

UPSC "PT" DNA (Daily News Analysis)

World bank and IMF

GS-II | 01 November, 2021

Part of: GS-II- International organisation (PT-MAINS-PERSONALITY TEST)

The World Bank (WB) is an international organization which provides facilities related to "finance, advice and research to developing nations" in order to bolster their economic development. It plays a stellar role in providing financial and technical assistance to developing countries across the globe. It is a unique financial institution that provides partnerships to reduce poverty and support economic development. It is actually composed of two institutions namely the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA). However, there are five institutions within the larger World Bank group. They are following:

The World Bank Group consists of five organizations:

1. The International Bank for Reconstruction and Development

The International Bank for Reconstruction and Development (IBRD) lends to governments of middle-income and creditworthy low-income countries.

2. The International Development Association

The International Development Association (IDA) provides interest-free loans — called credits — and grants to governments of the poorest countries. It is called the soft loan window of the World Bank. Together, IBRD and IDA make up the World Bank.

3. The International Finance Corporation

The International Finance Corporation (IFC) is the largest global development institution focused exclusively on the private sector. It helps developing countries achieve sustainable growth by financing investment, mobilizing capital in international financial markets, and providing advisory services to businesses and governments.

4. The Multilateral Investment Guarantee Agency

The Multilateral Investment Guarantee Agency (MIGA) was created in 1988 to promote foreign direct investment into developing countries to support economic

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growth, reduce poverty, and improve people's lives. MIGA fulfils this mandate by offering political risk insurance (guarantees) to investors and lenders.

5. The International Centre for Settlement of Investment Disputes

The International Centre for Settlement of Investment Disputes (ICSID) provides international facilities for conciliation and arbitration of investment disputes.

Purpose and Function of the World Bank

The World Bank provides low-interest loans, interest-free credit and grants. It focuses on improving education, health, and infrastructure. It also uses funds to modernize a country's financial sector, agriculture, and natural resources management. The Bank's stated purpose is to "bridge the economic divide between poor and rich countries". It does this by turning "rich country resources into poor country growth". It has a long-term vision to "achieve sustainable poverty reduction".

To achieve this goal, **the World Bank focuses on six areas:**

- Overcome poverty by spurring growth;
- Help reconstruct countries emerging from war;
- Provide a customized solution to help middle-income countries remain out of poverty;
- Spur governments to prevent climate change;
- It helps them control communicable diseases, especially HIV/AIDS, and malaria;
- It also manages international financial crises and promotes free trade.

The International Monetary Fund (IMF)

The International Monetary Fund (IMF) is an international organization that aims to promote global economic growth and financial stability meant to encourage international trade and reduce poverty. It is working to foster global monetary cooperation, secure financial stability, facilitate international trade, and promote high employment and sustainable economic growth. The primary purpose of the IMF is to ensure the stability of the international system- the system of exchange rates and international payments. Although the IMF is an agency of the United Nations, it has its own charter, structure and financing arrangements. The IMF not only works with its 187 members, it also collaborates with the World Bank, World Trade Organization and agencies of the United Nations. To become a member of

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the IMF, countries must apply and be accepted by the other members. Because membership of the World Bank is conditional on being a member of the IMF, the World Bank also has 187 members. These members govern the World Bank through a Board of Governors. Apart from working with developing countries on individual projects, the World Bank also works with various international institutions, along with professional and academic bodies.

Similarities between the WB and IMF

- Both the International Monetary Fund and the World Bank were formed together at Bretton Woods, New Hampshire, in July 1944. They are called Brettonwoods twins.
- Both were created to support the world economy in their own unique ways.
- Both are headquartered in Washington D.C, the U.S.A.
- They have the same membership as no admission to the World Bank is possible without the IMF membership.
- The management structure of the World Bank is largely similar to that of the IMF. Voting rights in these institutions depend primarily on capital contribution of the member countries.

Differences between the WB and the IMF

Despite similarities, however, the Bank and the IMF remain distinct. Following differences exist between them:

- The World Bank is primarily a development institution but the IMF is a cooperative institution that seeks to maintain an orderly system of payments and receipts between nations.
- The IMF exists to preserve an orderly monetary system whereas the World Bank performs an economic development role.
- Both have different purposes. The IMF supervises the economic policies of its members and expects them to allow free exchange of national currencies. To keep this financial order, the IMF also acts as a provider of emergency loans to members who run into difficulties, in exchange for a promise from the member to reform its economic policies.
- The World Bank finances economic development among poorer nations by funding specific and targeted projects, aimed at helping to raise productivity. The World Bank consists of two organizations: the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA). The IBRD lends to developing nations at preferential interest rates, while the IDA only lends to the poorest nations, on an interest-

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free basis.

- They have different funding sources. The IMF raises its money through membership fees, known as quotas. Each member country pays a quota based on its relative economic size so that the larger economies pay more. The World Bank raises most of its money through borrowing by issuing bonds to investors. It also receives grants from donors.
- The IMF exists primarily to stabilize exchange rates, while the World Bank's primary goal is to reduce poverty.

Criticism of the WB and the IMF

- The International Monetary Fund promotes monetary cooperation internationally and offers advice and assistance to facilitate building and maintaining a country's economy. The IMF also provides loans and helps countries develop policy programs that solve balance of payment problems. However, the loans offered by the IMF are loaded with conditions.
- Critics are concerned about the 'conditionalities' imposed on borrower countries. The World Bank and the IMF often attach loan conditionalities based on what is termed the '**Washington Consensus**', focusing on liberalisation—of trade, investment and the financial sector—, deregulation and privatisation of nationalised industries. Often the conditionalities are attached without due regard for the borrower countries' individual circumstances. Additionally, the prescriptive recommendations by the World Bank and IMF fail to resolve the economic problems within the countries.
- Both the WB and the IMF have been accused of coercing poor countries to undertake structural adjustment programmes (SAPs) under the aegis of economic globalization. Sometimes, this has led to under-development of these economies bringing severe domestic crisis in multiple dimensions. This contributes to a yawning economic gap between different countries across the globe.
- The World Bank's role in the global climate change finance architecture has also caused much controversy. Civil society groups see the Bank as unfit for a role in climate finance because of the conditionalities and advisory services usually attached to its loans.
- The WB has been accused of financing unsustainable carbon-intensive developmental projects. Hence, there is an increasing call from environmental activists that the WB and IMF should finance only carbon-neutral sustainable development projects.
- There are also concerns related with the accountability of the projects run by

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them especially in the Third World countries.

- The WB and the IMF have also been criticised for being western-dominated undemocratic bodies. Decisions are made and policies implemented by leading industrialised countries because they represent the largest donors without much consultation with poor and developing countries.
- The IMF has quota system which is yet to give adequate weightage to the emerging economies like India, China and Brazil despite their increased economic importance in contemporary times. The global economic centre of gravity has shifted from the "global North" to the "global south". But these Brettonwoods institutions are yet to realise that even though there has been the formation the BRICS bank and the AIIB.
- There are also ethical issues related to the funding of types of projects by the World Bank. For example, the funding of hydroelectric dams in some countries by the WB has resulted in massive displacement of the indigenous peoples.
- The WB's propensity to privilege the private sector and market forces has brought about justifiable concerns regarding the sovereign decision-making capabilities of states getting tied funds from the World Bank.
- The Bank's private sector lending arm – the International Finance Corporation (IFC) – has also been criticised for its business model, the increasing use of financial intermediaries such as private equity funds and funding of companies associated with tax havens.
- Critics of the World Bank and the IMF are also apprehensive about the role of the Bretton Woods institutions in shaping the development discourse through their research, training and publishing activities. Their views and prescriptions may undermine or eliminate alternative perspectives on development.

Critical Role of the Bretton Woods Project

It was established in 1995 by the UK-based Bond Development and Environment Group (DEG) to support civil society to monitor the negative developmental impacts of World Bank and IMF policies and activities. The Bretton Woods Project (BWP) envisions a global economic system that operates on the basis of "primary principles of justice, equity, gender equality, human rights and environmental sustainability". It is supposed to work with "international institutions that are democratic, inclusive, transparent, accountable, and responsive to citizens, especially the poorest and most vulnerable". The Bretton Woods Project focuses on the World Bank and the International Monetary Fund (IMF) to challenge their power. It is meant to "open space for civil society and social movements to

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contribute to the development of policies that are gender transformative, equitable, environmentally sustainable and consistent with international human rights norms".

Conclusion

Many of the criticisms aimed against the WB and IMF are historical and may not hold true in contemporary times. The two institutions are trying to reorient themselves as per the changed geo-economic realities and changing developmental requirements. The internal assessment has also been catalysed by the geopolitical and geo-economic impact of the BRICS bank and the AIIB as a challenge to the Bretton Woods institutions. Hence, the national governments should undertake a calibrated economic liberalization maintaining the due autonomy of their decision-making to have a win-win situation in tune with the sustainable development ethics.

Source: PIB

PM Gati Shakti Master Plan

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- On India's 75th Independence Day, the Prime Minister announced that the Centre will launch 'PM Gati Shakti Master Plan'.
- It is a 100 lakh crore Infrastructure plan for developing 'holistic infrastructure'.
- The plan is aimed at **easier interconnectivity between road, rail, air and waterways** to reduce travel time and improve industrial productivity.
- The push for infrastructure is in line with the government's efforts to step up capital expenditure in infrastructure to promote economic growth.

Significance of the project

- The project will be a source of employment opportunities for the youth in future.
- Infrastructure development has the ability to create a **multiplier effect** with every rupee invested, yielding much higher returns.
- It will help **raise the global profile of local manufacturers** and help them

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compete with their counterparts worldwide.

- It also raises possibilities of new future economic zones.
- It is also help to **increase both manufacturing and exports**.

Source: PIB

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G-20 analysis

GS-II | 02 November, 2021

G-20 analysis

Context: This topic is important for UPSE GS Paper 2.

The G20 summit in Rome, agreed to end international public finance for new coal power generation abroad by 2021-end and mobilise funds to support low emission power development to achieve 'climate goals'. Let's understand G20 in detail.

About the G20

- The [G20](#) is the international forum that brings together the world's major economies. Its members account for more than **80% of world GDP, 75% of global trade and 60% of the population** of the planet.
- The forum has **met every year since 1999 and includes, since 2008, a yearly Summit**, with the participation of the respective Heads of State and Government.
- In addition to the Summit, ministerial meetings, **Sherpa meetings** (in charge of carrying out negotiations and building consensus among Leaders), working groups and special events are organized throughout the year.

Participants

- The G20 members are: **Argentina, Australia, Brazil, Canada, China, France, Germany, Japan, India, Indonesia, Italy, Mexico, Russia, South Africa, Saudi Arabia, South Korea, Turkey, the United Kingdom, the United States, and the European Union.** Spain is also invited as a **permanent guest**.
 - Each year, the Presidency invites guest countries, which take full part in the G20 exercise. Several international and regional organizations also
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participate, granting the forum an even broader representation.

How the G20 works?

- The G20 does not have a permanent secretariat: its agenda and activities are established by the rotating Presidencies, in cooperation with the membership.
- A "**Troika**", represented by the country that holds the Presidency, its predecessor and its successor, works to ensure continuity within the G20.
- The Troika countries are currently **Saudi Arabia, Italy and Indonesia**.

The Finance Track

- Within the G20 process, a particular place is reserved for the "Finance Track", which includes the meetings held among Finance and Economy Ministers, Central Bank Governors, Vice Ministers and Sherpas (negotiators) designated by the respective economic ministries.
- The Finance Track mainly focuses on economic, financial, monetary and tax issues. The outcome of this process flows into the broader "Communiqué", traditionally adopted by the G20 Heads of State and Government at the end of the Summit.

Origins of the G20

- In 1999, **in the wake of the 1997 economic crisis**, the G7 Finance Ministers announced the creation of the "Group of 20", aimed at including other countries in their discussions related to global economics and finance. The first official meeting of the G20 was held in Berlin in December that same year.
- Following the 2008 financial crisis, the United States proposed to increase the level of participation of the G20 to Heads of State and Government.
- At the 2009 Pittsburgh Summit, the Heads of State and Government decided to institutionalize the G20 as the main forum for global economic and financial cooperation.
- **The G20 Leaders have met every year since 2010.**

G20 EMPOWER

- The G20 Alliance for the Empowerment and Progression of Women's Economic Representation is a special initiative that aims at accelerating **women's leadership and empowerment** in the private sector by leveraging its unique alliance among business leaders and governments across the G20 countries.

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- Launched during the **2019 G20 Summit in Japan** and established during the 2020 Saudi Presidency, G20 EMPOWER includes 27 Members from G20 and guest countries.

G20 Innovation League

- Hosted by the G20 Italian Presidency, the G20 Innovation League is a unique event dedicated to sharing views and innovative solutions to key global challenges and to fostering international cooperation.
- The event will involve G20 Members and guest countries, relevant institution representatives, as well as innovation ecosystem players such as VC funds, innovative startups, experts and key businesses in each of the focus areas.

G20 Summits-

- 2022-Indonesia
- 2021-Italy
- 2020- Saudi Arabia
- 2019-Japan

The G20 Summit ended with the adoption of the **G20 Rome Leaders' Declaration**

On 30-31 October Rome hosted the G20 Summit, the first held in Italy. At the end of two days of working sessions and side events, the G20 Leaders adopted the **Rome Declaration**. The document is the final outcome of an intense year of negotiations and events organized in the framework of the Italian G20 Presidency.

G20 Leaders' Summit 2020

The 15th meeting of Group of Twenty (G20) took place in **Riyadh, Saudi Arabia**. This event marks the first time that Saudi Arabia will hold the Presidency of the G20.

The Saudi Arabian Presidency has selected the **theme**, '**Realizing Opportunities of the 21st Century For All**' .

The **three key agenda** items to be addressed under this theme are:

- 'Empowering People, by creating the conditions in which all people – especially women and youth – can live, work and thrive;
- Safeguarding the Planet, by fostering collective efforts to protect our global commons';

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- 'Shaping New Frontiers, by adopting long-term and bold strategies to share benefits of innovation and technological advancement'.

Policy Focus of the Group of 20 (G-20)

- Initially, the group's discussion had a focus on the sustainability of **sovereign debt and global financial stability**. Those themes have continued as frequent topics at the G-20's summits, along with discussions about global economic growth, international trade, and the regulation of financial markets.
- Under the current Italian Presidency, the G-20 is focused on three interconnected pillars of action: **people, planet, and prosperity**. The 2021 summit held in Rome, Italy on Oct. 30th and 31st. Some of the topics at this year's summit will include: **supporting SMEs and women-owned businesses, the role of the private sector in the fight against climate change, and sustainable development**.
- Previously, **the 2019 G-20 Osaka summit** focused on the global economy, trade and investment, innovation, the environment and energy, employment, women's empowerment, development, and wellness.
- In **2018, Argentina** proposed a focus on the future of work, infrastructure for development, and a sustainable food future. That meeting also included talks on the regulation of crypto currencies and the U.S.-China trade war.

The Group of 20 (G-20) vs. the Group of Seven (G-7)

- The G-20's ranks include all members of the Group of Seven (G-7), a forum of the seven countries with the world's largest developed economies: France, Germany, Italy, Japan, the United States, the United Kingdom, and Canada. Formed in 1975, the G-7 meets annually on international issues, including economic and monetary matters.
- Apart from being older than the G-20, the G-7 has sometimes been described as a more political body, since all of its meetings have long included not only finance ministers but chief ministers, including presidents and prime ministers. However, the G-20, since the global financial crisis of 2008, has increasingly held summits that include political leaders as well as finance ministers and bank governors.
- And where the G-7 exclusively comprises developed countries, many of the additional 12 nations that make up the G-20 are drawn from those with developing economies. Indeed, having a forum at which developed and emerging nations could confer was part of the impetus for creating the G-20.

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Russia and the Group of 20 (G-20)

- In 2014, the G-7 and G-20 took different approaches to membership by Russia after the country made military incursions into Ukraine and eventually annexed the Ukrainian territory of Crimea. G-7, which Russia had formally joined in 1998 to create the G-8, suspended the country's membership in the group; Russia subsequently decided to formally leave the G-8 in 2017.
- While Australia, host of the 2014 G-20 summit in Brisbane, proposed to ban Russia from the summit over its role, Russia has remained a member of the larger group, in part because of strong support from Brazil, India, and China, who together with Russia are collectively known as the BRIC nations.

Membership of the Group of 20 (G-20)

- Along with the members of the G-7, 12 other nations currently comprise the G-20:
Argentina, Australia, Brazil, China, India, Indonesia, Mexico, Russia, Saudi Arabia, South Africa, South Korea, and Turkey.
- In addition, the G-20 invites guest countries to attend their events. Spain is invited permanently as is the current chair of the Association of Southeast Asian Nations (ASEAN); two African countries (the chair of the African Union and a representative of the New Partnership for Africa's Development) and at least one country invited by the presidency, usually from its own region.

Criticism of the Group of 20 (G-20)

- Since its inception, some of the G-20's operations have drawn controversy. Concerns include transparency and accountability, with critics calling attention to the absence of a formal charter for the group and the fact that some of the most important G-20 meetings are held behind closed doors.
- Some of the group's policy prescriptions have also been unpopular, especially with liberal groups. Protests at the group's summits have, among other criticisms, accused the G-20 of encouraging trade agreements that strengthen large corporations, of being delinquent in combating climate change, and in failing to address social inequality and global threats to democracy.
- The G-20's membership policies have come under fire, too. Critics say the group is overly restrictive, and its practice of adding guests, such as those from African countries, is little more than a token effort to make the G-20

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reflective of the world's economic diversity.

HINDU EDITORIAL- Time for action

The G20 meeting has come at a critical moment for the global political economy

- At their first in-person meeting in two years, leaders of the G20 did not shy away from re-engaging with the biggest issues facing the global community today, including the COVID-19 pandemic, climate change, a major tax agreement, and steps to address concerns regarding global economic growth and stability.
- On coordinated efforts to mitigate the pandemic, the focus was on vaccine production and distribution, with assurances of support to WHO's target of inoculating 40% or more of the global population against COVID-19 by 2021, and at least 70% by mid-2022.
- The implicit assumption in this commitment by G20 leaders is that initiatives to boost the supply of vaccines in developing countries will succeed, and cooperation will help the world overcome supply and financing constraints.
- On climate change, the Group leaders recommitted their nations to providing \$100 billion a year toward adaptation, mitigation, and green technologies, focusing on the needs of developing countries.
- However, in this sphere, a divergence of views still exists across developing and developed nations: ahead of this summit and the 2021 climate conference in Glasgow, India had rejected the call to announce a target of zero emissions.
- Prime Minister Narendra Modi appears to have scored a victory in this regard as the post-summit communiqué commits the G20 to limiting global warming to 1.5° C and identified sustainable and responsible consumption and production as "critical enablers".
- The world community is on shakier footing regarding the fragile post-COVID economic recovery underway after paralysing lockdowns. Unsurprisingly, given the rising inflation, spiking energy prices, and alarming supply chain bottlenecks, G20 leaders were quick to affirm that national stimulus policies would not be removed prematurely.
- Even so, it would remain a challenge to walk the tightrope between preserving financial stability and fiscal sustainability. Perhaps in a bid to avoid potentially debilitating wobbles in global finance, the G20 leadership agreed to slap multinationals with a minimum 15% tax to create "a more stable and fairer international tax system".
- This would impact the tech titans of Silicon Valley, as this initiative would

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make it harder for such companies to benefit from locating themselves in relatively lower-tax jurisdictions.

- This OECD-led reform enjoys the support of 136 countries, which account for more than 90% of global GDP, and is likely to enter into force in 2023 or after.
- Nations such as the U.S. are divided on whether to approve this proposal domestically, and unless there is unanimity amongst the discussants, the initiative risks facing implementation delays.

Way Forward

The G20 meeting has come at a critical moment for the global political economy. If it results in timely, effective, coordinated action across major nations, hope for recovery will remain afloat.

Source: The Hindu

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Â India-U.S. Relations Overview

GS-II | 03 November, 2021

India-U.S. Relations Overview

Context: This topic is important for UPSE GS Paper2.

India-U.S. bilateral relations have developed into a "**global strategic partnership**", based on shared democratic values and increasing convergence of interests on bilateral, regional and global issues.

The cooperation is based on the idea of "**ChaleinSaathSaath: Forward Together We Go**", and "**SanjhaPrayas, Sab ka Vikas**" (Shared Effort, Progress for All).

Today, the [India-U.S.](#) bilateral cooperation is broad-based and multi-sectoral, covering trade and investment, defence and security, education, science and technology, cyber security, high-technology, civil nuclear energy, space technology and applications, clean energy, environment, agriculture and health. Vibrant people-to-people interaction and support across the political spectrum in both countries nurture our bilateral relationship.

