type, as

viruses are generally not considered to be alive.)

- They usually don't provide immunity (protection) **that's as strong as live vaccines**. So you may need several doses over time (booster shots) in order to get ongoing immunity against diseases.
 - **They are Used to protect:** [Hepatitis A](#), [Flu](#) (shot only), [Polio](#) (shot only), [Rabies](#).
- **Live-attenuated Vaccines:**
 - Live vaccines use **a weakened (or attenuated) form of the germ** that causes a disease.
 - Because these vaccines are so similar to the natural infection that they help prevent, they create **a strong and long-lasting immune response**.
 - The limitation of this approach is that **these vaccines usually cannot be given to people with weakened immune systems**.
 - **Live vaccines are used against:** [Measles](#), Mumps, Rubella (MMR combined vaccine), Rotavirus, Smallpox among others.
- **Messenger (m) RNA Vaccines:**
 - mRNA vaccines **make proteins in order to trigger an immune response**. mRNA vaccines have several benefits compared to other types of vaccines, **including shorter manufacturing times** and, because they do not contain a live virus, no risk of causing disease in the person getting vaccinated.
 - The vaccines are used to protect against: Covid-19.
- **Subunit, Recombinant, Polysaccharide, and Conjugate Vaccines:**
 - They use **specific pieces of the germ** - like its protein, sugar, or capsid (a casing around the germ). They give a very strong immune response.
 - They can also be used on people with weakened immune systems and long-term health problems.
 - These vaccines are used to protect against: Hib (Haemophilus influenzae type b) disease, [Hepatitis B](#), HPV (Human papillomavirus), [Pneumococcal disease](#) among others.
- **Toxoid Vaccines:**
 - They use a toxin (harmful product) made by the germ that causes a disease. They **create immunity to the parts of the germ that cause a disease instead of the germ itself**. That means the immune response is targeted to the toxin instead of the whole germ.
 - Toxoid vaccines are used to protect against: **Diphtheria, Tetanus**.
- **Viral Vector Vaccines:**
 - Viral vector vaccines use **a modified version of a different virus as a vector** to deliver protection.
 - Several different viruses have been used as vectors, including **influenza, vesicular stomatitis virus (VSV), measles virus, and adenovirus, which causes the common cold**.
 - Adenovirus is **one of the viral vectors used in some Covid-19 vaccines** being studied in clinical trials.
 - The vaccines are used to protect against: Covid-19

[Source:IE](#)

Conservation of Konark Sun Temple: Odisha

For Prelims: Archaeological Survey of India (ASI), Konark Sun Temple, King Narasimhadeva I, Kalinga

Architecture, UNESCO world heritage site

For Mains: Konark Sun Temple, Kalinga Architecture, Ganga Empire, Indian Culture - Salient aspects of Art Forms, Architecture from ancient to modern times.

Why in News

Recently, the [Archeological Survey of India \(ASI\)](#) has revealed it is working on a preliminary roadmap to **safely remove sand** from the interiors of [Konark Sun Temple](#).

- The sand was filled over a century ago by the **British in Jaga Mohan (assembly hall)** of the Sun Temple for the stability of the temple.



Key Points

- **Conservation Process:**
 - The **British administration in 1903** had filled the hall with sand and sealed it in order to maintain the durability of the **thirteenth-century world heritage site**.
 - They had made hole on the top portion of the **Jaga Mohan and poured the sand through that**.
 - The need to remove the sand was felt after a study **warned of possible damage caused by the sand settling down** — resulting in a **gap of 17 feet** between the sand layer and the structure.
 - To carry out the sand-removing process, ASI is going to be assisted by the **Central Building Research Institute (CBRI) at Roorkee**, which had done a scientific study on the temple's structural stability between 2013 and 2018.
- **About Konark Temple:**
 - Konark Sun Temple, located in the **East Odisha near the sacred city of Puri**.
 - Built in the 13th century by **King Narasimhadeva I (AD 1238-1264)**. Its scale, refinement and conception represent the strength and stability of the **Eastern Ganga Empire** as well as the value systems of the historic milieu.
 - The Eastern Ganga dynasty also known as Rudhi Gangas or Prachya Gangas.
 - It was the large Indian royal dynasty in the medieval era that reigned from Kalinga from as early as the **5th century to the early 15th century**.
 - The beginnings of what became the **Eastern Ganga dynasty** came about when

Indravarma I defeated the Vishnukundin king.