Political Relations:

- The frequency of high-level visits and exchanges between India and the U.S. has gone up.
- The visit by President Obama to India on January 2015 as the Chief Guest at India's Republic Day, the two sides issued a **Delhi Declaration of Friendship and adopted a Joint Strategic Vision for Asia-Pacific and the Indian Ocean Region.**
- Both sides elevated the Strategic Dialogue between their Foreign Ministers to Strategic and Commercial Dialogue of Foreign and Commerce Ministers.
- India also has 2+2 dialogue with the U.S.A.

Civil Nuclear Cooperation:

**17/10, Beside Aggarwal Sweets,
Old Rajinder Nagar, New Delhi 110060**

**www.aspireias.com
8010068998, 8287714422**

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- The bilateral civil nuclear cooperation agreement was finalized in July 2007 and signed in October 2008.
- In September 2014, the two sides set up a Contact Group for advancing the full and timely implementation of the **India-U.S. Civil Nuclear Cooperation Agreement**, and to resolve pending issues.
- The two sides have started the preparatory work on site in India for six AP 1000 reactors to be built by Westinghouse. Once completed, the project would be among the largest of its kind.

Defence Cooperation:

- Defence relationship has emerged as a major pillar of India-U.S. strategic partnership with the signing of '**New Framework for India-U.S. Defence Relations**' in 2005 and the resulting intensification in defence trade, joint exercises, personnel exchanges, collaboration and cooperation in maritime security and counter-piracy, and exchanges between each of the three services.
- USA recognised India as '**Major Defence Partner**', which places India on par with its NATO allies.
- India has also signed three [defence agreement with USA](#) which will enable export of sensitive equipment's to India;

LEMOA (Logistic Exchange Memorandum of Agreement) signed in 2016

COMCASA (Communications Compatibility and Security Agreement) signed in 2018 and

BECA (Basic Exchange and Cooperation Agreement) signed in 2020.

- India has signed a deal for buying defence supplies worth almost **18 billion dollars from the US** and another three billion dollars' worth of defence supply in the pipeline
- USA has emerged as one of the largest supplier of arms and defence technologies to India such as **Apache Attack Helicopter, Chinook Helicopter, C-17 Globe Master (heavy lift transport aircraft), C-130J transport aircraft, Predator B drones, NASAMS-2 (a missile shield meant to protect vital installations), ISTAR aircrafts (meant to detect targets on ground), F21 fighter aircraft** etc
- The two countries regularly conduct bilateral exercises such as Yudha Abhyas, Red Flag etc.

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- India also participated in Rim of the Pacific (RIMPAC) exercise with USA.

Counter-terrorism and internal security:

- USA declared Pakistan as a "safe haven" for terrorists and flaked the country for not doing enough for controlling the menace of terrorism
- USA declared Hizbul Mujahideen chief Syed Salahuddin, a global terrorist.
- The United States supports a reformed UN Security Council that includes India as a permanent member
- **India-U.S. Counter-Terrorism Cooperation** Initiative was signed in 2010 to expand collaboration on counter-terrorism, information sharing and capacity building.
- A Homeland Security Dialogue was announced during President Obama's visit to India in November 2010 to further deepen operational cooperation, counter-terrorism technology transfers and capacity building.
- In order to further enhance the counter terrorism cooperation between India and the U.S., an arrangement was concluded in June 2016 to facilitate exchange of terrorist screening information through the designated contact points.

Trade and Economic:

- The **US remained India's top trading partner** for the second consecutive fiscal in 2019-20, which shows increasing economic ties between the two countries.
- According to the data of the commerce ministry, in 2019-20, the bilateral trade between the US and India stood at USD 88.75 billion as against USD 87.96 billion in 2018-19.
- The US is one of the few countries with which **India has a trade surplus**.
- In 2018-19, the US first surpassed China to become India's top trading partner.
- India is **sixth largest supplier of service imports** to the USA. The IT sector in India contributes to almost 9% of the country's GDP, and the bulk of India's production is exported to the US.
- India also receives **Second largest Investment (after Singapore)** from US investors worth 14 billion Indian Rupees.
- U.S.-India Infrastructure Collaboration Platform has also been set up to deploy cutting edge U.S technologies to meet India's infrastructure needs. U.S. firms will be lead partners in developing Allahabad, Ajmer and

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Vishakhapatnam as Smart Cities.

- USAID will serve as knowledge partner for the Urban India Water, Sanitation and Hygiene (WASH) alliance to help leverage business and civil society (Gates Foundation) to facilitate access to clean water, hygiene and sanitation in 500 Indian cities.

Energy and Climate Change:

- USA overtook Saudi Arabia as India's second biggest oil supplier after Iraq.
- Investment by Indian companies like Reliance, Essar and GAIL in the U.S. natural gas market is ushering in a new era of India-U.S. energy partnership.
- As a priority initiative under the **PACE (Partnership to Advance Clean Energy, Joint Clean Energy Research and Development Centre)** (JCERDC) established to promote clean energy innovations by teams of scientists from India and the United States, with a total joint committed funding from both Governments of US\$ 50 million.
- A new **U.S.-India Partnership for Climate Resilience** has been agreed to, in order to advance capacity for climate adaptation planning, as also a new U.S.- India Climate Fellowship Program to build long-term capacity to address climate change-related issues.

Education:

- About **130,000 Indian students** are pursuing advanced degrees in the U.S.
- Through the Higher Education Dialogue, India is learning from the U.S. experience in community colleges in order to meet our demands for skill-development.
- Under the **Global Initiative of Academic Networks (GIAN)** launched by India, upto 1000 American academics will be invited and hosted each year to teach in Indian universities at their convenience.
- The two sides are also collaborating to establish a new Indian Institute of Technology in Ahmedabad.

Space:

- NASA and ISRO are collaborating for India's **Mars Orbiter Mission** and for a dual-band **Synthetic Aperture Radar (NISAR)**.
- In June 2016, ISRO successfully launched record 20 satellites onboard PSLV rocket, which included 13 satellites from the United States.

Science & Technology (S&T):

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- The **U.S.-India Science & Technology Endowment Fund**, established in 2009, under the Science and Technology Endowment Board promote commercialization of jointly developed innovative technologies with the potential for positive societal impact.
- Collaboration between the Ministry of Earth Sciences and U.S. National Oceanographic and Atmospheric Administration has been strengthened under the 2008 MOU on Earth Observations and Earth Sciences.
- A "**monsoon desk**" has been established at the U.S. National Centers for Environmental Prediction.
- India's contribution of **\$250 million towards Thirty-Meter Telescope Project in Hawaii** and
- Indian Initiative in **Gravitational Observations (IndiGO)** with U.S. **LIGO** Laboratory are examples of joint collaboration to create world-class research facilities.

People to people ties:

- The 3.5-million-plus strong Indian American community is an important ethnic group in the U.S., accounting for about 1% of the total population in the country.
- Indian American community includes a large number of professionals, business entrepreneurs and educationalists with increasing influence in the society.
- With many Indian Americans occupying high level posts example **senator kamala Harris, Ami Bera, RO Khanna (Democrats lawmakers from California)etc**, the Indian Diaspora has assimilated into their adopted country and is acting as a catalyst to forge closer and stronger ties between India and the U.S..

Issues Between USA and India

- India is seeking relaxation in US visa regime, exemption from high duties imposed by the US on certain steel and aluminium products, and greater market access for its products from sectors such as agriculture, automobile, automobile components and engineering.
- On the other hand, the US wants greater market access for its farm and manufacturing products, dairy items, medical devices, and data localisation, apart from cut on import duties on some information and communication technology, including Harley Davidson.
- **CATSAA sanctions** as per which India's energy and defence deals with Iran and Russia are compromised.

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- India had lost the domestic content requirement (DCR) case related to the solar cell manufacturing against U.S.A. in the dispute settlement system of WTO.
- Recently [US 7th Fleet's patrol](#) in India's **Exclusive Economic Zone** without prior information to India was another concern for India.
- India's exclusion from the **US' Generalized System of Preference (GSP)**
 - In 2019, President Donald Trump had terminated India's designation as a beneficiary developing nation under the GSP trade program after determining that it has not assured the US that it will provide "equitable and reasonable access" to its markets.
 - India was the largest beneficiary of the program in 2017 with USD 5.7 billion in imports to the US given duty-free status.
 - GSP is designed to promote economic development by allowing duty-free entry for thousands of products from designated beneficiary countries.

Despite these issues, India US ties are expanding on various fronts visible in the form of cooperation in Indo-Pacific region, QUAD grouping, Coalition For Disaster Resilience Infrastructure etc.

Editorial- Trade and climate, the pivot for India-U.S. ties

The two areas are interrelated and will lend additional strength to the foundation of a true partnership

When the history of the 21st century is written, India and the United States and the strategic alliance they forge should play starring roles. Granted, it is far too early to predict how successful their joint efforts will be in creating a free and open Indo-Pacific — one that advances democratic values and confronts autocracies globally and locally.

As 2021 closes, with COVID-19 still a present danger and China, the emerging superpower on the global stage, viewed by both as a strategic competitor, India and the U.S. have a long way to go before they can inspire confidence that this blossoming alliance will endure for the long term.

Areas of convergence

- We believe that the fate of the grand strategic ambitions of the relationship may in fact depend substantially on how well they collaborate in two areas to which their joint attention is only belatedly turning — climate and trade.

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- The first presents an existential threat while the second is too often dismissed as a secondary consideration, even dispensable in the name of pursuing larger strategic interests.
- Such thinking ignores the lessons of history: strategic partnerships capable of re-shaping the international global order cannot be based simply on a negative agenda.
- Shared concerns about China provide the U.S.-India partnership a much-needed impetus to overcome the awkward efforts for deeper collaboration that have characterised the past few decades.

Some encouraging signs

- There has been progress. The U.S. Special Presidential Envoy for Climate, John Kerry, has visited India twice already, and India and the U.S. are collaborating under the Climate and Clean Energy Agenda Partnership.
- In parallel, there are hopeful signs that they are now prioritising the bilateral trade relationship by rechartering the Trade Policy Forum.
- However, early signs suggest we might be headed for a replay of previous showdowns at COP26 in Glasgow: while India just announced a net zero goal for 2070 — a welcome development even if well after catastrophic climate scenarios may be baked in — it has called for western countries to commit to negative emissions targets.
- India's rhetoric of climate justice is likely to be received poorly by U.S. negotiators, particularly if it aligns with China's messaging and obstructs efforts to reach concrete results.
- Protectionist tendencies infect the politics of both countries these days, and, with a contentious U.S. mid-term election a year away, the political window for achieving problem-solving outcomes and setting a vision on trade for the future is closing fast.

The interlinks

- Climate and trade are interrelated in many ways, from commercial dissemination of cutting-edge carbon mitigation and adaptation products and technologies to the carbon emissions that come with the transport of goods and humans from one country to another.
- If governments, such as India and the U.S., coordinate policies to incentivise sharing of climate-related technologies and align approaches for reducing emissions associated with trade, the climate-trade inter-relationship can be a net positive one.

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Work on early solutions

- For example, India and the U.S. could find opportunities to align their climate and trade approaches better, starting with a resolution of their disputes in the World Trade Organization (WTO) on solar panels.
- As they have dithered in pursuing cases in the WTO and settling them, China has effectively captured the global market, leaving each dependent on a source they view as a threat.
- The two countries could also chart a path that allows trade to flow for transitional energy sources, such as fuel ethanol.
- India currently bans imports of fuel ethanol even as it seeks to ramp up its own ethanol blend mandates and build a domestic sector that can join the U.S. and Brazil in exporting to the world.
- The most immediate threat could be the possibility of new climate and trade tensions were India to insist that technology is transferred in ways that undermine incentives for innovation in both countries or if the U.S. decides that imports from India be subject to increased tariffs in the form of carbon border adjustment mechanisms or "CBAMs".
- Climate-inspired trade tensions that might even lead to new trade wars can hardly bolster the strategic partnership.

Way Forward

Concerted action on both the climate and trade fronts is mutually beneficial and will lend additional strength to the foundation of a true partnership for the coming century.

Source: The Hindu

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4G Vs. 5GGS-III | 04 November, 2021

4G Vs. 5G

Context: This topic is important for UPSE GS Paper 3 And Prelims.

Background-

- "G" stands for "**GENERATION**". While connected to the internet, the speed of the connection depends upon the signal strength that is shown in abbreviations like 2G, 3G, 4G, 5G, etc. on any mobile device.
- Each generation of wireless broadband is defined as a set of **telephone network standards** that describe the technological implementation of the system.

Brief History of Data Transmission

- The transmission of data through network evolved in 1980 with the emergence of 1st generation of Network. Since then, data transmission has seen an up-gradation and improved speed.
- The 2nd generation (2G) network was launched in the 1990s. Digital radio signals were used and that supported both data and voice transmission with a frequency of 64 Kbps.
- The 3rd generation (3G) network was launched in the 2000s. The network speed provided were in the range of 1 Mbps to 2 Mbps.
- 4G was launched in 2009 and allowed data transmission at a speed of 100 Mbps to 1 Gbps.
- [5g](#) is the next generation wireless cellular technology that will provide faster and more reliable communication with ultra-low latency.

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A government panel report points out that with 5G, the peak network data speeds are expected to be in the range of 2-20 Gigabit per second (Gbps). This can help in good governance and can lead to higher economic growth in India.

Difference between [4G](#) and [5G](#)-

5g	4g
5G uses utilises much higher radio frequencies of 28 ghz.	4G uses lower reading frequencies of 700 mhz to 2500 mhz.
5G transfer more data over the air at faster speeds.	4G speed is lesser with less data transfer.
5G has lower latency i.e the delay before a transfer of data begins following an instruction. Latency for 5G is predicted to be below 10 milliseconds, and in best cases around 1 millisecond.	4G has higher latency as compared to 5G. Latency for 4G is around 20-30 milliseconds.
5G uses millimetre wave spectrum which enables more devices to be used within the same geographic area supporting around one million per square kilometre.	4G support lesser number of devices of about 4,000 devices per square kilometre.
5G uses a new digital technology that improve coverage, speed and capacity.	4G has led to more congestion and lesser coverage as compared to 5G.

Various advantages of 5G technology:

- 1. High speed:** 5G will revolutionise the mobile experience with speedy wireless network. Compared to conventional mobile transmission technologies, voice and high-speed data can be simultaneously transferred efficiently in 5G. This will enhance and support government's effort to promote digital India.
- 2. Better Governance:** Better speed and connectivity would reduce red-tapes. It will enhance speedy completion of projects and better implementation of

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policies. It will enable accountability in the system through a better monitoring system and will reduce corruption.

3. **Low latency:** It is one of the most important features of 5G technology which is significant for autonomous driving and mission critical applications. 5G networks are capable of latency less than a millisecond. This help in logistics improvement and would reduce overall cost of goods and services.
4. **Employment generation:** 5G wireless technology will open greater opportunity for new device manufactures and application developers. New VoIP devices and smart devices will be introduced in the market and thus more job opportunities as well. This will help in inclusive growth reaping demographic dividend.
5. **Enhanced network coverage:** Device-to-device communication techniques will further enhance network performance and support during limited access or absence of mobile networks. This will help in reducing digital gap in India.
6. **Entertainment and multimedia industry:** Analysts found that 55% of mobile Internet traffic has been used for video downloads globally in 2015. This trend will increase in future and high definition video streaming will be common in future. This will help in growth of entertainment industry and thus more jobs will be there. It will also increase government revenue through taxes.
7. **Enhanced Security:** 5G wireless technology is one the best solution for security surveillance due to higher bandwidth and unlicensed spectrum. It will enhance better coordination among various agencies.
8. **Logistics and shipping:** Logistic and shipping industry can make use of smart 5G technology for goods tracking, fleet management, centralized database management, staff scheduling and real-time delivery tracking and reporting.
9. **Smart cities:** It will fuel government's smart city project. Smart city application like traffic management, instant weather update, local area broadcasting, energy management, smart power grid, smart lighting of street, water resource management, crowd management, emergency response etc. can use reliable 5G wireless network for its functioning.
10. **Industrial Growth:** Future industries will depend on smart wireless technologies like 5G and LTE advanced for efficient automation of equipment, maintenance, safety, tracking, smart packing, shipping, logistics and energy management.
11. **Agricultural applications:** 5g technology can be used for agriculture and smart farming in future. Using smart RFID sensors and GPS technology, farmers can track location of livestock and manage them easily. Smart

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sensors can be used for irrigation control, access control and energy management.

- 12. Healthcare and mission critical applications:** 5G technology will with reliable wireless network connected to another side of the globe. Doctors can connect with patients from anywhere anytime and advise them when necessary. Scientists are working on smart medical devices which can perform remote surgery. Smart medical devices like wearable will continuously monitor patient's condition and activate alert during emergency.

TH EDITORIAL-India's 5G leap is about powering tomorrow

The revolution that 4G technology ushered in can be enhanced but the nation cannot gloss over the digital divide.

- The fifth generation mobile network, or 5G, is the next level of mobile network that will **shape the Fourth Industrial Revolution, or Industrial 4.0**, quality of service delivery, innovation, etc. by facilitating smarter and developing societies.
- Commercial 5G networks began to be deployed in 2020 and are expected to **reach 12% of world mobile connections (1.1 billion) and generate revenues up to U.S.\$1.3 trillion by 2025** for operators.
- The technology that 5G uses will improve data transfer speed at unexpected higher levels — almost 100 times more — and reduce latency times helping mission-critical services.

Thus, 5G is essential but are we ready for it?

Some roadblocks-

- India's telecom sector, which has revolutionised the digital space and facilitated services-led growth and quality of life, has been estimated to be one of the top performers globally for several years; but it has also been in doldrums for the last few years.
- Moreover, the **Supreme Court of India's ruling on the dues** being sought by the Department of Telecommunications (estimated to be more than **?90,000 crore** has further exacerbated the financial condition of telecom companies.
- It is no wonder then that the number of telecom operators has come down to a handful from around 15 a few years back.
- In this scenario, the huge investment required for 5G may add to their worries. The trial run of 5G in developed countries such as **Japan and the**

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United States reveals that the investment is very high, ranging from \$6 million per small city to \$60 million per large or densely populated city.

Much potential-

- The new generation mobile network has the transformative potential to provide a wide range of benefits to the Indian economy, which when **enhanced with artificial intelligence** provides a new dimension to connected and autonomous systems.
- Its use is a chance for Indian policy-makers to educate and empower citizens and businesses, and transform **existing cities into smart and innovative cities**.
- This may allow citizens and communities to get socio-economic benefits and comforts delivered by a well-advanced, **more data-intensive, digital economy**.
- Broadly speaking, the uses of 5G in India may encompass enhanced outdoor and indoor broadband, the Internet of things, smart cities, smart agriculture, energy monitoring, remote monitoring, smart grids, telehealth, industrial automation, remote patient monitoring and industrial automation to name some of the areas. There is great potential for India to move to an advanced digital revolution.
- However, it is imperative to undertake an independent economic assessment, city wise, beginning with the metro cities, to assess the commercial viability for 5G deployment in India. Till this happens we may continue enhancing the existing quality of 4G networks.
- **Singapore** had planned four 5G networks — two comprehensive 5G networks and two others with smaller and limited coverage, the reason being the high cost in deployment of fibre cables and the scarcity of 5G airwaves.

What needs to be done-

- The **immediate priority for India will be in identifying end users and population to be covered, analysis of the existing network and operators, identification of cities for the 5G roll out, working out an investment model, and minimisation of the digital risk and pricing** based on the externalities and usage of various sectors.
- The deployment of 5G in India needs to be carefully planned after a **cost benefit analysis** by independent experts which will create a level-playing field through market mechanism such as facilitating, simulating, auctioning, ensuring competition, functioning markets, etc.
-

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Once a case is made for 5G, the Telecom Regulatory Authority of India (TRAI) may consider preparing a fool proof spectrum road map with a predictable renewal process which will compensate the huge investment required for deployment and ensure coverage.

- A level-playing field should be created for all telecom companies with more focus on companies which have the experience of ensuring telecom networks to remote areas and the potential to provide affordable coverage.
- Global trial runs show that the key areas for 5G deployment are harmonisation of 5G spectrum bands, pricing and sharing of the spectrum.
- Sharing of available spectrum to maximise its efficient use especially in rural areas, and spectrum allocation procedures that favour investment, need to be considered.

Essential sector-friendly steps-

- As the deployment of 5G network is expensive, both the Central and State governments may need to consider measures which stimulate fibre investment, attract investment through public private partnerships (PPPs) and facilitate investment funds on a nominal interest basis.
- Fortunately, the big telecom package along with reforms announced by the Government in the middle of September brings relief and creates an enabling environment for investment in the sector.
- **Steps such as a moratorium on dues, redefining adjusted gross revenue, and reducing spectrum charges will help all telecom companies**, more so Airtel and Vodafone Idea who face precarious financial situations.
- Further, **allowing 100% foreign direct investment in the telecom sector under the automatic route** along with these policy reforms augurs well for the sector to attract investment. Implementation of 5G requires huge investment and the relief package is welcome step.

Tax issues too-

- The Government also needs to address information asymmetry and negative externalities through laws and regulations/taxes and subsidies. The deployment of 5G technology will also need right of access to government infrastructure such as traffic lights, lamp posts, etc. where wireless operators can deploy electronic small cell apparatus.
- At the same time, reasonable fees may be charged by State and local governments to operators for affordable deployment of 5G equipment.
- Further, **removing the tax burden for deploying fibre networks reduces**

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associated costs, thereby promoting investment as was done by Singapore government, could help in the smooth deployment of fibre in India.

Way Forward

- As India has already witnessed digital revolution even in its remotest areas due to cost-effective 4G technology, the use of 5G can play a vital role in enhancing this sector and also facilitating India's goal to emerge as a manufacturing and innovation hub.
- The negative implication of **5G is furthering the 'digital divide'**. Therefore, Government policies should also **focus on affordable coverage through synchronisation of bandwidth**.

Source: The Hindu

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Study on Countries' commitment on Climate Change

GS-III | 07 November, 2021

Study on Countries' commitment on Climate Change

Context: This topic is important for UPSE GS Paper 3.

The findings, while optimistic, come amidst the deliberations underway at [Glasgow](#).

How effective are climate change pledges made by countries in containing global warming?

A study published Friday in the journal Science finds that the latest Nationally Determined Contributions by 120 countries, as of September 30, improve the odds of global temperature rise staying **below 2°C by 34% and below 1.5°C by 1.5%.**

By way of comparison, the **2015 pledges made by countries at the Paris Agreement promised only a 8% chance of temperatures staying below 2°C, and zero—or no chance—at 1.5°C.**

Reaching net zero

- If countries were to follow **a more ambitious path beyond 2030, those probabilities rose to 60% and 11% respectively.**
- The findings while optimistic come amidst the deliberations underway at Glasgow where the greatest global effort is underway to have countries sign on to an agreement to keep temperatures below 1.5°C and, to this end, have most major economies pledge to reach net zero by mid-century.
- **Net zero is when a country's emissions are offset by having an equivalent amount removed from the atmosphere for zero emissions in balance.** While countries such as the United States, the United Kingdom and the European Union have committed to a 2050 time line, China—the world's largest polluter—has indicated a 2060 timeline and India—the third largest—a 2070 timeline.
- **Only 12 countries have enshrined this commitment in law. These are Germany, Sweden, Japan, United Kingdom, France, Canada, South Korea, Spain, Denmark, New Zealand, Hungary, Luxembourg.**
- Climate change has already caused global temperatures to **rise about 1.2°C above pre-industrial levels.**

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Way Forward

- In the past, it has taken thousands of years for temperature to rise by a few degrees, and dramatic changes, from unpredictable swings in India's monsoon to accelerated heating of the oceans, are already occurring as a result of a 1.2°C increase.
- Scientists are calling for climate change to be limited as much as possible to avoid triggering cascading and compounding "tipping points" that could limit our ability to contain global heating.

Source: The Hindu

Changes in the Prompt Corrective Action norms for bank

GS-III | 07 November, 2021

Changes in the Prompt Corrective Action norms for banks

Context: This topic is important for UPSE GS Paper 3.

What will commercial banks under scrutiny need to do to get out of the restrictions imposed by the central bank?

The story so far: The RBI issued a notification on November 2 revising norms for commercial banks to be placed under the regulator's [Prompt Corrective Action \(PCA\)](#) framework should any of their key metrics fall out of line. The revision takes effect from January 1, 2022.

What is the purpose of the PCA framework?

- In the RBI's own words, "The objective of the PCA framework is to enable supervisory intervention at appropriate time and require the supervised entity to initiate and implement remedial measures in a timely manner so as to restore its financial health. The PCA framework is also intended to act as a tool for effective market discipline. The PCA framework does

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not preclude the Reserve Bank of India from taking any other action as it deems fit at any time, in addition to the corrective actions prescribed in the framework".

- In the last almost two decades — the **PCA was first notified in December 2002** — several banks have been placed under the framework, with their operations restricted. **In 2021, UCO Bank, IDBI Bank and Indian Overseas Bank exited the framework on improved performance.** Only Central Bank of India remains under it now.

What are banks measured on?

- As per the **revised PCA norms issued in 2017, banks were to be evaluated on capital, asset quality, profitability and leverage.**
- The **capital adequacy ratio governs the capital that a bank ought to hold as a percentage of its total assets.** If the ratio is prescribed as 11.5%, a bank must bring its own capital of ₹11.50 for every ₹100 it intends to lend.
- The adequacy measure includes buffers such as the capital conservation buffer (2.5%), which may be used to shore up capital in good times, but which may be relaxed to encourage further lending during economic crises.
- **Asset quality** tells us what portion of the loans is unlikely to be paid back, reflected in the net non-performing asset ratio — i.e., **the portion of total advances tagged 'non-performing', after the provisioning for bad loans.** **Return on assets (RoA) measures profitability, derived from net income (profit) as a percentage of total assets.**
- The leverage ratio shows how much a lender has stretched itself in borrowing funds to generate income. The more the leverage, the riskier the turf on which the lender stands.

What curbs do bank face under the PCA?

- Banks move from risk thresholds 1 through 3 with increasing restrictions if they are unable to arrest deterioration.
- First, banks face **curbs on dividend distribution/remittance of profits.** For foreign banks, promoters are to bring in capital.
- In the second category, **banks additionally face curbs on branch expansion.**
- In the final category, the **bank additionally faces restrictions on capital expenditure with some exemptions.**
- The RBI also has the option of discretionary actions across strategy, governance, credit risk, market risk and human resources.

What has changed?

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- The notification has **removed return on assets as an indicator to qualify for PCA.**
- Further, **the 2017 notification applied to scheduled commercial banks but excluded Regional Rural Banks from its purview**, while the **2021 version excludes Small Finance Banks and Payment Banks too.**
- In the latest set of rules, the RBI has clearly spelt out that exit from the PCA would be based on four continuous quarterly results, with one being Audited Annual Financial Statement as per the new framework apart from Supervisory Comfort of RBI, assessment on sustainability of profitability.
- The risk threshold 3 has been further refined for capital adequacy conditions. It is unclear why the RBI chose to remove the RoA metric.
- One view in the financial sector is that RoA ought to have been retained as it indicates business performance. Another view is that the RBI oughtn't to monitor RoA — and that profitability is the bank's and its shareholders' lookout. Controls over capital adequacy indirectly include profitability. After all, retained profits become reserves that help shore up capital.

Source: The Hindu

Sun, Solar Missions & Solar Phenomenon

GS-III | 07 November, 2021

Sun, Solar Missions & Solar Phenomenon

Context: This topic is important for UPSE Prelims and Mains GS Paper3.

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Aurora

- An **aurora** also known as the **polar lights** or **aurora polaris**, is a natural light display in Earth's sky, predominantly seen in high-latitude regions (around the Arctic and Antarctic). Auroras display dynamic patterns of brilliant lights that appear as curtains, rays, spirals or dynamic flickers covering the entire sky.
- Auroras are the result of disturbances in the magnetosphere caused by solar wind. These disturbances alter the trajectories of charged particles in the magnetospheric plasma. These particles, mainly electrons and protons, precipitate into the upper atmosphere (thermosphere/exosphere).
- The resulting ionization and excitation of atmospheric constituents emit light of varying colour and complexity. The form of the aurora, occurring within bands around both polar regions, is also dependent on the amount of acceleration imparted to the precipitating particles.
- Most of the planets in the Solar System, some natural satellites, brown dwarfs, and even comets also host auroras.

Aurora borealis

- The northern lights, or the aurora borealis, are the beautiful dancing waves of light that have captivated people for millennia. But for all its beauty, this spectacular light show is a rather violent event.
- Energized particles from the sun slam into Earth's upper atmosphere at speeds of up to 45 million mph (72 million km/h), but our planet's magnetic field protects us from the onslaught.
- As Earth's magnetic field redirects the particles toward the North Pole, the dramatic process transforms into a cinematic atmospheric phenomenon that dazzles and fascinates scientists and skywatchers alike.
- Though it was Italian astronomer Galileo Galilei who coined the name "aurora borealis" in 1619 — after the Roman goddess of dawn, Aurora, and the Greek god of the north wind, Boreas — the earliest suspected record of the northern lights is in a 30,000-year-old cave painting in France.

Aurora australis

- Aurora australis (also known as the southern lights, and southern polar lights) is the southern hemisphere counterpart to the aurora borealis. In the sky, an aurora australis takes the shape of a curtain of light, or a sheet, or a diffuse

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glow; it most often is green, sometimes red, and occasionally other colors too.

- Like its northern sibling, the aurora australis is strongest in an oval centered on the south magnetic pole. This is because they are the result of collisions between energetic electrons (sometimes also protons) and atoms and molecules in the upper atmosphere ... and the electrons get their high energies by being accelerated by solar wind magnetic fields and the Earth's magnetic field (the motions are complicated, but essentially the electrons spiral around the Earth's magnetic field lines and 'touch down' near to where those lines become vertical).
- So by far the best place to see aurorae in the southern hemisphere is Antarctica, at night. When the solar cycle is near its maximum, aurora australis are sometimes visible in New Zealand (especially the South Island), southern Australia (especially Tasmania), and southern Chile and Argentina (sometimes in South Africa too).

Aditya-L1 Mission

The **Indian Space Research Organisation (ISRO)** is preparing for its first [scientific expedition to study the Sun, Aditya-L1](#). It would be placed into a point in space known as the **L1 Lagrange point**.

Aditya L1 will be ISRO's **2nd space-based astronomy mission after [AstroSat](#)**, which was launched in **2015**.

Aditya 1 was renamed as Aditya-L1. The Aditya 1 was meant to observe **only the solar corona**.

AstroSat

- AstroSat, was launched in September, 2015, by PSLV-C30 from Sriharikota (Andhra Pradesh).
- It is the **first dedicated Indian astronomy mission** aimed at studying celestial sources in **X-ray, optical and UV spectral bands simultaneously**.

Launch Vehicle:

Aditya L1 will be launched using the **Polar Satellite [Launch Vehicle \(PSLV\)](#) XL** with 7 payloads (instruments) on board.

Objective:

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Aditya L1 will study the Sun's **corona** (Visible and Near infrared rays), Sun's **photosphere** (soft and hard X-ray), **chromosphere** (Ultra Violet), solar emissions, solar winds and flares, and **Coronal Mass Ejections (CMEs)**, and will carry out **round-the-clock imaging** of the Sun.

Challenges:

1. The distance of the Sun from Earth (approximately 15 crore kms on average, compared to the only 3.84 lakh kms to the Moon). This huge distance poses a scientific challenge.
2. Due to the risks involved, payloads in earlier ISRO missions have largely remained stationary in space; however, Aditya L1 will have **some moving components** which increases the risks of collision.
3. Other issues are the **super-hot temperatures and radiation** in the solar atmosphere. However, **Aditya L1 will stay much farther away**, and the heat is not expected to be a major concern for the instruments on board.

Lagrange Point 1

- Lagrange Points, named after Italian-French mathematician Joseph-Louis Lagrange, are positions in space **where the gravitational forces of a two-body system (like the Sun and the Earth) produce enhanced regions of attraction and repulsion.**
- The L1 point is about 1.5 million km from Earth, or about 1/100th of the way to the Sun.
- L1 refers to Lagrangian/Lagrange Point 1, one of 5 points in the **orbital plane of the Earth-Sun system.**
- These can be used by spacecraft to **reduce fuel consumption** needed to remain in position.
- A Satellite placed in the halo orbit around the Lagrangian point 1 (L1) has the major advantage of continuously viewing the Sun without any occultation/ eclipses.
- The L1 point is home to the **Solar and Heliospheric Observatory Satellite (SOHO)**, an international collaboration project of **National Aeronautics and Space Administration (NASA)** and the **European Space Agency (ESA).**

Sun's Corona

- Corona is a **luminous envelope of plasma** that surrounds the Sun and other celestial bodies.
- It is extended to millions of kilometres into space and is commonly **seen**

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during a total solar eclipse.

- The corona of the Sun is much hotter than its visible surface.
- The intense temperature of the Sun's corona is due to the **presence of highly ionized ions** which give it a spectral feature.

Solar Winds and Flares

- The **solar wind** is a continuous stream of charged particles that flows out of the Sun in all directions.
- The strength of the solar wind varies depending on the activity on the surface of the Sun.
- The Earth is mostly protected from the solar wind by its strong magnetic field.
- However, some types of activity, **like solar flares**, can cause high energy particles to emit from the Sun which can be dangerous to astronauts and can cause damage to satellites orbiting Earth.

Coronal Mass Ejection

- A **Coronal Mass Ejection (CME)** is a significant release of plasma and accompanying magnetic field from the solar corona.
- They often follow solar flares and are normally present during a solar prominence eruption.
- **Prominences** are clouds of incandescent, ionized gas ejected from the Sun's surface.
- The plasma is released into the solar wind, and can be observed in coronagraph imagery.
- An ARIES team has recently developed an algorithm to study the accelerating solar eruptions in the lower corona called **CMEs Identification in Inner Solar Corona (CIISCO)**.

Other Missions to the Sun

- **Japan's Solar-C EUVST:** The EUVST (Extreme Ultraviolet High-Throughput Spectroscopic Telescope Epsilon) would be studying the **solar wind** released by the **solar atmosphere**, as well as studying how this atmosphere **drives solar material eruption**.
- **NASA's EZEI Mission:** The EZEI (Electrojet Zeeman Imaging Explorer) Mission would study the atmosphere of the earth and electric currents in it, which link the **aurora to the magnetosphere**.
- **NASA's Parker Solar Probe's** aim is to trace how energy and heat move through the **Sun's corona** and to study the source of the solar wind's acceleration.

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It is part of NASA's 'Living With a Star' programme that explores different aspects of the Sun-Earth system.

- The earlier **Helios 2 solar probe**, a joint venture between **NASA** and space agency of erstwhile **West Germany**, went within **43 million km** of the **Sun's surface** in **1976**.

ARIES-

- ARIES facility (**Aryabhata Research Institute for Observational Sciences**) will host the support centre for Aditya-L1 mission, which is due to be launched next year (2022).
- **ARIES is an autonomous institute under the Department of Science & Technology and is located in Nainital (Uttarakhand)**.

Aditya-L1 Support Centre (ASC):

- The main aim of this centre is to let every researcher in India perform analysis over scientific data obtained from Aditya-L1. It will expand the visibility of Aditya-L1 beyond India at the international level.
- It will host a compendium of the location and duration of different features on the solar surface such as coronal holes, prominences, flares, CMEs and sunspots.
- Continuous monitoring of the location and duration of these features will help in monitoring the Earth directed CMEs and thereby, the space weather.

Editorial-The Sun lights up aurorae in high-latitude countries

Kolkata-based researchers had predicted this 'Solar Deepavali' using a home-grown model and data from NASA's observations

A solar flare that occurred on the Sun triggered a magnetic storm which scientists from **Center of Excellence in Space Sciences India (CESSI), in Indian Institutes for Science Education and Research, Kolkata**, had predicted will arrive at the Earth in the early hours of November 4, and they said that the magnitude of this storm would be such as to trigger spectacular displays of aurora (the coloured bands of light seen in the North and South poles) in the high-latitude and polar regions, just in time for the Deepavali celebrations in India.

Effect on atmosphere

- Judging by data from the **NASA DSCOVR satellite**, the scientists observed a

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steep jump in transverse magnetic fields, density and speeds of the plasma wind that are tell-tale signatures of the arrival of a coronal mass ejection (CME) shock front, according to Dibyendu Nandi of CESSI Kolkata whose team predicted the event.

- "This happened at 1.00 AM IST. We will know whether this is the CME flux based on its evolution as it passes through. These observations are taken at Lagrange Point L1,".
- Dipankar Banerjee, a solar physicist and Director of **Aryabhata Research Institute of Observational Sciences (ARIES) based in Nainital**, who was not involved in this work, said about the prediction, "This is quite promising. It appears their predictions are matching the observations."

Sunspots seed storms

- **The solar magnetic cycle that works in the deep interior of the Sun creates regions that rise to the surface and appear like dark spots. These are the sunspots.** Solar flares are highly energetic phenomena that happen inside the sunspots.
- In a solar flare, the energy stored in the Sun's magnetic structures is converted into light and heat energy. This causes the emission of high energy x-ray radiation and highly accelerated charged particles to leave the Sun's surface.
- **Sometimes solar flares also cause hot plasma to be ejected from the Sun, causing a solar storm, and this is called Coronal Mass Ejection (CME).** Coronal Mass Ejections can harbour energies exceeding that of a billion atomic bombs.
- The energy, radiation and high-energy particles emitted by the flares can affect Earth-bound objects and life on Earth – it can affect the electronics within satellites and affect astronauts. Very powerful Earth-directed coronal mass ejections can cause failure of power grids and affect oil pipelines and deep-sea cables.
- They can also cause spectacular aurorae in the high-latitude and polar countries. The last time a major blackout due to a coronal mass ejection was recorded was in **1989 – a powerful geomagnetic storm that took down the North American power grid**, plunging large parts of Canada into darkness and triggering spectacular aurorae beyond the polar regions.

Predicting solar storms

- The process of prediction takes place in two steps: **First the researchers**

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analyse the possibility of a strong solar flare from an active region – that is, clusters of sunspots – using a machine learning algorithm which has been developed in CESSI, IISER Kolkata.

- The second step is estimating the time of arrival on Earth of coronal mass ejections and forecasting the geomagnetic storm. The group uses the near-Sun evolution of the coronal mass ejections through **European Space Agency's SOHO satellite** and **NASA's STEREO satellite** to extract their speed. There is an associated flare, and its position on the Sun is used to extract the location of origin of the CME.
- The location of the source of the CME and the velocity are used as inputs by the group in a publicly available model widely called the Drag Based Ensemble Model to calculate the CME arrival times and speed.
- "This latter step has uncertainties as the physics of CME propagation is quite complex, but this is treated in a simplified manner in this model," explains prof. Nandi. "When **ISRO's Aditya-L1 satellite** is launched, we would be receiving similar data on solar storms from this observatory," he adds.
- Some have been tweeting pictures of the aurorae seen in places such as **Alberta in Canada, and Alaska, to name just a few.**

Source: The Hindu

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World bank and IMF

GS-II | 16 November, 2021

Part of: GS-II- International organisation (PT-MAINS-PERSONALITY TEST)

The World Bank (WB) is an international organization which provides facilities related to "finance, advice and research to developing nations" in order to bolster their economic development. It plays a stellar role in providing financial and technical assistance to developing countries across the globe. It is a unique financial institution that provides partnerships to reduce poverty and support economic development. It is actually composed of two institutions namely the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA). However, there are five institutions within the larger World Bank group. They are following:

The World Bank Group consists of five organizations:

1. The International Bank for Reconstruction and Development

The International Bank for Reconstruction and Development (IBRD) lends to governments of middle-income and creditworthy low-income countries.

2. The International Development Association

The International Development Association (IDA) provides interest-free loans — called credits — and grants to governments of the poorest countries. It is called the soft loan window of the World Bank. Together, IBRD and IDA make up the World Bank.

3. The International Finance Corporation

The International Finance Corporation (IFC) is the largest global development institution focused exclusively on the private sector. It helps developing countries achieve sustainable growth by financing investment, mobilizing capital in international financial markets, and providing advisory services to businesses and governments.

4. The Multilateral Investment Guarantee Agency

The Multilateral Investment Guarantee Agency (MIGA) was created in 1988 to promote foreign direct investment into developing countries to support economic

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growth, reduce poverty, and improve people's lives. MIGA fulfils this mandate by offering political risk insurance (guarantees) to investors and lenders.

5. The International Centre for Settlement of Investment Disputes

The International Centre for Settlement of Investment Disputes (ICSID) provides international facilities for conciliation and arbitration of investment disputes.

Purpose and Function of the World Bank

The World Bank provides low-interest loans, interest-free credit and grants. It focuses on improving education, health, and infrastructure. It also uses funds to modernize a country's financial sector, agriculture, and natural resources management. The Bank's stated purpose is to "bridge the economic divide between poor and rich countries". It does this by turning "rich country resources into poor country growth". It has a long-term vision to "achieve sustainable poverty reduction".