- The temple is designed in the shape of a **colossal chariot**.
 - It is dedicated to the **sun God**.
 - The Konark temple is widely known not only for its **architectural grandeur** but also for the **intricacy and profusion of sculptural work**.
 - It marks the highest point of achievement of Kalinga architecture depicting the grace, the joy and the rhythm of life in all its wondrous variety.
 - It was declared a [UNESCO world heritage site](#) in 1984.
 - There are two rows of **12 wheels on each side of the Konark sun temple**. Some say the wheels represent the **24 hours in a day** and others say the 12 months.
 - The seven horses are said to **symbolise the seven days of the week**.
 - Sailors once called this Sun Temple of Konark, the **Black Pagoda** because it was supposed to draw ships into the shore and cause shipwrecks.
 - Konark is the invaluable link in the history of the diffusion of the **cult of Surya**, which originating in Kashmir during the 8th century, finally reached the shores of Eastern India.
- **Other Important Monuments in Odisha:**
- [Jagannath Temple](#)
 - [Tara Tarini Temple](#)
 - [Udaygiri and Khandagiri Caves](#)
 - [Lingaraja Temple](#)

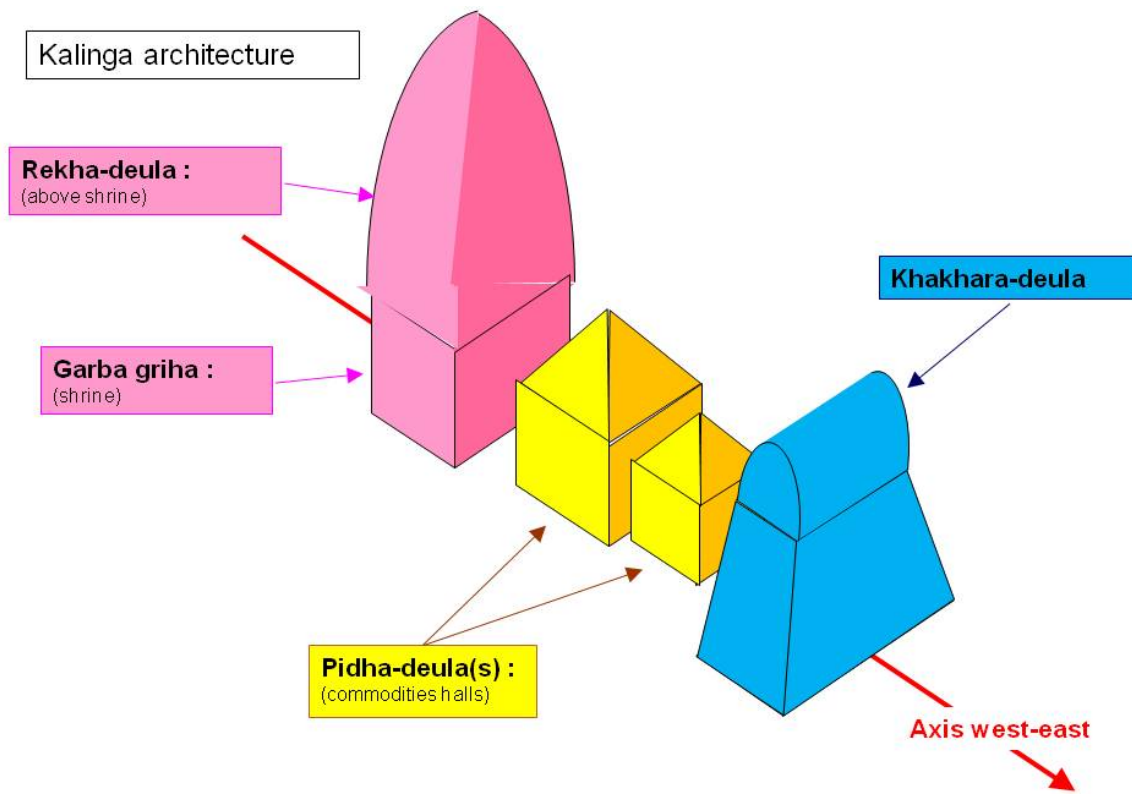
Kalinga Architecture

▪ **About:**

- The Indian temples are broadly divided into [Nagara](#), **Vesara**, **Dravida** and **Gadag** styles of architecture.
- However, the temple architecture of Odisha corresponds altogether to a different category for their unique representations called Kalinga style of temple architecture.
- This style **broadly comes under the Nagara style**.