To achieve this goal, **the World Bank focuses on six areas:**

- Overcome poverty by spurring growth;
- Help reconstruct countries emerging from war;
- Provide a customized solution to help middle-income countries remain out of poverty;
- Spur governments to prevent climate change;
- It helps them control communicable diseases, especially HIV/AIDS, and malaria;
- It also manages international financial crises and promotes free trade.

The International Monetary Fund (IMF)

The International Monetary Fund (IMF) is an international organization that aims to promote global economic growth and financial stability meant to encourage international trade and reduce poverty. It is working to foster global monetary cooperation, secure financial stability, facilitate international trade, and promote high employment and sustainable economic growth. The primary purpose of the IMF is to ensure the stability of the international system- the system of exchange rates and international payments. Although the IMF is an agency of the United Nations, it has its own charter, structure and financing arrangements. The IMF not only works with its 187 members, it also collaborates with the World Bank, World Trade Organization and agencies of the United Nations. To become a member of

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the IMF, countries must apply and be accepted by the other members. Because membership of the World Bank is conditional on being a member of the IMF, the World Bank also has 187 members. These members govern the World Bank through a Board of Governors. Apart from working with developing countries on individual projects, the World Bank also works with various international institutions, along with professional and academic bodies.

Similarities between the WB and IMF

- Both the International Monetary Fund and the World Bank were formed together at Bretton Woods, New Hampshire, in July 1944. They are called Brettonwoods twins.
- Both were created to support the world economy in their own unique ways.
- Both are headquartered in Washington D.C, the U.S.A.
- They have the same membership as no admission to the World Bank is possible without the IMF membership.
- The management structure of the World Bank is largely similar to that of the IMF. Voting rights in these institutions depend primarily on capital contribution of the member countries.

Differences between the WB and the IMF

Despite similarities, however, the Bank and the IMF remain distinct. Following differences exist between them:

- The World Bank is primarily a development institution but the IMF is a cooperative institution that seeks to maintain an orderly system of payments and receipts between nations.
- The IMF exists to preserve an orderly monetary system whereas the World Bank performs an economic development role.
- Both have different purposes. The IMF supervises the economic policies of its members and expects them to allow free exchange of national currencies. To keep this financial order, the IMF also acts as a provider of emergency loans to members who run into difficulties, in exchange for a promise from the member to reform its economic policies.
- The World Bank finances economic development among poorer nations by funding specific and targeted projects, aimed at helping to raise productivity. The World Bank consists of two organizations: the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA). The IBRD lends to developing nations at preferential interest rates, while the IDA only lends to the poorest nations, on an interest-

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free basis.

- They have different funding sources. The IMF raises its money through membership fees, known as quotas. Each member country pays a quota based on its relative economic size so that the larger economies pay more. The World Bank raises most of its money through borrowing by issuing bonds to investors. It also receives grants from donors.
- The IMF exists primarily to stabilize exchange rates, while the World Bank's primary goal is to reduce poverty.

Criticism of the WB and the IMF

- The International Monetary Fund promotes monetary cooperation internationally and offers advice and assistance to facilitate building and maintaining a country's economy. The IMF also provides loans and helps countries develop policy programs that solve balance of payment problems. However, the loans offered by the IMF are loaded with conditions.
- Critics are concerned about the 'conditionalities' imposed on borrower countries. The World Bank and the IMF often attach loan conditionalities based on what is termed the '**Washington Consensus**', focusing on liberalisation—of trade, investment and the financial sector—, deregulation and privatisation of nationalised industries. Often the conditionalities are attached without due regard for the borrower countries' individual circumstances. Additionally, the prescriptive recommendations by the World Bank and IMF fail to resolve the economic problems within the countries.
- Both the WB and the IMF have been accused of coercing poor countries to undertake structural adjustment programmes (SAPs) under the aegis of economic globalization. Sometimes, this has led to under-development of these economies bringing severe domestic crisis in multiple dimensions. This contributes to a yawning economic gap between different countries across the globe.
- The World Bank's role in the global climate change finance architecture has also caused much controversy. Civil society groups see the Bank as unfit for a role in climate finance because of the conditionalities and advisory services usually attached to its loans.
- The WB has been accused of financing unsustainable carbon-intensive developmental projects. Hence, there is an increasing call from environmental activists that the WB and IMF should finance only carbon-neutral sustainable development projects.
- There are also concerns related with the accountability of the projects run by

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them especially in the Third World countries.

- The WB and the IMF have also been criticised for being western-dominated undemocratic bodies. Decisions are made and policies implemented by leading industrialised countries because they represent the largest donors without much consultation with poor and developing countries.
- The IMF has quota system which is yet to give adequate weightage to the emerging economies like India, China and Brazil despite their increased economic importance in contemporary times. The global economic centre of gravity has shifted from the "global North" to the "global south". But these Brettonwoods institutions are yet to realise that even though there has been the formation the BRICS bank and the AIIB.
- There are also ethical issues related to the funding of types of projects by the World Bank. For example, the funding of hydroelectric dams in some countries by the WB has resulted in massive displacement of the indigenous peoples.
- The WB's propensity to privilege the private sector and market forces has brought about justifiable concerns regarding the sovereign decision-making capabilities of states getting tied funds from the World Bank.
- The Bank's private sector lending arm – the International Finance Corporation (IFC) – has also been criticised for its business model, the increasing use of financial intermediaries such as private equity funds and funding of companies associated with tax havens.
- Critics of the World Bank and the IMF are also apprehensive about the role of the Bretton Woods institutions in shaping the development discourse through their research, training and publishing activities. Their views and prescriptions may undermine or eliminate alternative perspectives on development.

Critical Role of the Bretton Woods Project

It was established in 1995 by the UK-based Bond Development and Environment Group (DEG) to support civil society to monitor the negative developmental impacts of World Bank and IMF policies and activities. The Bretton Woods Project (BWP) envisions a global economic system that operates on the basis of "primary principles of justice, equity, gender equality, human rights and environmental sustainability". It is supposed to work with "international institutions that are democratic, inclusive, transparent, accountable, and responsive to citizens, especially the poorest and most vulnerable". The Bretton Woods Project focuses on the World Bank and the International Monetary Fund (IMF) to challenge their power. It is meant to "open space for civil society and social movements to

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contribute to the development of policies that are gender transformative, equitable, environmentally sustainable and consistent with international human rights norms".

Conclusion

Many of the criticisms aimed against the WB and IMF are historical and may not hold true in contemporary times. The two institutions are trying to reorient themselves as per the changed geo-economic realities and changing developmental requirements. The internal assessment has also been catalysed by the geopolitical and geo-economic impact of the BRICS bank and the AIIB as a challenge to the Bretton Woods institutions. Hence, the national governments should undertake a calibrated economic liberalization maintaining the due autonomy of their decision-making to have a win-win situation in tune with the sustainable development ethics.

Source: PIB

AIIB and India

GS-II | 16 November, 2021

GS-Paper-2 International organisation (PT-MAINS)

India and AIIB:

- India was **among the AIIB's 57 founding members** in 2016.
- It is also its **second-largest shareholder** (with 7.62% voting shares) **after China** (26.06%).
- It has **received USD 4.35 billion** from the Bank.
- This is the **highest of any country**, with the bank so far approving loans of USD 19.6 billion to support 87 projects in 24 countries. **Turkey is second** with USD 1.95 billion.
- AIIB has approved financing projects in India in a host of sectors like energy, transport and water including the **Bangalore metro rail project** (USD 335 million), **Gujarat rural roads project** (USD 329 million) and **Phase 3 of the Mumbai urban transport project** (USD 500 million).
- In a recent virtual meeting, **India said that it expects AIIB to introduce new**

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financing instruments, provide financing for social infrastructure and to integrate development of climate resilient and sustainable energy access infrastructure into AIIB's recovery response to the Covid-19 crisis.

- This implies that **India is unlikely to alter its engagement with the China-led Asian Infrastructure Investment Bank (AIIB), despite a host of offensive measures announced recently to reduce its trade and investment links with China.**

Chinese Angle:

- In June 2020, AIIB approved USD 500 million for Covid-19 Emergency Response Fund and Health Systems Preparedness Project and another **USD 750 million for Covid-19 Active Response and Expenditure Support**, in a co-financing arrangement with the **Asian Development Bank (ADB)**.
- USD 750 million loan was **approved two days after the clash in Galwan Valley in Ladakh** along the India-China border.
- It has **supported several projects under the Belt and Road Initiative (BRI) framework**, but is not formally linked to the plan.
- India has **concerns over the China-Pakistan Economic Corridor** - a part of the BRI.

Asian Infrastructure Investment Bank

- The AIIB is a **multilateral development bank** with a mission to improve social and economic outcomes in Asia.
- **Headquartered in Beijing (China)**, it began operations in January 2016 and has now grown to 103 approved members worldwide.
- India should continue to engage with AIIB as it will be able to access resources for the financing of national and cross-border infrastructure projects from the Bank. AIIB is also significant as the **World Bank is continued to be dominated by the USA** while **Japan has more influence over Asian Development Bank (ADB)**. Further, India needs to ensure that its own interests are served by its membership very explicitly. It should make sure that **AIIB doesn't end up becoming a tool of Chinese geopolitical agenda.**

Source: TH

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Asian Development Bank (ADB)

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- Asian Development Bank (ADB) is a **regional development bank** established on 19 December **1966**.
- The Headquarters of ADB is in the Ortigas Center located in the city of **Mandaluyong, Metro Manila, Philippines**.
- India is a founding member of the Asian Development Bank (ADB).
- It aims to promote social and economic development in Asia and the Pacific.

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Members of Asian Development Bank (ADB)

- The bank admits the **members of** the United Nations Economic and Social Commission for Asia and the Pacific (**UNESCAP**, formerly the Economic Commission for Asia and the Far East or ECAFE) and **non-regional developed countries**.
- From 31 members at its establishment, **ADB now has 68 members**.
- The ADB was **modelled closely on the World Bank**, and has a **similar weighted voting system** where votes are distributed in proportion with members' **capital subscriptions**.
- ADB releases an annual report called **Asian Development Outlook** that summarizes its operations, budget and other materials for review by the public. ADB is an official United Nations Observer.
<https://www.aspireias.com/daily-news-analysis-current-affairs/Asian-Development-Outlook-ADO>
- As of 31 December 2016, **Japan holds the largest proportion of shares** at 15.677%, **closely followed by United States** with 15.567% capital share. **China** holds 6.473%, **India** holds 6.359%, and **Australia** holds 5.812%.

Roles and functions of Asian Development Bank (ADB)

- ADB defines itself as a social development organization that is dedicated to reducing poverty in Asia and the Pacific through inclusive economic growth, environmentally sustainable growth, and regional integration.
- This is carried out through investments – in the form of loans, grants and information sharing – in infrastructure, health care services, financial and public administration systems, helping nations prepare for the impact of climate change or better manage their natural resources, as well as other areas.

Masala Bonds and ADB

- Asian Development Bank (ADB) has listed its 10-year masala bonds worth Rs.850 crore on the global debt listing platform of India INX (BSE-owned exchange).

What are masala bonds?

- Masala Bonds are rupee-denominated bonds i.e the funds would be raised from overseas market in Indian rupees.
- Any corporate, body corporate and Indian bank is eligible to issue Rupee

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denominated bonds overseas.

- **Conditions of Masala Bonds:**

1. RBI mandates that the money raised through such bonds cannot be used for real estate activities other than for development of integrated township or affordable housing projects.
2. It also can't be used for investing in capital markets, purchase of land and on-lending to other entities for such activities as stated above.

About the move and its significance

- The proceeds would be used to support local currency lending and investment in India.
- ADB's masala bonds are listed on both Luxembourg exchange and India INX.
- This is the first time a foreign issuer and a supranational is doing a primary listing with India INX. This will help further in making GIFT IFSC (Gujarat International Finance Tec-City -- International Financial Services Centre) a global hub for fund raising by Indian and Foreign issuers.

COVID 19 and Asian Development Bank (ADB)

- The Asian Development Bank has approved 1.5 billion dollars loan to India to help fund its fight against coronavirus pandemic.
- The loan has been sanctioned with a view to support immediate priorities such as disease containment and prevention, as well as social protection for the poor and economically vulnerable sections. The quick-disbursing fund is part of a larger package of support that ADB will provide in close coordination with the government and other development partners.

Why in news?

- The Asian Development Bank (ADB) and the Government of India today signed a \$300 million loan as additional financing to scale up improvement of rural connectivity to help boost rural economy in the state of Maharashtra.
- The Government of India and Asian Development Bank (ADB) today signed a \$112 million loan to develop water supply infrastructure and strengthen capacities of urban local bodies (ULBs) for improved service delivery in four towns in the state of Jharkhand.

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Source: PIB

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ISRO (Indian Space Research Organization)

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- Indian Space Research Organization (ISRO) is the space agency under **Dept of Space**.
- **ISRO headquarters are in Bengaluru, Karnataka.**
- ISRO was initiated under **Dr. Vikram Sarabhai**, the founding father of Indian space programme, during 1960's. Vikram Sarabhai is the father of Indian Space Program. Hence Vikram Sarabhai Space Centre is located at Kerala.
- Dr. K. Sivan is the ISRO Chairman, Department of Space.
- ISRO's **vision** is to harness space technology for **national development**, while pursuing space science **research** and **planetary exploration**.
- Indian space programme had **3 distinct elements** such as,
 1. Satellites for communication and remote sensing,
 2. The space transportation system and
 3. Application programmes

Antrix Corporation Limited (ACL)

- ACL was established in 1992 as a **Marketing arm** of ISRO for promotion and commercial exploitation of space products, technical consultancy services and transfer of technologies developed by ISRO.
- It is a **Mini ratna company**.

NewSpace India Limited (NSIL) (established in Mar 2019)

- NSIL is a **Central Public Sector Enterprise** of Government of India and **Commercial Arm of ISRO**. For almost a decade, ISRO has been planning to hand the production over to public and private industries and itself focus on its core job of space R&D.
- It was incorporated for commercially utilising research and development activities carried out by ISRO with an **authorised share capital of Rs 100 crore and initial paid up capital of Rs 10 crore**.
- It is the 2nd commercial entity and a new business arm of Department of Space (Bengaluru) to promote Indian space commerce.
- It is under the administrative control of Department of Space (DOS) and the **Company Act 2013**.
- The main objective of NSIL is to **scale up industry participation in Indian space programmes**.

Objectives

1. Transfer of **Small Satellite technology to industry**: NSIL will obtain

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- license from DOS/ISRO and **sub-license** the same to Industry
2. Manufacture of **Small Satellite Launch Vehicle (SSLV)** in collaboration with Private Sector
 3. Production of **Polar Satellite Launch Vehicle (PSLV)** through Indian Industry
 4. **Production and marketing** of Space based products and services, including launch and application
 5. **Transfer of technology** developed by ISRO Centres and constituent units of DOS
 6. Marketing of spin-off technologies and products/services, both in India and **abroad**.
- It would also be tasked to "commercially exploit the R&D work done by ISRO centres and DoS constituents"

PT Shots

- The first satellite launched by India is '**Aryabhata**'. It was developed and was launched using a Soviet Launcher **InterCOSMOS**.
- In 1980s, **Bhaskara-I & II** missions were pioneering steps in the remote sensing area whereas 'Ariane Passenger Payload Experiment (**APPLE**)' became the forerunner for future communication satellite system.

ISRO's Launch Vehicles or Indian Satellite Programme launch vehicles

1) GSLV (Geosynchronous Satellite Launch Vehicle)

- GSLV delivers the **communication** satellites to Geosynchronous Transfer Orbit (GTO) of about **36000 Km altitude**.
- GSLV Mk II has the capability to launch satellites of mass of 2500 kg to GTO. GSLV Mk II is a 3 stage vehicle with 1st stage using solid fuel, 2nd stage using Liquid and 3rd stage using Cryogenic Upper Stage using cryogenic engine.
- **Geostationary satellites orbit around the earth in 24 hours** and since the earth rotates with the same period, the satellite would **appear fixed** from any point on earth.

2) PSLV (Polar Satellite Launch Vehicle)

- **PSLV is ISRO's Workhorse – Forex earner.** PSLV is the **1st Indian launch**

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vehicle to be equipped with liquid stages.

- PSLV delivers the **EOS/ RSS satellites** in sun synchronous polar orbit and lower mass satellites (1400 kg) to elliptical GTO.
- It is a **4-staged launch vehicle** with first and third stage using solid fuel and second and fourth stages using liquid fuel. **Strap-on motors** also used with PSLV to augment the thrust.
- PSLV improved its carrying capacity from 850 kg to 1.9 tonnes.
- It has 3 variants
 1. **PSLV - CA (Core Alone)** = **without** the solid strap on boosters.
 2. PSLV with 6 solid strap on boosters.
 3. **PSLV QL** with 4 strap on boosters. 1st flight of PSLV QL was PSLV C45 (EMISAT). 2nd is PSLV C50 (RISAT).
 4. **PSLV XL** = Top model with 6 extended solid strap on boosters. It was used for Chandrayaan 1 in 2008 and MOM in 2013.
- **PSLV C50** to use PSLV QL which has 4 strap on boosters. It will launch RISAT & 9 small foreign satellites from Japan, Italy, Israel & US. RISAT will be used for Agriculture, Forestry, Disaster Management support & National security.
- Till now PSLV launched 50 Indian Satellites & 222 Foreign satellites for 20 countries.
- PSLV C47 = Cartosat. C46 - RISAT. C45 - EMISAT. C43 - HySIS. C37 - 104 satellites.

Indian Satellite Programme of India

Communication Satellites

- Established in 1983 with **INSAT 1B** in the Asia Pacific region placed in the **Geostationary orbit**.
- The INSAT system provides services to telecommunications, **television** broadcasting, **satellite** newsgathering, societal applications, **weather** forecasting, **disaster** warning and **Search and Rescue** operations.
- Eg. GSAT 7A, GSAT-11, EDUSAT etc.

Earth Observation Satellites or Remote Sensing Satellites

- Started with IRS 1A in 1988.
- Varieties of instruments have been flown onboard these satellites like Transponder and Camera.
- **Applications** cover agriculture, water resources, urban planning, rural development, **mineral** prospecting, environment, forestry, **ocean resources** and **disaster** management.

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- Eg. HySIS (PSLV C43); Cartosat (PSLV C40 - 100th mission); RESOURCESAT, SCATSAT, SARAL and MeghaTropiques with France; Oceansat, Technology Experiment Satellite (TES), Rohini and Bhaskara.
- **Desertification and Land Degradation Atlas was prepared in 2016 by ISRO using RSS**

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Navigation Satellite: Regional Positioning System

- It is to meet the Civil Aviation requirements and meet the user requirements of positioning, navigation and timing.
- For Civil Aviation: **GAGAN**:
 1. GPS Aided Geo Augmented Navigation is an augmentation system to enhance the accuracy and integrity of GPS signals. It is **implemented jointly by AAI and ISRO**. It relies on the positioning system of ISRO's GSAT satellites.
 2. **GEMINI system**: is a portable receiver linked to ISRO satellites, that is "fail proof" and warn fishermen of danger. GEMINI works on **GAGAN** (GPS aided Geo Augmented Navigation System).
 3. South Central Railway (HQ – Secundrabad) fitted with Real Time Train Information System (RTIS) to monitor speeds and movement. It is developed by Center for Railway Information Systems (**CIRE**) with the help of **GAGAN of ISRO and AAI**.

Indian Regional Navigation Satellite System (IRNSS)

- For positioning, navigation and timing, ISRO is establishing a regional satellite navigation system.
- IRNSS has 3 satellites in geostationary and 4 satellites in geosynchronous orbits (inclined).
- ISRO's NavIC (Navigation in Indian Constellation) is Indian system of 8 Satellites is an indigenous positioning or Location Based System (LBS) which **works like GPS but within the 1500 km radius over the subcontinent**.

Gagan Enabled Mariner's Instrument for Navigation and Information (GEMINI) device

- For effective dissemination of emergency information and communication on Ocean States Forecast and mapping of Potential Fishing Zones (PFZ) to fishermen. **Ministry of Earth Sciences**.
- GEMINI is a **portable receiver linked to ISRO satellites**. It can send signals upto **300 nautical miles**. **INCOIS, Hyderabad** in collaboration with AAI utilized the **GAGAN** (ISRO + AAI) satellite.
- The drawback of this device is that it only allows one-way communication, i.e, it can't be used by fishermen to make calls. Also

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it is expensive.

Bhuvan (Sanskrit for Earth) is a **Geoportal of ISRO**, allowing a host of services covering visualization, free data download, thematic map display and analysis, timely information on disaster and project-specific GIS applications. Recently an upgraded geo-imaging web portal, **Bhuvan Panchayat 3.0** was launched. It uses high resolution data from Earth Observation Satellites and offers detailed information to Panchayats. It is jointly implemented by **Ministry of Panchayati Raj and Dept of Space, ISRO**.