▪ **The Architecture:**

- In Kalinga Architecture, basically a temple is **made in two parts**, a tower and a hall. The tower is called deula and the hall is called jagmohan.
- The walls of both the **deula** and the **jagmohan** are lavishly sculpted with architectural motifs and a profusion of figures.
- The most repeated form is the **horseshoe shape**, which has come from the earliest times, starting with the large windows of the chaitya-grihas.
- It is the deula which makes three **distinct types of temples in Kalinga Architecture**:
 - Rekha Deula.
 - Pidha Deula.
 - Khakhara Deula.
- The former two are associated with **Vishnu, Surya and Shiva temples** while the third is mainly with Chamunda and Durga temples.
- The Rekha Deula and Khakhara Deula houses the sanctum sanctorum while the Pidha Deula constitutes outer dancing and offering halls.



[Source: IE](#)

Sankalp Smarak: Andaman & Nicobar

Why in News

Recently, a Sankalp Smarak was dedicated to the nation exactly 78 years (**29th December 2021**) after [Netaji Subhash Chandra Bose's arrival](#) to India.

- The purpose of smarak is to **preserve this important event in history.**



Key Points

▪ About:

- The Smarak built in **Andaman and Nicobar** is a tribute to the **resolve of the soldiers of the [Indian National Army](#)** and their innumerable sacrifices.
- It is also a remainder of the values enshrined by Netaji himself, “**Nishtha, Kartavya aur Balidan**” or “**Commitment, Duty and Sacrifice**” that continue to underscore the ethos of the **[Indian Armed Forces](#)** and the resolve of the Indian Soldier.

▪ Significance:

- It is also significant that **Netaji escaped British surveillance from Kolkata on 16th Jan 1941** and stepped back on Indian soil after nearly three years, at Port Blair Aerodrome on 29th Dec 1943.
- **On 30th December 1943**, he **hoisted the national flag for the first time** on Indian soil, at Port Blair.
- Netaji’s visit to the islands as the **Head of the Provisional Government of Azad Hind (Known as Arzi Hukumat-e-Azad Hind)** and **Supreme Commander of Indian National Army** marked a symbolic fulfilment of his promise that the Indian National Army would stand on Indian soil by the end of 1943.
- This historic visit also marked a declaration of **Andaman and Nicobar Islands as the “first liberated territory of India”**.

Subhash Chandra Bose

▪ About:

- Netaji Subhas Chandra Bose (23rd January 1897 – 18th August 1945) is one of the **most celebrated freedom fighters of India**.



- In 1942, he earned the **title 'Netaji'**, in Germany by the Indian soldiers of the **Azad Hind Fauj**.
- Bose is credited with the very famous slogan, **"Give me blood, and I shall give you freedom!"** as well as **"Jai Hind"**.
- He is also credited to be the **first man to call Mahatma Gandhi "Father of the Nation"**, in his address from Singapore.

▪ **Indian National Army:**

- Netaji reached Japanese-controlled Singapore from Germany in July 1943, issued from there his famous call, **'Delhi Chalo'**, and announced the formation of the **Azad Hind Government and the Indian National Army** on 21st October 1943.
- The INA was first formed under **Mohan Singh and Japanese Major Iwaichi Fujiwara** and comprised Indian prisoners of war of the British-Indian Army captured by Japan in the Malayan (present-day Malaysia) campaign and at Singapore.
- The INA included both the **Indian prisoners of war** from Singapore and **Indian civilians** in South-East Asia. Its strength grew to 50,000.
- The INA fought allied forces in 1944 inside the borders of India in Imphal and in Burma.
- However, with the fall of Rangoon, Azad Hind Government ceased to be an effective political entity.
- In November 1945 a British move to put the INA men on trial immediately sparked massive demonstrations all over the country.
 - **Impact:** The I.N.A. experience **created the wave of disaffection in the British Indian army** during the 1945-46, which culminated in the great Bombay naval strike of February 1946 and was one of the most decisive reasons behind the British decision to make a quick withdrawal.
 - **Composition of I.N.A:** The I.N.A. was essentially non-communal, with Muslims quite prominent among its officers and ranks, and it also introduced the innovation of a **women's detachment** named after the **Rani of Jhansi**.

Source: PIB

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