Why in news?

India's attempt to place a geoimaging satellite (GISAT-1) with its GSLV-F10-EOS-3 mission did not succeed. The GSLV-F10 rocket, which blasted off from the Satish Dhawan Space Centre at Sriharikota on Thursday, with the purpose of launching the Earth Observation Satellite EOS-3 into space, failed in its mission due to a "performance anomaly".

- For more elaborate lecture on current updates on ISRO and Space sector of India, join our [1 Hour 2 Newspaper Batch 2021-22](#).
- For detailed lectures on Science & Technology and Space missions of India: Join our [Science & Technology Capsule 2021-22](#).
- More functions and news can be found out at the isro official website: www.isro.gov.in for more space research and isro latest news.

Source: PIB

Jigyasa: Scientist â€™ Student Connect Programme

GS-III | 23 November, 2021

- Since its launch in 2017, Jigyasa was successful in connecting nearly 3,00,000 students and more than 5,000 teachers with CSIR and they have benefited directly through visits to CSIR labs.
- Majority of the CSIR labs are participating in this program and subsequently

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MoU has been signed with Jawahar Navodaya Vidyalaya and also with Atal Tinkering Labs of NITI AAYOG.

- The major stakeholders for the programme are academic based community consisting of MHRD, CSIR scientist's faculties, Ph.D. research students, school and junior college students, Sansthas, NGOs, Kendriya Vidyalaya Sangathan, Navodaya Vidyalaya Samithi, State Government Schools, Independent outreach faculties and institutions carrying out successful outreach activity for school and junior college students are the potential stakeholders as well as beneficiaries.

- **The key highlights of the virtual lab are:**

1. Open source platform;
2. Access content in regional languages;
3. Scientist / Researchers Support; Knowledge Upgradation for Teachers and Students;
4. Project based support;
5. Fun based Gaming;
6. Need based Videos and Animation;
7. Simulation Experiments;
8. Promote scientific temperament;
9. Science based webinars;
10. Student Entrepreneurship;
11. Student-Expert forums;
12. Student to Student forums;
13. Simplified content;
14. Availability to technical assistance;
15. Build confidence and motivation

- **Accordingly, CSIR has partnered with IIT Bombay to develop a Virtual Lab platform under CSIR Jigyasa programme**, which facilitates classroom learning with laboratory research for school students.
- **The target audience for the Virtual Lab platform is students of the standard VI to XII (11-18 years)** who would like to explore science using different activities, experienced researchers and faculties on the subjects of Science, Mathematics, Biology and IT.
- **The main aim of the Virtual Lab** is to provide quality research exposure and innovative pedagogy for school students to drive their scientific curiosity based on an online interactive medium with simulated experiments, pedagogy based content, videos, chat forums, animations, gaming, quiz, facility sharing, webinars etc.
- The CSIR Virtual lab will therefore enable curiosity driven research based concepts, encourage higher order thinking skills, promote entrepreneurship and develop passion about science, the Minister added.

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- The Virtual lab would provide a virtual tour of CSIR laboratories and expose students to research infrastructure, which otherwise would be difficult to visit physically in some laboratories considering safety standards.
- The platform will also have the option to interact with scientists and seek their inputs or clear student's doubts.
- The CSIR Jigyasa's Virtual lab will be an inspirational science lab where students will read, have fun and carry out those experiments and materials which are presented by the CSIR scientists and other stakeholders.

Source: PIB

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UPSC "PT" DNA (Daily News Analysis)

India and USA Relations

GS-II | 24 November, 2021

Introduction

- India-U.S. bilateral relations have developed into a "global strategic partnership", based on shared democratic values and increasing convergence of interests on bilateral, regional and global issues.
- The emphasis placed by the Government in India on development and good governance has created opportunity to reinvigorate bilateral ties and enhance cooperation under the motto --- "ChaleinSaathSaath: Forward Together We Go", and "SanjhaPrayas, Sab ka Vikas" (Shared Effort, Progress for All) adopted during the first two summits of Prime Minister Modi and President Obama in September 2014 and January 2015 respectively.
- The summit level joint statement issued in June 2016 called the India-U.S. relationship an "Enduring Global Partners in the 21st Century".
- Regular exchange of high-level political visits has provided sustained momentum to bilateral cooperation, while the wide-ranging and ever-expanding dialogue architecture has established a long-term framework for India-U.S. engagement.
- Today, the India-U.S. bilateral cooperation is broad-based and multi-sectoral, covering trade and investment, defence and security, education, science and technology, cyber security, high-technology, civil nuclear energy, space technology and applications, clean energy, environment, agriculture and health.
- Vibrant people-to-people interaction and support across the political spectrum in both countries nurture our bilateral relationship.

India-U.S. Dialogue Architecture:

There are more than 50 bilateral dialogue mechanisms between the two governments.

- The first two meetings of the Strategic and Commercial Dialogue at the level of EAM and MoS (Commerce & Industry) were held in Washington DC in September 2015 and New Delhi in August 2016.
- This apex-level dialogue has added a commercial component to the **five traditional pillars of bilateral relations** on which the erstwhile Strategic Dialogue of Foreign Ministers had focussed, namely:
 1. Strategic Cooperation;
 2. Energy and Climate Change,

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3. Education and Development;
4. Economy, Trade and Agriculture; Science and Technology; and
5. Health and Innovation.

- The second meeting of the Strategic and Commercial Dialogue took place on 30 August 2016 in New Delhi.
- In addition, there are Ministerial-level dialogues involving
 1. home (Homeland Security Dialogue),
 2. finance (Financial and Economic Partnership),
 3. commerce (Trade Policy Forum),
 4. HRD (Higher Education Dialogue),
 5. Science & Technology (Joint Commission Meeting on S&T) and
 6. energy (Energy Dialogue).

Defence ties between India and USA:

- Defence relationship has emerged as a major pillar of India-U.S. strategic partnership with the signing of 'New Framework for India-U.S. Defense Relations' in 2005 and the resulting intensification in defence trade, joint exercises, personnel exchanges, collaboration and cooperation in maritime security and counter-piracy, and exchanges between each of the three services.
- The Defence Framework Agreement was updated and renewed for another 10 years in June 2015.
- The two countries now conduct more bilateral exercises with each other than they do with any other country.

India – USA Defense foundational agreements

- The General Security Of Military Information Agreement (GSOMIA), relating to the security of each other's military information was signed in 2002.
- In 2016, Logistics Exchange Memorandum of Agreement (LEMOA) relating to the exchange of logistics support had been concluded, followed by Communications Compatibility and Security Agreement (COMCASA) in 2018 permitting encryption standards of communication systems.
- The recent signing of the Basic Exchange and Cooperation Agreement (BECA) providing for the sharing of geospatial data is the last of the foundational agreements.

The United States enters into what are called 'foundational or enabling agreements' with its defence partners.

- These agreements govern the nature and scope of U.S. defence

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partnerships.

- Partners enhance the capabilities of the U.S. military in distant places through sharing information, platforms and logistics.
- The competitive advantage of the U.S. military is maintained primarily by the advanced technologies that the country develops continuously.
- The U.S. sells military equipment to other countries with strict control over their deployment and use.
- For instance, consider the B777-300ER aircraft that India bought from Boeing recently for the use of VVIPs.
- The sale of advanced communication and security systems on the aircraft — which are not commercially available — is made seamless by foundational agreements.
- The U.S. is also eager to advance 'interoperability' with defence forces of the countries that are its defence partners.
- Interoperability involves real-time coordination of forces.
- The U.S. has signed these foundational agreements with at least 100 countries, which mostly follow a standard text.
- Country-specific changes were made in India's case in all four foundational agreements.

What do these agreements do?

- The **General Security of Military Information Agreement or GSOMIA**, and its extension, the **Information Security Annex (ISA)** signed in 2019, allow military technology cooperation for the sharing of classified information between governments and companies in both countries.
- ISA will provide a framework for exchange and protection General Security Of Military Information Agreement (GSOMIA) of classified military information between the U.S. and Indian defence industries.
 1. Currently, under GSOMIA, such information is exchanged between the Government authorities of the two countries but not between private parties.
 2. This will further promote "Make in India" in the defence sector.
 3. In accordance with the budget announcement (2018-19), the government has already decided to set up two Defence Industrial Corridors in the country, one in Uttar Pradesh and another in Tamil Nadu.
- The **LEMOA** enables logistics support, say refuelling of planes or ships, supply of spare parts or maintenance to each other.
- For instance, U.S. Navy's P8 aircraft landed in Port Blair last month for refuelling, under LEMOA.
- The **COMCASA** allows Indian forces to procure advanced, secure

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- communication equipment from the U.S.
- Such equipment was earlier denied for U.S. origin platforms such as C-17, C-130, and commercial systems were used in their place.
- Only after **COMCASA** was signed were the encrypted systems provided to India.
- The **BECA** enables exchange of geospatial information. Akin to a GPS that enables navigation, such exchange of geospatial information enhances the accuracy of a missile or the utility of a drone.

What is the strategic importance of Defense agreements of USA?

- Since the Civil Nuclear Agreement of 2005, the India-U.S. defence cooperation has been advancing at a rapid pace.
- The U.S. has relaxed restrictions on technology trade in India's favour considerably, and India is designated a 'Major Defence Partner'.
- Foundational agreements deepen defence cooperation, in trade and operation.
- India and the U.S. are also part of a broader shared vision for the Indo-Pacific region, where both countries, along with Japan and Australia, are increasing their military cooperation.
- U.S.-built platforms used by partner countries can talk to one another and share operational information.

Are there any concerns?

- Critics worry that tying itself too closely with the U.S. may limit India's choices.
- The evolution of technology makes it inevitable that all military platforms will be integrated and networked in the future.
- The U.S. is very particular about the integrity of its networks, and pressure could mount on India to remain firmly in its camp.
- The U.S. is particularly irked by India's continuing defence cooperation with Russia.
- India will be taking the delivery of Russian S-400 missile defence system next year, ignoring American objections.
- The U.S. could respond with sanctions. At any rate, it will not be possible to integrate Russian and American platforms, and this could throw up new challenges of military planning for India.

Defence contracts:

- From less than \$400 million of defence acquisitions till 2005, the U.S. has

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since signed defence contracts worth \$18 billion with India.

- This marks a major shift given that India had been traditionally almost completely dependent on Russia for defence products.
- As per reports published by the Stockholm International Peace Research Institute (SIPRI), India was the world's second-largest arms importer during the period 2015-19, with Russia being the largest supplier though Russia's share of the Indian weapons market declined from 72% to 56%.
- Israel, the U.S. and France have substantial arms exports to India.
- India has imported Apache, Chinook and MH 60 'Romeo' helicopters and P8I maritime aircraft from the US.
- The US could also sell Predator, Reaper Armed Drones to India amid rising tensions with China.
- In 2018, India was placed in Category I of the Strategic Trade Authorisation, easing exports of sensitive technologies.
- India and the US have also decided to deepen defence and security cooperation by collaborating on the co-development and production of advanced military systems along with other aspects like defence technology transfer.
- The Defence Trade and Technology Initiative (DTTI) was formed in 2012 between the US and India, to enhance the bilateral relations in defence by venturing into the field of advanced defence research and development and manufacturing.
- The aim was to strengthen the US and India's defence industrial base by moving away from the traditional "buyer-seller" dynamic toward a more collaborative approach.

Joint defence exercises:

- Joint military exercises with the U.S. have expanded, both in scale and complexity over the years.
- Ex Yudhabhayas and Ex Vajra Prahar are joint military exercises.
- Ex Cope India is a joint Airforce exercise.
- Ex Malabar is a joint navy exercise which also involves Japan (Australia has been invited for Malabar 2020).
- Tiger Triumph is a bilateral tri-service amphibious military exercise involving the armed forces of India and the United States. It is the first tri-service military exercise between the two countries.
- India has previously only held tri-service exercises with Russia.

India – USA Relationship Dynamics

- It can be elaborated into three main categories-

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1. Good Phase- It is linked to the historic terms like the U.S. civil nuclear deal, the ongoing defence cooperation and the signing of "Foundational Defence Agreements" which are the Communications Compatibility and Security Agreement (COMCASA), the Logistics Exchange Memorandum of Agreement (LEMOA) and the Basic Exchange and Cooperation Agreement for Geo-spatial Cooperation (BECA) etc.
 2. Bad Phase- It is linked with the current trade challenges, the U.S.'s hyphenation of India with China in its trade war and its call for the removal of the 'developing country' tag assigned by the WTO.
 3. Ugly Phase- It was when the U.S. sent its fleet towards India to assist Pakistan during the 1971 war.
- The good outweighs the other two but a sense of scepticism remains because of India's multilateral outreach, especially with respect to the procurement of defence material from Russia and Indian military's presence in Afghanistan.
 - India also needs to remain mindful of the unpredictability and inherent contradictions in U.S. foreign policy and, at the same time, capitalise on U.S. 'isolationism and retrenchment' by maintaining its time-tested policy of non-alignment and strategic autonomy.

India – USA cooperation

- **2+2 dialogue:** India and the US have recently concluded second 2+2 ministerial dialogue in Washington. Several landmark agreements in both defence and Civilian sectors were signed.

What is 2+2 dialogue?

- It is a format of dialogue where the defense and foreign ministers or secretaries meet with their counterparts from another country. 2+2 Ministerial is the highest-level institutional mechanism between the two countries.
- India holds such talks with Australia, at the foreign secretary and defense secretary level but with Japan and the US at the ministerial level.
- With the US this was the second 2+2 meeting (Washington), first was held in New Delhi in September 2018.
- US holds such ministerial dialogues with Australia and Japan also.

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- **Peacekeeping for Indo-Pacific:** Cooperation in capacity-building of UN peacekeepers from Indo-Pacific countries, based on demands from the countries concerned. Counter-terrorism efforts were also discussed including dangers of cross border terrorism.
- **Tiger Triumph Exercise:** To hold the India-U.S. joint tri-services 'Tiger Triumph' on an annual basis. The first edition was held in November 2019 as a Humanitarian Assistance and Disaster Relief (HADR) exercise.
- **Coalition for Disaster Resilient Infrastructure (CDRI):** The CDRI was launched at the UN Climate Action Summit in New York, USA in September 2019. It is headquartered in New Delhi, India. The US is now part of it.
- **Water Resource Management:** Memorandum of understanding (MoU) was signed between Ministry of Jal Shakti and the U.S. Geological Survey to promote technical cooperation in water resources management and water technology.
- **Space Situational Awareness (SSA):** Cooperation for exchange of information including space debris and space traffic management. It ensures navigational safety of our space assets.
- **Cooperation in multilateral forums:**
 1. India and the US are part of the Quad grouping along with Australia and Japan.
 2. India has been invited for the first time to attend the Five Eyes (a signals intelligence grouping set up in 1941 consisting of Australia, Canada, New Zealand, the United Kingdom and the U.S.) meeting.
 3. The U.S. has aided India's entry into export control regimes (Australia Group, Missile Technology Control Regime and Wassenaar Arrangement).

Way forward:

- The defence ties between the two countries have come of age.
- Even though there continues to be a certain divergence of interests in some areas, there seem to be higher potential benefits of cooperation and collaboration between the two countries.
- Working together would require mutual respect and trust while accepting differences.
- The policy debate in India should not get driven by ideologies but by India's immediate as well as long term national interest. The policy objective has to enhance India's strategic space and capability.

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Source: PIB

Strategic Petroleum Reserves in India

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Strategic Petroleum Reserves in India

- It is a **storage of crude oil** which would **act as a cushion** during any external supply disruptions or supply demand mismatch shock.
- The **global standard for strategic oil reserves**, as **set by International Energy Agency (IEA) and Integrated Energy Policy 2006 of India** recommended that **country should maintain a reserve equivalent to 90 days of oil imports** for strategic- cum-buffer stock purposes.
- The crude oil **storages** are constructed in **underground rock caverns** and are **located on both the East and West coast** of India. They are considered to be more environment friendly and incur **less evaporation loss than ground level storage**.
- Construction of storage facilities are maintained by **Indian Strategic Petroleum Reserves Limited** (an SPV of the Oil Industry Development Board under MoPNG).
- Presently, strategic reserves are situated at **Visakhapatnam** (Andhra Pradesh), **Mangalore** (Karnataka), and **Padur** (Kerala).
- Moreover, project of 3 additional reserves is in pipeline at **Chandikhol** (Orissa), **Bikaner** (Rajasthan) and **Rajkot** (Gujrat).

Phase II of Strategic Petroleum Reserves

- Under Phase I of strategic petroleum reserves (SPR) programme, Government of India, through its Special Purpose Vehicle, Indian Strategic Petroleum Reserve Limited (ISPRL), has established petroleum storage facilities with total capacity of 5.33 Million Metric Tonnes (MMT) at 3 locations, namely (i) Vishakhapatnam (1.33 MMT), (ii) Mangaluru (1.5 MMT) and (iii) Padur (2.5 MMT), and all the storage facilities have been filled with crude oil. The petroleum reserves established under Phase I are strategic in nature and the crude oil stored in these reserves will be used during an oil shortage event, as and when declared so by Government of India.

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- Under Phase II of the petroleum reserve programme, Government has given approval in July 2021 for establishing two additional commercial-cum-strategic facilities with total storage capacity of 6.5 MMT underground storages at **Chandikhol (4 MMT) and Padur (2.5 MMT) on PPP mode.**

Source: PIB

Mysuru Declaration for Common Minimum Service Delivery

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Provisions of Mysuru Declaration

- WE, the Representatives and Officials recognise the efforts to promote inclusive and accountable Local Self Governments in delivery of services, in consonance with the priorities and the aspirations of our citizens.
- We accept responsibility for seizing this moment to strengthen our commitments to promote transparency, empower citizens, and harness the power of new technologies towards timely and quality delivery of services; enhancing citizen service experiences
- We uphold the value of openness in our engagement with citizens to improve services, incorporating diverse views when designing and delivering services. We embrace principles of transparency and open government with a view towards achieving greater prosperity, well-being, and human dignity for sustainable development of local communities.

Together, we declare our commitment to:

- Increase the availability of Citizen Services at the grassroots levels in a timely and efficient manner, commencing with offering of the following basic, statutory and/ or essential services at the Gram Panchayat level from 1st April, 2022.
- Implement the highest standards of professional integrity and accountability towards timely delivery of Public Services
- We pledge to lead by example and contribute to advancing Service Delivery at grassroots level. Our goal is towards timely delivery of Services for empowering citizens, promoting the inclusive and sustainable growth of rural

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India.

- We commit to espouse these principles in <state Name>, and work to foster institution-building at the grassroots level that empowers and delivers Services for citizens; Improving quality of Life through efficient and effective service delivery mechanisms for Panchayat residents, specifically for the welfare of women, children, senior citizens, divyang and other vulnerable and marginalized sections of society.
- Participants from 16 States signed the Mysuru Declaration and resolved to roll out the Common Minimum Service delivery by Panchayats across the country from April 1, 2022.
- The declaration is aimed at recognising Citizen Centric Services as the "Heart of Governance".

Source: PIB

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Disaster Management in India

GS-III | 25 November, 2021

Part of: GS-III- Disaster Management (PT-MAINS-PERSONALITY TEST)

Disruption on a **massive scale, either natural or man-made, occurring in short or long periods of time** is termed as Disaster. Disaster management in India has been an important point of discussion owing to frequent natural disasters ranging from earthquakes, floods, drought etc.

What is a Disaster?

A disaster is defined as a disruption on a massive scale, either natural or man-made, occurring in short or long periods of time. Disasters can lead to human, material, economic or environmental hardships, which can be beyond the bearable capacity of the affected society. As per statistics, India as a whole is vulnerable to 30 different types of disasters that will affect the economic, social and human development potential to such an extent that it will have long-term effects on productivity and macro-economic performance.

Disasters can be classified into the following categories:

- **Water and Climate Disaster:** Flood, hail storms, cloudburst, cyclones, heat waves, cold waves, droughts, hurricanes.
- **Geological Disaster:** Landslides, earthquakes, volcanic eruptions, tornadoes
- **Biological Disaster:** Viral epidemics, pest attacks, cattle epidemic and locust plagues
- **Industrial Disaster:** Chemical and industrial accidents, mine shaft fires, oil spills,
- **Nuclear Disasters:** Nuclear core meltdowns, radiation poisoning
- **Man-made disasters:** Urban and forest fires, oil spill, the collapse of huge building structures

What is Disaster Management?

Per the Disaster Management Act of 2005 defines Disaster Management as an integrated process of planning, organizing, coordinating and implementing measures which are necessary for-

1. Prevention of threat of any disaster
2. Reduction of risk of any disaster or its consequences

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3. Readiness to deal with any disaster
4. Promptness in dealing with a disaster
5. Assessing the severity of the effects of any disaster
6. Rescue and relief
7. Rehabilitation and Reconstruction

Agencies involved in Disaster Management

- **National Disaster Management Authority (NDMA):-** The National Disaster Management Authority, or the NDMA, is an apex body for disaster management, headed by the Prime Minister of India. It is responsible for the supervision, direction and control of the National Disaster Response Force (NDRF).
- **National Executive Committee (NEC):-** The NEC is composed of high profile ministerial members from the government of India that include the Union Home Secretary as Chairperson, and the Secretaries to the Government of India (GoI) like Ministries/Departments of Agriculture, Atomic Energy, Defence, Drinking Water Supply, Environment and Forests etc. The NEC prepares the National Plan for Disaster Management as per the National Policy on Disaster Management.
- **State Disaster Management Authority (SDMA):-** The Chief Minister of the respective state is the head of the SDMA. The State Government has a State Executive Committee (SEC) which assists the State Disaster Management Authority (SDMA) on Disaster Management.
- **District Disaster Management Authority (DDMA):-** The DDMA is headed by the District Collector, Deputy Commissioner or District Magistrate depending on the situation, with the elected representatives of the local authority as the Co-Chairperson. The DDMA ensures that the guidelines framed by the NDMA and the SDMA are followed by all the departments of the State Government at the District level and the local authorities in the District.
- **Local Authorities:-** Local authorities would include Panchayati Raj Institutions (PRI), Municipalities, District and Cantonment 11 Institutional and Legal Arrangements Boards, and Town Planning Authorities which control and manage civic services.

Causes for Occurrence of Disaster

- **Environmental degradation:** Removal of trees and forest cover from a watershed area have caused, soil erosion, expansion of flood plain area in upper and middle course of rivers and groundwater depletion.

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- **Developmental process:** Exploitation of land use, development of infrastructure, rapid urbanization and technological development have caused increasing pressure over the natural resources.
- **Political issues:** War, nuclear power aspirations, fight between countries to become super power and conquering land, sea and skies. These have resulted into wide range of disaster events such as Hiroshima nuclear explosion, Syrian civil war, growing militarisation of oceans and outer space.
- **Industrialization:** This has resulted into warming of earth and frequency of extreme weather events has also increased.

Impacts of Disaster

- Disaster **impacts individuals physically** (through loss of life, injury, health, disability) as well as **psychologically**.
- Disaster results in **huge economic loss** due to destruction of property, human settlements and infrastructure etc.
- Disaster **can alter the natural environment**, loss of habitat to many plants and animals and cause ecological stress that can result in biodiversity loss.
- After natural disasters, food and other natural resources like water often becomes scarce resulting into **food and water scarcity**.
- The disaster results in **displacement of people**, and displaced population often face several challenges in new settlements, in this process poorer becomes more poor.
- Disaster **increases the level of vulnerability** and hence multiply the effects of disaster.

Vulnerability Profile of India

- India is vulnerable, in varying degrees, to a large number of disasters. **Around 59% of the landmass is prone to earthquakes** of moderate to very high intensity.
- **About 12% (over 40 million hectares) of its land is prone to floods and river erosion.**
- Close to 5,700 kms, out of the 7,516 kms **long coastline is prone to cyclones and tsunamis.**
- **68% of its cultivable area is vulnerable to droughts;** and, the **hilly areas are at risk from landslides and avalanches.**
- Moreover, India is also **vulnerable to chemical, biological, radiological and nuclear (CBRN) emergencies** and other man-made disasters.
- Disaster risks in India are further compounded by increasing vulnerabilities related to **changing demographics and socio-economic conditions,**

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unplanned urbanization, development within high-risk zones, **environmental degradation, climate change, geological hazards, epidemics and pandemics.**

- Clearly, all these contribute to a situation where disasters seriously threaten India's economy, its population and sustainable development.

Worst Disasters in India

- **Kashmir Floods (2014)** affected Srinagar, Bandipur, Rajouri etc. areas of J&K have resulted into death of more than 500 people.
- **Uttarakhand Flash Floods (2013)** affected Govindghat, Kedar Dome, Rudraprayag district of Uttarakhand and resulted into death of more than 5,000 people.
- **The Indian Ocean Tsunami (2004)** affected parts of southern India and Andaman Nicobar Islands, Sri Lanka, Indonesia etc., and resulted in the death of more than 2 lakh people.
- **Gujarat Earthquake (2001)** affected Bhuj, Ahmedabad, Gandhinagar, Kutch, Surat, Surendranagar, Rajkot district, Jamnagar and Jodia districts of Gujarat and resulted in death of more than 20,000 people.
- **Odisha Super Cyclone or Paradip cyclone (1999)** affected the coastal districts of Bhadrak, Kendrapara, Balasore, Jagatsinghpur, Puri, Ganjam etc., and resulted into death of more than 10,000 people.
- **The Great Famine (1876-1878)** affected Madras, Mysore, Hyderabad, and Bombay and resulted into death of around 3 crore people. Even today, it is considered as one of the worst natural calamities in India of all time.
- **Coringa Cyclone (1839)** that affected Coringa district of Andhra Pradesh and **Calcutta Cyclone (1737)** are some other instances of natural calamities faced by the country in the past.
- **The Bengal Famine** in the years **1770** and **1943** affected Bengal, Odisha, Bihar very badly and resulted into death of nearly 1 crore people.
- **Bhopal Gas tragedy (December, 1984)** is one of the worst **chemical disasters** globally that resulted in over 10,000 losing their lives (the actual number remains disputed) and over 5.5 lakh persons affected and suffering from agonizing injuries.
- In recent times, there have been
 - **cases of railway accidents** (Dussehra gathering on the railway tracks crushed by the trains in 2018),
 - **fire accidents in hospitals** due to negligence and non-implementation of existing mandatory fire safety norms,
 - **collapse of various infrastructure constructs like flyovers, metro tracks and residential buildings** due to poor quality of construction,

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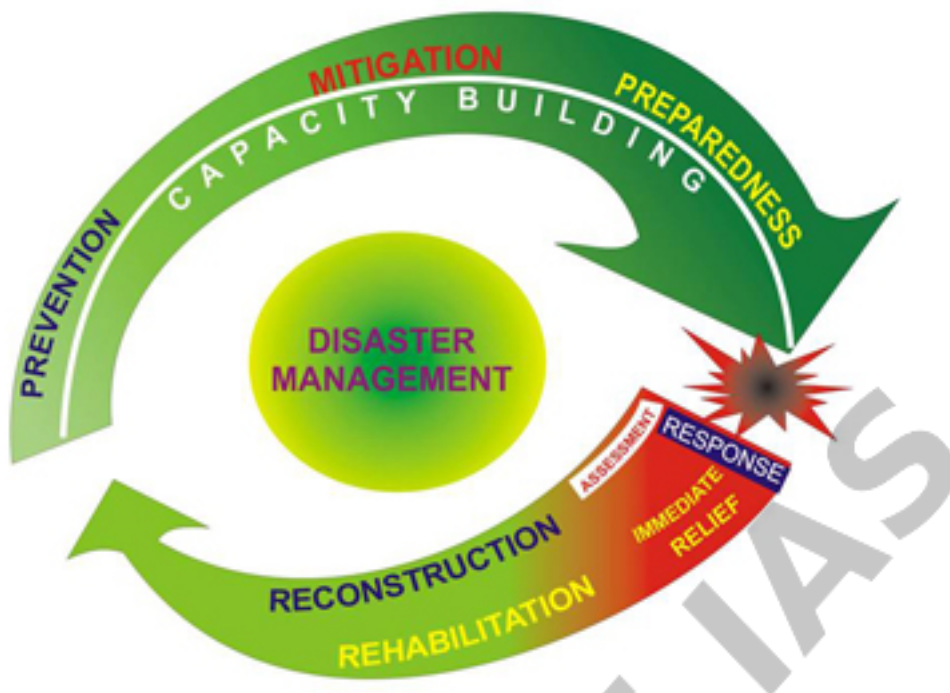
illegal addition of floors and recurring floods.

- **Stampede at large public gathering** like Kumbh Mela caused by poor people management and lack of adequate infrastructure to monitor and manage large crowd gathering.

Stages in Disaster Management

- Disaster Management efforts are geared towards **disaster risk management**.
- Disaster Risk Management implies the systematic **process of using administrative decisions, organisation, operational skills, and capacities to implement policies, strategies and coping capacities** of the society and communities to lessen the impact of natural hazards and related environmental and technological disasters.
- These comprise all forms all activities including structural and non- structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse effects of hazards.
- There are **three key stages** of activities in disaster management:
 1. **Before a disaster:** to reduce the potential for human, material, or environmental losses caused by hazards and to ensure that these losses are minimised when disaster strikes;
 2. **During a disaster:** to ensure that the needs and provisions of victims are met to alleviate and minimise suffering; and
 3. **After a disaster:** to achieve rapid and durable recovery which does not reproduce the original vulnerable conditions.
- The different phases of disaster management are represented in the disaster cycle diagram.

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Disaster Risk Reduction (DRR)

- Disaster risk reduction is the concept and practice of reducing disaster risks through systematic efforts to analyse and reduce the causal factors of disasters.
- **Pre-Disaster risk reduction includes-**
 - **Mitigation:** To eliminate or reduce the impacts and risks of hazards through proactive measures taken before an emergency or disaster occurs.
 - **Preparedness:** To take steps to prepare and reduce the effects of disasters.
- **Post-Disaster risk reduction includes-**
 - **Rescue:** Providing warning, evacuation, search, rescue, providing immediate assistance.
 - **Relief:** To respond to communities who become victims of disaster, providing relief measures such as food packets, water, medicines, temporary accommodation, relief camps etc.
 - **Recovery:** This stage emphasises upon recovery of victims of disaster, recovery of damaged infrastructure and repair of the damages caused.

Disaster Risk Reduction in Sustainable Development Goals

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- **Goal 1:** Target 1.5, which relates to building the resilience of the poor, further strengthens the position of disaster risk reduction as a core development strategy for ending extreme poverty.
- **Goal 2:** Target 2.4 supports the immediate need to advance actions in mainstreaming disaster risk reduction and **climate adaptation into agriculture sector planning** and investments in order to promote resilient livelihoods, food production and ecosystems.
- **Goal 3:** Target 3.d, relates to **strengthening early warning and risk reduction of national and global health risks** presents an opportunity to further actions to promote resilient health.
- **Goal 4:** Target 4.7 focusing on building and upgrading education facilities and **promoting education** for sustainable development, contribute significantly to resilience-building in the education sector.'
- **Goal 6:** Target 6.6, which relates to **protecting and restoring water-related ecosystems**, will significantly contribute to strengthening the resilience of communities to water-related hazards.
- **Goal 9:** Targets 9.1 related to **developing sustainable and resilient infrastructure development** are vital not only to protect existing infrastructure but also future infrastructure investments.
- **Goal 11:** Action targets under this goal (11.1, 11.3, 11.4, 11.5, 11.b and 11.c) focusing on upgrading urban slums, integrated urban planning, reducing social and economic impacts of disaster risk, **building the resilience of the urban poor, adopting and implementing urban policies in line with the Sendai Framework** and building sustainable and resilient urban infrastructure, are strategic opportunities to ensure increased capacity to support cities, to protect current and future development prospects and to build safer, more resilient cities throughout the world.
- **Goal 13:** Target actions under this goal, focusing on **strengthening resilience and adaptive capacity**, capacity building and integrating climate change measures into policies and plans, awareness raising on climate adaptation and early warning (Targets 13.1 to 13.3 and 13.a to 13.b) provide opportunities to **strengthen the integration between disaster and climate resilience** and to protect broader development paths at all levels.
- **Goal 14:** Target action 14.2, focusing on the sustainable management and protection as well as **strengthening resilience of marine and coastal ecosystems**, can contribute to reducing disaster risk and increase in demand for healthy marine and coastal ecosystems.
- **Goal 15:** Target actions 15.1 to 15.4 and 15.9, focus on **managing and restoring forests**, combating land degradation and desertification,

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conserving mountain ecosystems and their biodiversity and integrating ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies.

- **These targets are also in line with the Sendai Framework** focus on building environmental resilience through the inclusion of ecosystems in risk analysis and planning.

Challenges in Disaster Risk Reduction

- There are **insufficient levels of implementation** for each monitored activity. For example, Disaster risk management plans or a risk sensitive building codes exist but they are not enforced because of a lack of government capacity or public awareness.
- There is **lack of local capacities** to implement disaster risk management. Weak capacity at the local levels undermines the implementation Disaster preparedness plans.
- **Absence of integration of climate change into Disaster risk management plans.**
- There is **divergence of obtaining political and economic commitments** due to other competing needs and priorities such as poverty reduction, social welfare, education etc. require greater attention and funding.
- **Due to poor coordination between stakeholders**, there is inadequate access with respect to risk assessment, monitoring, early warning, disaster response and other Disaster related activities.
- **Insufficient investment in building disaster resilient strategies**, also private sector are least contributors in the share of investment.

1 OUTCOME

The substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries

1 GOAL

Prevent new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience

4 PRIORITIES

Understanding disaster risk

Strengthening disaster risk governance to manage disaster risk

Investing in disaster risk reduction for resilience

Enhancing disaster preparedness for effective response, and to "Build Back Better" in recovery, rehabilitation and reconstruction

7 TARGETS

To Decrease

- ↓ DISASTER MORTALITY BY 2030
- ↓ NUMBER OF AFFECTED PEOPLE BY 2030
- ↓ ECONOMIC LOSS BY 2030
- ↓ INFRASTRUCTURE DAMAGE BY 2030

To Increase

- ↑ DRR NATIONAL/LOCAL STRATEGIES BY 2020
- ↑ INTERNATIONAL COOPERATION BY 2030
- ↑ EWS AND DR INFORMATION BY 2030

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Organisations related to Disaster Management Framework at Global level

- In 1994 the **World Conference on Natural Disaster Reduction** was held in Yokohama, Japan.
 - The conference **adopted the Yokohama strategy** and declared the **decade 1990-2000 as the International Decade for Natural Disaster Reduction (IDNDR)**.
- **United Nations Office for Disaster Risk Reduction (UNISDR)** is the successor to the secretariat of IDNDR and was **created in 1999** to implement UN Disaster Risk Reduction strategy.
- **The Hyogo Framework for Action (HFA) is a 10-year plan (2005-2015)** to make the world safer from natural hazards. Priorities such as, Disaster risk reduction, identification, assessment through legal and policy frameworks, disaster preparedness and use of innovation was adopted.
- **The Sendai Framework for Disaster Risk Reduction 2015-2030**, is the successor instrument to the Hyogo Framework.
 - It is a **non-binding agreement**, which the signatory nations, including India, will attempt to comply with on a voluntary basis.
- There are three international agreements within the context of the post- 2015 development agenda. These are:
 - The Sendai Framework.
 - Sustainable Development Goals 2015-2030
 - The Paris agreement (COP 21) on Climate Change.
- These three agreements recognize the desired outcomes in Disaster Risk Reduction as a product of interconnected social and economic processes, which overlap across the agendas of the three agreements.

Organisations and Policies related to Disaster Management Framework at National level

National Disaster Management Authority of India (NDMA)

- **It was established in 2005**, under the Disaster Management Act 2005.
- The objective of NDMA is, **to build a safer and disaster resilient India** by a holistic, proactive, technology driven and sustainable development strategy.
- The NDMA is **chaired by the Prime Minister of India** and has a vice chairman with the status of Cabinet Minister and eight members with the status of Ministers of State.
- The NDMA Secretariat is headed by a Secretary and deals with mitigation, preparedness, plans, reconstruction, community awareness and financial and administrative aspects.

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National Disaster Management Plan (NDMP)

- It was **released in 2016**, it is the first ever national plan prepared in the country for disaster management.
- With National Disaster Management Plan (2016) India has aligned its National plan with the Sendai Framework for Disaster Risk Reduction 2015-2030, to which India is a signatory.
- The objective of the plan is to make India disaster resilient, achieve substantial disaster risk reduction. It aims to significantly decrease the losses of life, livelihoods, and assets in terms of economic, physical, social, cultural, and environmental. To maximize the ability to cope with disasters at all levels of administration as well as among communities.

State Disaster Management Authority (SDMA)

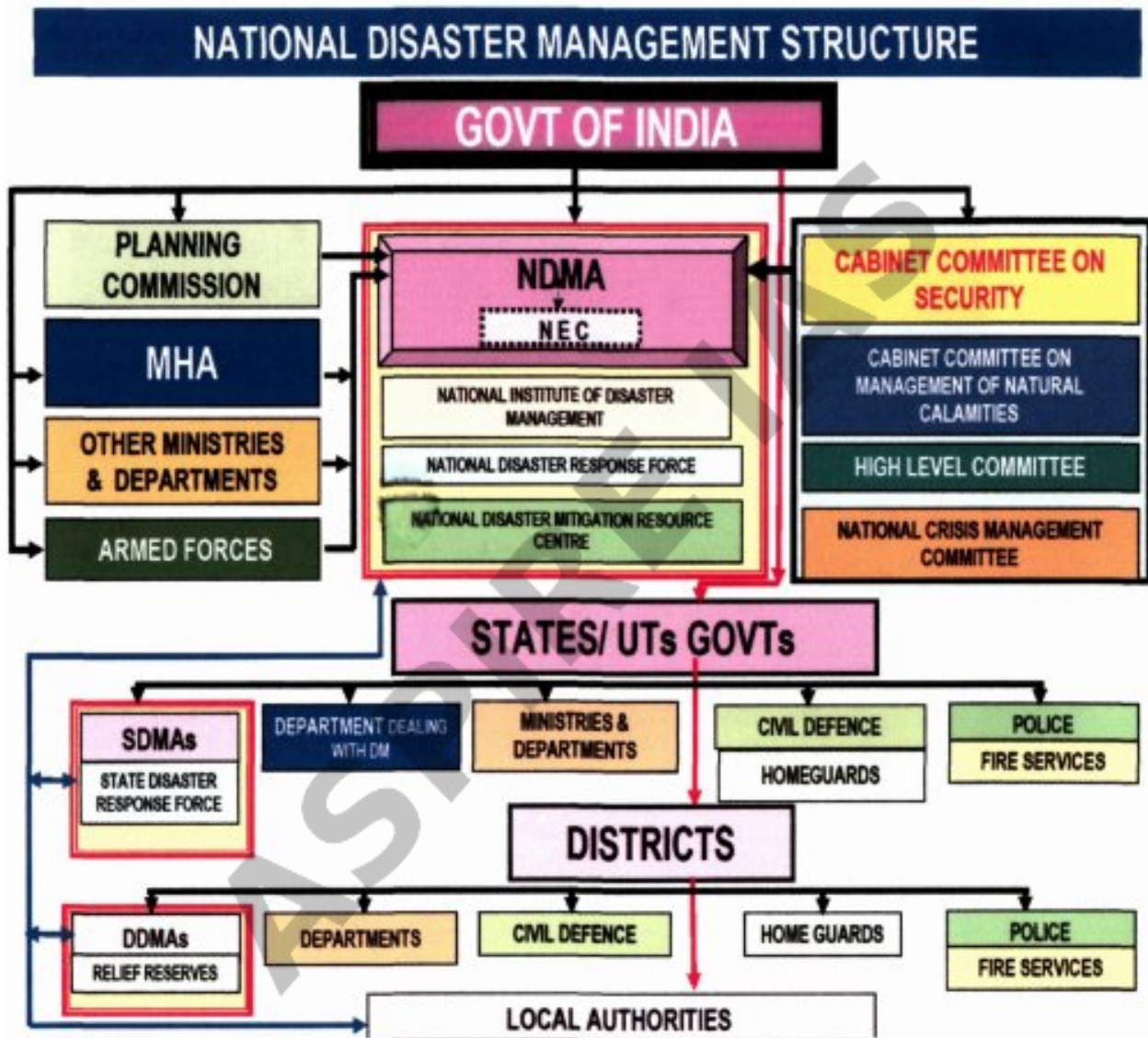
- At State level, State Disaster Management Authorities are established under Disaster Management Act 2005.
- **SDMA is chaired by the Chief Minister of the State** and has not more than eight members who are appointed by the Chief Minister.
- The SDMA prepares the state disaster management plan and implements the National Disaster Management Plan.

District Disaster Management Authority (DDMA)

- Under Disaster Management Act 2005, every State government shall establish a DDMA for every district in the State.
- The DDM Authority shall consist of:
 - **Chairperson** - the Collector or District Magistrate or Deputy Commissioner act as Chairperson of DDMA.
 - **Co-Chairperson** - is the elected representative of the local authority. In the Tribal Areas, the Chief Executive Member of the district council of autonomous district is the co-chairperson.
- There are not more than seven other members in DDMA.
- The Disaster Management Committee governed under District Magistrate will **formulate village level disaster management plans** for concern villages.
- The DDMA makes District Disaster Management Plan and implements the state Disaster Management Plan.

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ORGANISATION TREE OF NATIONAL DISASTER MANAGEMENT STRUCTURE, INDIA



**No Planning commission today

Government Initiatives for Disaster Management

- India is a signatory to the Sendai Framework for Disaster Risk Reduction and is committed to achieve the priorities and objectives through

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systematic and institutional efforts.

- With multi-dimensional initiatives and expertise, India is taking a leading role in strengthening regional cooperation among South Asian countries for reducing disasters.
- India is one of the participating countries and **works closely with the United Nations International Strategy for Disaster Reduction (UNISDR)**. India has been working closely with many countries for the exchange of ideas and expertise in disaster management.
- **National Disaster Management Plan (NDMP)** defines the roles and responsibilities of various stakeholders including Central Ministries/ Departments, State Governments, UT Administrations, District Authorities and local self Governments.
- **Primary responsibility of disaster management rests with the States.** The Central Government conducts regular mock drill, community training and awareness programme to prepare the civilian populations for disasters.
- **National Disaster Management Services (NDMS)** was conceived by NDMA during 2015-16 for setting up of **Very Small Aperture Terminal (VSAT) Network** connecting MHA, NDMA, NDRF etc. to provide the failsafe communication infrastructure and technical support for Emergency Operation Centre (EOC) operations across the country.
- NDMA has taken an initiative on **Earthquake Disaster Risk Indexing (EDRI)** for 50 important cities and 1 District in Seismic Zone IV & V areas.
 - This kind of indexing will be helpful in comparing the overall risk across large number of cities or region and also in prioritization of cities to implement appropriate disaster mitigation measures.
- NDMA through **Building Materials & Technology Promotion Council (BMTPC)** has prepared **Upgraded Earthquake Hazard Maps and Atlases** for the country for better planning and policies.
- Leveraging the technology of geographic information system (GIS), NDMA have taken up a project for **disaster risk management by establishing GIS Server** and creation of database to integrate data obtained from various stakeholders to increase disaster preparedness, mitigation, damage assessment, response and relief management efforts.
- Under the **National School Safety Programme (NSSP)**, 8600 schools (with 200 schools in 43 districts in 22 States/UTs falling seismic zones IV and V) have been selected for providing training on school safety and disaster preparedness.
- **The Aapdamitra scheme of NDMA** has provision for training 6000

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community volunteers in disaster response in 30 most flood prone districts (200 volunteers per district) in 25 States.

- The government has set up **National Crisis Management Committee and Crisis Management Group**.
- The state governments have set up **state crisis management groups headed by chief secretaries**, institutes of relief commissioners and state/district contingency plans.
- The disaster management policy of the government stresses on forecasting and warning using advanced technologies, **contingency agricultural planning** to ensure availability of food grains, and preparedness and mitigation through specific programmes.
- Project on **deployment of Mobile Radiation Detection Systems (MRDS)** to handle Radiological Hazards in Metros/Capital Cities/Big Cities in India to detect unclaimed radioactive materials/substances and save public from its hazardous effects.
- **Landslide Risk Mitigation Scheme (LRMS)** envisages financial support for site specific Landslide Mitigation Projects recommended by landslide prone States, covering disaster prevention strategy, disaster mitigation and R&D in monitoring of critical Landslides thereby leading to the development of Early Warning System and Capacity Building initiatives. The Scheme is under preparation.
- Core Group has been formed for Preparation of Guidelines to avert Boat Tragedies in India.

Disaster Management in India: Success stories

- The Indian government's "**zero casualty**" **policy for cyclones** and the pinpoint accuracy of the India Meteorological Department's (IMD) early warning system has helped reduce the possibility of deaths from **cyclone Fani in Odisha**.
- India's policy of **minimising fatalities from cyclones** has been proven by past performances as in **cyclone Phailin in 2013**, when famously the casualty rate was kept to as low as 45 despite the intensity of the storm.
- In August 2010 during the **flash floods due to cloudburst in Leh in Ladakh** region by the Indian Army. The **Army's immediate search, rescue, and relief operations** and mass casualty management effectively and efficiently mitigated the impact of flash floods, and restored normal life.
- Bihar suffers from floods almost every year during the monsoon season, predominantly due to the Ganges and its tributaries. The State has successfully scaled up disaster preparedness and mitigation efforts since

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2011.

Issues in Disaster Management in India

- There are significant **gaps in preparedness** on various aspects of risk management, particularly for catastrophic disasters like major earthquakes and floods.
 - Though all of India's states have **departments of disaster management** or relief and rehabilitation, they **are still poorly prepared** to lend support in times of disasters, according to the UN Development Programme (UNDP).
 - In a number of recent disasters, **2010 mudslides in Leh, Sikkim earthquake in 2011 and the Uttarakhand floods of 2013**, the level of preparedness was inadequate, leading to high levels of mortality and displacement of people.
- Facilities such as emergency operations centres, emergency communications, and search and rescue teams are being made available but these systems and facilities need to be strengthened.
- **In India Disaster management is yet to be seen as an essential part of good governance and integral to development planning.**
- The preparedness at various levels are **not people-oriented**.
- India's capacity to manage disaster risk is challenged by its **size and huge population**. The country is likely to have the greatest exposure of any nation in the world to extreme weather and natural disasters by 2030.
- The northeast region is most at risk from earthquakes and **lacks seismically secure infrastructure and buildings**. It is also vulnerable to landslides, floods and erosion.
- Flooding on the country's plains is a regular occurrence, and although communities are resilient, the **intensity of floods has reduced their capacity to adapt**.
- The local adaptation efforts driven solely by communities are no longer sufficient and **additional, scientifically planned adaptation is needed**, which will require government support.
- The division of responsibilities under the Disaster Management Act is not very clear, resulting in its poor implementation. There also exists an overlap between the implementing agencies
- Intense public and media scrutiny after disasters automatically leads to a **higher priority being given to response, rather than risk reduction**.
- Furthermore, where risk-reduction activities are described, State Disaster Management Plans (SDMPs) does not institutionalise accountability mechanisms to ensure that departments follow these considerations in their

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own planning. As a result, risk-reduction activities are driven by schemes and external projects, rather than by guidelines in SDMPs.

- Because risk-reduction needs are locations specific, this gap is an opportunity for stronger, locally led risk-reduction planning by Strengthening disaster risk management in India

Way Forward

- A clearer demarcation of national and state-level responsibilities is needed, especially regarding who is responsible for risk-reduction activities.
- It is vital for state disaster management authorities to focus on the continued **capacity-building of district disaster management authorities** and CSOs that are responsible for managing disaster risk. Capacity-building should support the planning and implementation of actions across the full disaster management cycle.
- There is a **need to revise the SDMPs** to include a much greater emphasis on risk reduction, rather than just preparedness and response.
- Existing rules and regulations that impede the inclusion of measures for risk reduction need to be amended.
- **Build partnerships** with and draw lessons from forerunner states such as Bihar and Gujarat on how to include risk reduction in plans more effectively.
- **Accountability mechanisms** need to be specified. This will ensure that departments follow disaster risk-reduction considerations in their own development planning.
- **There is an urgent need to put the National Disaster Mitigation Fund and state disaster management funds into operation.** States such as Bihar, which are leading in this regard, should share lessons on how to realise this at the state level.

Source: PIB

Equalisation Levy

GS-III | 25 November, 2021

Part of: GS-III- Economy (PT-MAINS-PERSONALITY TEST)

Recently, the Central government has stated that it will **not extend the deadline**

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for payment of equalisation levy by non-resident e-commerce players, even though a majority of them are yet to deposit the first instalment of the tax.

The **equalization levy is aimed at taxing foreign companies which have a significant **local client base in India** but are billing them through their **offshore units**, effectively **escaping the country's tax system**. The step has come in the backdrop of the **United States Trade Representative (USTR) investigations into taxes adopted or under consideration by 10 nations, including India**, on revenues of American digital service companies like Netflix, Airbnb etc.

Background for Equalization Levy:

- Equalisation levy at **6%** has been in force **since 2016 on payment exceeding Rs 1 lakh a year** to a non-resident service provider for online advertisements.
- It is now **applicable for e-commerce companies** that are sourcing revenue from Indian customers **without having tangible presence** here in the country.
- The amendments to the **Finance Act, 2020** had expanded the ambit of the **equalisation levy for non-resident e-commerce** operators involved in supply of services, including online sale of goods and provision of services, with the levy at the **rate of 2%** effective April 1, 2020.
- The tax applies on e-commerce transactions on **websites such as Amazon.com. Google in particular** as the tax applies on advertising revenue earned overseas if those ads target customers in India.

Changes in Challan ITNS 285:

- The income tax department has modified **challan ITNS 285 (relating to payment of equalisation levy)** to enable payment of the first installment by non-resident e-commerce operators. The challan also seeks **mandatory PAN** and provides for '**Outside India**' option while **seeking address**.

Penalties Involved:

- The **non-payment** could result in a **penalty equal to the amount of equalisation levy**, along with interest. The **late-payment** would **attract interest** at the **rate of 1% per month** or part of the month.
- As India is racing towards becoming a digital giant and should be negotiated

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to avoid any hurdles in its implementation. Further, there needs to be international consensus on taxation on a digital economy.

India and USA agree on a transitional approach on Equalisation Levy 2020

- On October 8, 2021, India and United States joined 134 other members of the OECD/G20 Inclusive Framework (including Austria, France, Italy, Spain, and the United Kingdom) in reaching agreement on the Statement on a Two-Pillar Solution to Address the Tax Challenges Arising from the Digitalization of the Economy.
- On October 21, 2021, the United States AND Austria, France, Italy, Spain, and the United Kingdom reached an agreement on a transitional approach to existing Unilateral Measures while implementing Pillar 1. The agreement is reflected in the joint statement that was issued by those six countries on that date ("October 21 Joint Statement").
- India and United States have agreed that the same terms that apply under the October 21 Joint Statement shall apply between the United States and India with respect to India's charge of 2% equalisation levy on e-commerce supply of services and the United States' trade action regarding the said Equalisation Levy. However, the interim period that will be applicable will be from 1st April 2022 till implementation of Pillar One or 31st March 2024, whichever is earlier.
- India and United States will remain in close contact to ensure that there is a common understanding of the respective commitments and endeavor to resolve any further differences of views on this matter through constructive dialogue.
- The final terms of the Agreement shall be finalised by 1st February 2022.

Source: PIB

Public Wi-Fi Access Network Interface-PM-WANI

GS-III | 25 November, 2021

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- **Context:** Public infrastructure is essential for enhancing the quality of public life and social capital. Guiding by her promise of **DIGITAL INDIA and access to all the MINIMUM Internet** **Gol came out with PM-WANI**. This topic is highly important for UPSC-PT and Mains.
- Union Cabinet cleared a document by the Department of Telecommunications (DoT) to set up **public Wi-Fi access-PM-WANI** network interfaces, first recommended by the **Telecom Regulatory Authority of India (TRAI)** in 2017.

About

This will involve **multiple players**, including PDOs, PDOAs, app providers, and a central registry.

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Wi-Fi

It is a **Local Area Networks (LANs)** to operate without cables and wiring, making it a popular choice for home and business networks. It is a networking technology that **uses radio waves** to allow high-speed data transfer and broad band internet over short distances.

- Wi-Fi-enabled devices are able to connect to the Internet when they are near areas that have Wi-Fi access, called "hot spots".
- According to Cisco Annual Internet Report (2018-2023), there will be nearly 623 million public Wi-Fi hotspots across the world by 2023, up from 169 million hotspots as of 2018.
- Within this, the highest share of hotspots by 2023 will be in the Asia Pacific region at 46%. As per the calculations of the Telecom Regulatory Authority of India (TRAI), based on Cisco's estimates, India should have 100 million Wi-Fi hotspots by 2023.

Centre for Development of Telematics

- C-DOT was established in 1984 as an autonomous Telecom R&D centre of DoT, Government of India.
- It is a registered society under the Societies Registration Act, 1860.
- It is a registered 'public funded research institution' with the Department of Scientific and Industrial Research (DSIR), Ministry of Science & Technology.

WHY WE NEED

- To **increase the proliferation of internet services** in the country. With PDOs - which will basically be small retail outlets across the length and breadth of the country - **last mile connectivity** is being aimed at.
- To **offer a cost-effective option** for the CITIZENS. Even in urban areas with sufficient mobile data coverage, the **mobile internet tariffs are bound to increase**.
- To make the '**Digital India**' vision successful. From **2015 to June of 2020**, India grew from **302 million internet subscribers to 750 million**. That is a **Compound Annual Growth Rate (CAGR) of 20%**, making India one of the fastest growing internet markets in the world. However, this statistic **overshadows the quality of access**. Only **23 million are wired**

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internet subscribers. If Digital India vision is to be achieved, there is a **need to deliver a resilient and reliable connection to every Indian**, so that they can have reliable access everywhere, at affordable price points.

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****According to Digital Quality of Life Index 2020, India was placed at 9th position in Internet Affordability, outperforming even countries like the UK, the USA and China. While, for Internet Quality and E-infrastructure, India was almost at the bottom of the pillar placed at 78th and 79th (out of 85) positions respectively.**

Benefits:

2 crore jobs and entrepreneurship opportunities, besides offering a cost-effective means of mass connectivity.

- To achieve **National Digital Communications Policy** goals of creating 1 crore public Wi-Fi hotspots by 2022
- Creation of demand and scope for developing the components for this pan-India activity Atmanirbhar Bharat.
- Local distribution centres for content. Students in backward and rural areas can access offline content without using bandwidth.
- Benefit to MSME and digital banking.
- It will further ease of Doing Business and Ease of Living, as it will enable small shopkeepers to provide Wi-Fi service.

Challenges:

Most Wi-Fi hotspots don't encrypt information therefore threat of HACKING and personal information. But **Indian public Wi-Fi hotspot network** envisages that the access to the Internet through these points will be permitted only through **electronic KYC (Know Your Customer) and a mix of OTP (One-Time Password) and MAC ID-based authentication system**, thereby minimising the risk of network security being compromised.

- The viability of the project. In 2017, social media company Facebook had launched Express Wi-Fi. The project made little impact. **Google's Station project**, to provide free wi-fi in more than 400 railway stations across India and "thousands" of other public places, which was launched in **2015**, was shut down earlier this year.
- Challenge of Infrastructure and its maintenance.
- Awareness and reliability in condition of speed.

It is the time that government must ensure true unbundling of hardware, software, apps and payment gateways in the WANI system, as advocated by TRAI,

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to prevent monopolies. Existing public wi-fi options run on a limited scale by some entities compel consumers to pay through a single gateway app, underscoring the need for reform.

Source: PIB

PM Garib Kalyan Anna Yojana (PMGKAY): Critical Analysis

GS-III | 25 November, 2021

- Pradhan Mantri Garib Kalyan Anna Yojana (PM-GKAY) is a scheme as part of Atmanirbhar Bharat to supply free food grains to migrants and poor.
- Under this special scheme (PMGKAY), around 80 Crore **NFSA beneficiaries** covered under both categories of NFSA, namely **Antyodaya Anna Yojana (AAY)** and **Priority Householders (PHH)**, will be provided with an **additional quota of free-of-cost foodgrains (Rice/Wheat) at a scale of 5 Kg per person per month**, over and above their regular monthly entitlements under NFSA.
- Government of India will bear all expenditure of over ₹26,000 Crore on account of food subsidy and Central assistance to states/UTs on account of intrastate transportation etc.
- During the period May - November 2021, more than 81.35 crore people will be provided 5 kg free wheat/rice per person / month along with 1 kg free whole chana to each family per month. Wheat has been allocated to 6 States/UTs, - Punjab, Haryana, Rajasthan, Chandigarh, Delhi and Gujarat and rice has been provided to the remaining States/UTs. This is over and above the regular monthly entitlements under National Food Security Act, 2013 (NFSA).

Eligibility

- Families belonging to the Below Poverty Line - Antyodaya Anna Yojana (AAY) and Priority Households (PHH) categories will be eligible for the scheme.
- PHH are to be identified by State Governments/Union Territory Administrations as per criteria evolved by them. AAY families are to be identified by States/UTs as per the criteria prescribed by the Central

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Government:

- Households headed by widows or terminally ill persons or disabled persons or persons aged 60 years or more with no assured means of subsistence or societal support.
- Widows or terminally ill persons or disabled persons or persons aged 60 years or more or single women or single men with no family or societal support or assured means of subsistence.
- All primitive tribal households.
- Landless agriculture labourers, marginal farmers, rural artisans/craftsmen such as potters, tanners, weavers, blacksmiths, carpenters, slum dwellers, and persons earning their livelihood on daily basis in the informal sector like porters, coolies, rickshaw pullers, hand cart pullers, fruit and flower sellers, snake charmers, rag pickers, cobblers, destitutes and other similar categories in both rural and urban areas.
- All eligible Below Poverty Line families of HIV positive persons.

30% PMGKAY recipients yet to get grains for May

- Almost a third of all ration card holders are yet to get their free foodgrains allocation for May under the Centre's COVID-19 relief scheme, according to the Food Ministry.
- Out of the 79.25 crore beneficiaries under the National Food Security Act (NFSA), only 55 crore have so far received their 5 kg per person quota of free wheat or rice under the Pradhan Mantri Gareeb Kalyan Anna Yojana (PMGKAY), which was announced to mitigate the economic distress caused by the pandemic. Thus, more than 30% have still not got their benefit.
- However, almost 90% of beneficiaries have received their regular subsidised grain for the month, raising questions over why the free grain has reached fewer beneficiaries.
- An analysis of NFSA data shows that the only major States which have significant coverage gaps are Himachal Pradesh (23%), Madhya Pradesh (14%) and Gujarat (9%). Most other large States have less than a 5% gap, which can be used to issue new ration cards.
- In a May 24 order, the Supreme Court had directed that migrant workers and poor people without ration cards should be provided with dry ration under the Atma Nirbhar scheme — which was implemented last year — or any other scheme found suitable by the States and Centre.

National Food Security Act, 2013

- In PUCL vs Union of India, SC said **Right to food is essential to Right to**

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Life (Art 21). Hence NFSA has a **rights based approach**. **Objective** is to provide for food and nutritional security in **human life cycle approach**.

- All the above schemes PDS, RPDS, TPDS are merged **except Antyodaya Anna Yojana** which will continue to give 35 kg to poorest of poor.
- It covers **67% population** (75% Rural and 50% Urban). **Beneficiaries will be taken from SECC.**
- People will get **5 kgs of foodgrains per person per month upto 5 family members** at subsidised prices of Rs. **3/2/1 per Kg** for rice/wheat/coarse grains. It uses **TPDS mechanism**.
- Special nutritional support to **women and children**.
 1. It includes meal to Pregnant women and lactating mothers **during pregnancy** and **6 months after child birth**. They are entitled to a nutritious "**take home ration**" of **600 Calories** and a **maternity benefit of \geq Rs 6,000 for 6 months**. Hence, PMMVY is merged. 5000 + 1000 rs under Janani Suraksha Yojana.
 2. **Children upto 14 years** will get nutritious meals.
- If there is **no supply in 15 days**, then beneficiaries will get **Food Security Allowance**.
- **Grievance redressal mechanism** at **District and State levels**. Transparency and Accountability to be ensured.
- **Food fortification = Rice with Protein; Wheat with Zinc and Coarse Cereals with Iron.**
- **Utilisation of Dryland area agriculture** which is 52% land.
- Development of **Wasteland** to generate **250 million tonnes additional production**.
- In Chandigarh, Puducherry and Dadra and Nagar Haveli, act is implemented in cash transfer mode and they will have the choice to buy foodgrains from open market.
- The eldest woman in a household, \geq 18 years, shall be the head of the household for the purpose of issuance of a ration card.

Source: PIB

PRAGATI (Pro-Active Governance And Timely Implementation)

GS-II | 25 November, 2021

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What is PRAGATI platform?

- PRAGATI (Pro-Active Governance And Timely Implementation) is a multi-purpose, multi-modal, unique and interactive platform.
- The platform is **aimed at addressing common man's grievances, and simultaneously monitoring and reviewing** important programmes and projects of the Government of India as well as projects flagged by **State Governments**.

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- The PRAGATI platform uniquely bundles **three latest technologies**:

1. **Digital data management,**
2. **video-conferencing and**
3. **geo-spatial technology.**

- It also offers a unique combination in the direction of **cooperative federalism** since it brings on one stage the **Secretaries of Government of India and the Chief Secretaries of the States**.
- With this, the Prime Minister is able to discuss the issues with the concerned Central and State officials with full information and latest visuals of the ground level situation.
- Such an effort has never been made in India.
- It is also an innovative project in **e-governance and good governance**.
- The application will be accessible to the Secretaries of the Government of India and the State Chief Secretaries.

Key features of the PRAGATI application are as follows:

- It is a **three-tier system** (PMO, Union Government Secretaries, and Chief Secretaries of the States);
- Prime Minister will hold a **monthly programme** where he will interact with the Government of India Secretaries, and Chief Secretaries through Video-conferencing enabled by data and geo-informatics visuals;
- The first such programme was launched on **25th March, 2015** (Wednesday) at 3.30 PM. Now onwards, it will be held once in **every month on Fourth Wednesday** at 3.30 PM-to be known as **PRAGATI Day**.
- Issues to be flagged before the PM are picked up from the available database regarding Public Grievances, on-going Programmes and pending Projects;
- The system will ride on, strengthen and re-engineer the data bases of the **CPGRAMS for grievances, Project Monitoring Group (PMG) and the Ministry of Statistics and Programme Implementation**. PRAGATI provides an interface and platform for all these three aspects.
- It will also take into consideration various correspondences to PM's office by the common people or from high dignitaries of States and/or developers of public projects;
- The **issues** flagged are **uploaded seven days prior** to the PRAGATI day (i.e. on third Wednesday of every month).
- These issues can be viewed by the Union Government Secretaries and Chief Secretaries after entering into the application;
- User ID and Password for each of the Union Government Secretaries and

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- Chief Secretaries have been created and made available;
- Union Government Secretaries and Chief Secretaries will be able to see the issues pertaining to their Department /State;
 - Union Government Secretaries and Chief Secretaries have to put their comments and updates about the flagged issues within three days (i.e. by next Monday);
 - **One day – Tuesday is available to the PMO team to review the data** entered by the Union Government Secretaries and Chief Secretaries;
 - The design is such, that when PM reviews the issue he should have on his screen the issue as well as the latest updates and visuals regarding the same;
 - The **system has been designed in-house by the PMO team with the help of National Informatics Center (NIC)**. As the name suggests, it is aimed at starting a culture of Pro-Active Governance and Timely Implementation. It is also a robust system for bringing **e-transparency and e-accountability** with real-time presence and exchange among the key stakeholders.

Source: PIB

ACROSS Scheme

GS-III | 25 November, 2021

The Cabinet Committee on Economic Affairs chaired by the Prime Minister Shri Narendra Modi today gave its approval for continuation of the umbrella scheme "Atmosphere & Climate Research-Modelling Observing Systems & Services (ACROSS)" along with its eight sub-schemes to the next finance cycle of five years i.e. 2021-2026 at an estimated cost of Rs.2,135 crore.

ACROSS Scheme

- One of the mandates of the Ministry of Earth Sciences is to observe weather, climate and ocean parameters and carry out R&D activities to develop and improve capability to forecast weather, climate and hazard related phenomena for societal, economic and environmental benefits including addressing science of climate change and developing climate services.
- The increased incidence of extreme weather events due to Global Climate

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change and the risk associated with severe weather has prompted MoES to formulate many target oriented programs, which are carried out in an integrated manner through IMD, IITM, NCMRWF and INCOIS. As a result, these activities are put together under the umbrella scheme "ACROSS".

- ACROSS scheme pertains to the atmospheric science programs of **Ministry of Earth Sciences (MoES)** and addresses different aspects of weather and climate services. Each of these aspects is incorporated as **eight sub-schemes under the umbrella scheme "ACROSS"** and is implemented in an integrated manner through the aforesaid four institutes.
- The scheme is being implemented by the Ministry of Earth Sciences (MoES) through its units namely India Meteorological Department (IMD), National Centre for Medium Range Weather Forecasting (NCMRWF); Indian Institute of Tropical Meteorology (IITM) and Indian National Centre for Ocean Information Services (INCOIS).

The eight sub-schemes under the ACROSS scheme are multi disciplinary in nature and will be implemented in an integrated manner through IMD, IITM, NCMRWF and INCOIS to cover all the aspects of the weather and climate. Each institute has a designated role for accomplishing the above tasks through the following eight schemes:

- i. Commissioning of Polarimetric Doppler Weather Radars (DWRs)-IMD
- ii. Upgradation of Forecast System-IMD
- iii. Weather & Climate Services-IMD
- iv. Atmospheric Observations Network-IMD
- v. Numerical Modelling of Weather and Climate -NCMRWF
- vi. Monsoon Mission III- IITM/NCMRWF/INCOIS/IMD
- vii. (vii) Monsoon Convection, Clouds and Climate Change (MC4)- IITM/NCMRWF/IMD
- viii. High Performance Computing System (HPCS)-IITM/NCMRWF

Impact of ACROSS Scheme

- The scheme will provide improved weather, climate, ocean forecast and services, and other hazard related services thereby ensuring transfer of commensurate benefits to the end -user through various services like Public weather service, Agro-meteorological Services, Aviation services,

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Environmental monitoring services, Hydro-meteorological services, climate services, tourism, pilgrimage, power generation, water management, Sports & adventure etc.

- The whole process from generation of forecast to its delivery requires considerable manpower at every stage, thereby generating employment opportunities to many people.

Source: PIB

O-SMART Scheme

GS-III | 25 November, 2021

The Cabinet Committee on Economic Affairs chaired by the Prime Minister Shri Narendra Modi today gave its approval for continuation of the umbrella scheme "**Ocean Services, Modelling, Application, Resources and Technology (O-SMART)**" of **Ministry of Earth Sciences**, for implementation during the period from 2021-26 at an overall cost of Rs. 2177 crore.

What is O-SMART Scheme?

- The scheme encompasses seven sub-schemes namely Ocean Technology, Ocean Modelling and Advisory Services (OMAS), Ocean Observation Network (OON), Ocean Non-Living Resources, Marine Living Resources and Ecology (MLRE), Coastal Research and Operation and Maintenance of Research Vessels.
- These sub-schemes are being implemented by autonomous/attached institutes of the Ministry, viz.

1. National Institute of Ocean Technology (NIOT), Chennai;
2. Indian National Center for Ocean Information Services (INCOIS), Hyderabad;
3. National Centre for Polar and Ocean Research (NCPOR), Goa,
4. Center for Marine Living Resources and Ecology (CMLRE), Kochi;
5. and National Centre for Coastal Research (NCCR), Chennai as well as involving other national institutes.

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- A fleet of oceanographic and coastal research vessels of the Ministry provide required research support for scheme.
- OSMART being a multidisciplinary continuing scheme, the ongoing extensive research and technology development activities would augment capacity building of the nation in the oceanographic field at the international level. The present decade has been declared as the Decade of Ocean Science for Sustainable Development by the United Nations (UN) and continuation of the scheme would strengthen our stand in the global oceanographic research and technology development. This continuation of the scheme would contribute significantly towards national policy on blue economy for effective and efficient use of the vast ocean resources in a Sustainable way.
- Efforts towards achieving United Nations sustainable Development Goal-14 to conserve and sustainably use the oceans, seas and marine resources are being covered through the coastal research and marine biodiversity activities.
- Significant contribution to the national GDP is being made and to be continued through the ocean advisory services and technologies developed benefiting communities and several sectors working in the marine environment, particularly in the coastal states of India.
- In the next five years (2021-26) this scheme would provide further comprehensive coverage through strengthening the ongoing activities towards delivering cutting edge technology applicable for marine domain, forecast and warning services to various coastal stake holders, understanding biodiversity towards conservation strategy for marine living organisms and understanding coastal processes.

History of Ocean Research

- The research and technology development pertaining to oceans in India was initiated by Department of Ocean Development (DoD), which was set up in 1981 which later merged to Ministry of Earth Sciences (MoES) and continuing since then.
- MoES has achieved significant position in the Oceanographic research through technology developments, forecast services, field installations, explorations, survey, technology demonstrations towards national benefits.
- The O-SMART scheme encompassing oceanographic research activities is being implemented with the objectives for providing forecast and services based on the continuous observation of our oceans, development of technologies and exploratory surveys for sustainable harnessing of our

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oceanic resources (both living and non-living) and promotion of front-ranking research in ocean sciences.

- Several major milestones have been achieved through the activities of the scheme, the most significant is India's recognition as Pioneer Investor with International Seabed Authority (ISA) for conducting extensive research on deep sea mining of Poly Metallic Nodules (PMN) and hydrothermal sulphides in the allotted area of the India Ocean.
- The technology development for desalination using low temperature thermal desalination installation of such facility in Lakshadweep islands is also a significant achievement.
- Moreover, India's ocean related activities are now extended from the Arctic to Antarctic region covering large ocean space which have been monitored by through in-situ and satellite-based observation. India has taken leadership role in implementing Indian Ocean component of Global Ocean Observing System in Intergovernmental.
- Oceanographic Commission through wide range of observations networks including both moored and drifters' types have been deployed and maintained in the Indian Ocean.
- These observation network yields ocean forecast services for potential fishing ground and natural costal hazards warning for storm surge associated with cyclone and Tsunami to stake holders at nations levels as well as neighbouring countries.
- A state-of-the-art early warning system for oceanic disasters viz. tsunami, storm surges, has been established at INCOIS, Hyderabad to provide services for India and countries of the Indian Ocean, which have been recognized by UNESCO.
- Extensive survey along the Indian exclusive economic zone (EEZ) and continental shelf of India are conducted for national benefits towards identifying ocean resources, Ocean related advisory services, navigation, etc. Assessment of living resources in the EEZ and deep ocean of India including mapping of the living resources has been undertaken for marine ecosystem with goal for Conservation and protection of Marine Biodiversity.
- The Ministry has been also monitoring the health of coastal waters of India including shoreline changes and marine ecosystems.

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Source: PIB

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National Family Health Survey NFHS - 5

GS-III | 26 November, 2021

What is the National Family Health Survey (NFHS)?

- The NFHS is a large-scale, multi-round survey conducted in a representative sample of households throughout India.
- Five rounds of the survey have been conducted since the first survey in 1992-93.
- The survey provides state and national information for India on fertility, infant and child mortality, the practice of family planning, maternal and child health, reproductive health, nutrition, etc.
- The Ministry of Health has designated the **International Institute for Population Sciences (IIPS) Mumbai, as the nodal agency**, responsible for providing **coordination and technical guidance** for the survey.
- IIPS has collaborated with the following international agencies for the successful conduct of the survey.

1. ORC, Macro, Maryland, USA
2. East-West Centre, Honolulu, Hawaii, USA

Note: in NFHS 4 and NFHS 5, along with USAID and ICF; DFID, the Bill and Melinda Gates Foundation, UNICEF, UNFPA, and the MacArthur Foundation, as well as the Indian Government also supported the surveys in a major way.

Which Agencies Provided the Funding for NFHS?

- Many international agencies and the Central Government Ministry have provided the necessary funds to carry out the survey.
- United States Agency for International Development (USAID)
- United Nations Children's Fund (UNICEF)
- Bill and Melinda Gates Foundation
- United Nations Population Fund (UNFPA)
- MOHFW, Government of India
- Also, the data that is published by the Ministry is also used by the WHO, World Bank & UNICEF.

National Family Health Survey (NFHS-5)?

- National Family Health Survey 5 is the recent round of the survey carried on by **MoH&FW** to bring out reliable data on emerging health and family welfare issues.

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- The coordinating and implementing agencies that are helping the ministry to bring out this NFHS round are:

1. International Institute for Population Sciences, Mumbai

2. A group of survey organizations and Population Research Centers

- **ICF International** is providing technical assistance for the NFHS 5 while the United States Agency for International Development is providing financial assistance.
- **Seven lakh households** are being covered to collect the data.
- **67 indicators** are being used to cover the NFHS 5 data. The list of important indicators is mentioned below:

1. Population and household profile (PT POINTER)
2. Marriage and fertility
3. Family planning
4. Contraception
5. Maternal and child health
6. Delivery care
7. Vaccinations
8. Treatment of childhood diseases
9. Nutrition and feeding practices
10. Anemia
11. Diabetes
12. Hypertension and
13. Cancer examination

Note: The data for NFHS was expected to be released by July 2020 but due to the current pandemic situation, it has been delayed.

National Family Health Survey Rounds

Totally five rounds of surveys have been conducted to date. The below information gives details on the round and the year it was conducted.

- First Round of NFHS conducted in 1992-93
- Second Round of NFHS conducted in 1998-99
- Third Round of NFHS conducted in 2005-06
- Fourth Round of NFHS conducted in 2015-16
- Fifth Round of NFHS conducted in 2018-19

- The States and UTs which were surveyed in Phase-II are Arunachal Pradesh, Chandigarh, Chhattisgarh, Haryana, Jharkhand, Madhya Pradesh,

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NCT of Delhi, Odisha, Puducherry, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and Uttarakhand.

- The findings of NFHS-5 in respect of 22 States & UTs covered in Phase-I were released in December 2020.

National Family Health Survey-5 Phase I covered 22 States and UTs. It was released in December 2020.

[For Findings of National Family Health Survey-5 Phase I: Click here.](#)

NFHS-5 Phase II

- The States and UTs which were surveyed in Phase-II are **Arunachal Pradesh, Chandigarh, Chhattisgarh, Haryana, Jharkhand, Madhya Pradesh, NCT of Delhi, Odisha, Puducherry, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and Uttarakhand.**
- The findings of **NFHS-5 in respect of 22 States & UTs covered in Phase-I** were released in December 2020.
- The main objective of successive rounds of the NFHS is to **provide reliable and comparable data** relating to health and family welfare and other emerging issues.
- The National Family Health Survey-5 survey work has been conducted in around 6.1 lakh sample households from 707 districts (as of March 2017) of the country; covering 724,115 women and 101,839 men to provide disaggregated estimates up to district level.
- All the results of NFHS-5 are available in the public domain on the Ministry website (www.mohfw.gov.in).
- The all-India and State/UT level factsheet released includes information on **131 key indicators.**
- It provides information on important indicators which are helpful in tracking the progress of Sustainable Development Goals (SDGs) in the country. NFHS-4 (2015-16) estimates were used as baseline values for a large number of SDG indicators.
- Many indicators of the National Family Health Survey-5 are similar to NFHS-4 carried out in 2015-16 to make possible comparisons over time.
- However, NFHS-5 includes some new focal areas, such as death registration, pre-school education, expanded domains of child immunization, components of micro-nutrients to children, menstrual hygiene, frequency of alcohol and tobacco use, additional components of non-communicable diseases (NCDs), expanded age ranges for measuring hypertension and

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diabetes among all aged 15 years and above, which will give requisite impetus for strengthening existing programs and evolving new strategies for policy intervention.

Findings of NFHS - Phase II and Total

- **The Sex Ratio of India is now 1020 at the national level.**
- **The Total Fertility Rates (TFR)**, an average number of children per woman has further declined from 2.2 to **2.0 at the national level** and all 14 States/UT's ranging from 1.4 in Chandigarh to 2.4 in Uttar Pradesh. All Phase-II States have achieved replacement levels of fertility (2.1) except Madhya Pradesh, Rajasthan, Jharkhand, and Uttar Pradesh.
- **Overall Contraceptive Prevalence Rate (CPR)** has increased substantially from 54% to **67% at the all-India level** and in almost all Phase-II States/UTs with an exception of Punjab. The use of **modern methods of contraceptives has also increased** in almost all States/UTs.
- **Unmet needs of family Planning** have witnessed a significant **decline** from 13 percent to 9 percent at the all-India level and in most of the Phase-II States/UTs. The unmet need for spacing which remained a major issue in India in the past has come down to less than 10 percent in all the States except Jharkhand (12%), Arunachal Pradesh (13%), and Uttar Pradesh (13%).
- **Full immunization drive** among children aged 12-23 months have recorded a substantial improvement from 62 % to 76% at the all-India levels. 11 out of 14 States/UTs have more than three-fourth of children aged 12-23 months with full immunization and it is highest (90%) for Odisha.
- On comparing NFHS-4 and NFHS-5 data, the **increase in full immunization coverage** is observed to be expeditious in many states and UTs; More than 50 percent of Phase-II States/ UTs are sharing over 10 percentage points during the short span of 4 years. This can be attributed to the flagship initiative of [Mission Indradhanush](#) launched by the government in 2015.
- There is an increase from 51 % to 58% of women receiving the recommended four or more ANC visits by health providers at the all-India levels.
- Also, all the Phase-II States/UTs have shown improvement except Punjab between 2015-16 to 2019-20.
- **Institutional births have increased** substantially from 79 percent to **89 percent at all-India Level**. Institutional delivery is 100 percent in Puducherry and Tamil Nadu and more than 90 percent in 7 States/UTs out of 12 Phase II

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States/UTs.

- Along with an increase in institutional births, there has also been a substantial **increase in C-section deliveries** in many States/UTs, especially in private health facilities.
- **Child Nutrition indicators show a slight improvement** at an all-India level as **Stunting, Wasting and Underweight have declined**.
 1. Stunting has declined from 38 percent to 36 percent,
 2. wasting from 21 percent to 19 percent, and
 3. underweight from 36 percent to 32 percent at the all-India level.
 4. In all phase-II States/UTs situation has improved in respect of child nutrition but the change is not significant as drastic changes in respect of these indicators are unlikely in a short span period.
- **Anaemia among children and women continues to be a cause of concern**. More than half of the children and women (including pregnant women) are anemic in all the phase-II States/UTs and all-India level compared to NFHS-4, in spite of the substantial increase in the composition of iron-folic acid (IFA) tablets by pregnant women for 180 days or more.
- **Exclusive breastfeeding to children under age 6 months has shown an improvement** in the all-India level from 55 percent in 2015-16 to 64 percent in 2019-21. All the phase-II States/UTs are also showing considerable progress.
- Women's empowerment indicators portray considerable improvement at all Indian level and across all the phase-II States/UTs. Significant progress has been recorded between NFHS-4 and NFHS-5 in regard to **women operating bank accounts from 53 percent to 79 percent at the all-India levels**. For instance, in the case of Madhya Pradesh, the increase was to the tune of 37 percentage points from 37 percent to 75 percent. More than 70 percent of women in every state and UTs in the second phase have operational bank accounts.

[Download the whole Factsheet of National Family Health Survey-5 in comparison with NFHS-4](#)

Source: TH

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Cyber Surakshit Bharat Initiative

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- The Cyber Surakshit Bharat initiative was launched in **January 2018** by the **Ministry of Electronics and Information Technology (MeitY)**. It is the first public-private partnership of its kind that leverages the expertise of the IT industry in cyber security along with MeitY's organizations such as CDAC, CERT-In, NIC, and STQC as the knowledge partners in this training program.
- Aimed at creating awareness around cyber security and developing an empowered and strong cyber ecosystem in Government organizations in India, the **National e-Governance Division under the Ministry of Electronics and IT** is conducting a six-day Deep Dive Training program for Chief Information Security Officers (CISOs) and frontline IT officials from various Ministries & Departments, Government & Semi-Government organisations from Central and State Governments, PSUs, banks, among others.
- Experts from both Government and private sectors are attending the training program focused on topics like ISMS Standards, Mobile Security, Cyber Security products in India, data security, identity protection, cryptography, etc.
- **India is ranked among the top 10 countries, out of 182**, in cyber security posture for the year 2020, jumping from the 47th position in the year 2018 to the 10th position in 2020.
- The **Deep Dive Training program under the Cyber Surakshit Bharat** initiative is aimed to prepare the CISOs and frontline IT officials to face challenges of cyber security and handle the cyber crisis.
- This type of training empowers them to secure their organizations from cyber threats and for smooth delivery of e-Gov services and functioning of production units. NeGD has been consistently organizing such workshops with the primary goal of promoting a safe digital space among citizens.

Source: PIB

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PLI Scheme on Pharmaceuticals

GS-II | 27 November, 2021

- The PLI Scheme for Pharmaceuticals is based on the strategy of "Atmanirbhar Bharat- Strategies for enhancing India's manufacturing capabilities and enhancing exports in ten sectors", which had been approved by the Union Cabinet on 24.02.2021.
- The **objective of the Production linked incentive scheme is to enhance India's manufacturing capabilities** by increasing investment and production in the sector and contributing to **product diversification** to high value goods in the pharmaceutical sector.
- One of the further objectives of the Production linked incentive scheme is to create global champions out of India who have the potential to grow in size and scale using cutting-edge technology and thereby penetrate the global value chains.
- The production linked incentive scheme will provide **financial incentives** on the incremental sales (over Base Year) of pharmaceutical goods and in-vitro diagnostic medical devices to selected applicants based on pre-defined selection criteria.
- The incentives will be paid for a **maximum period of 6 years** for each participant depending upon the threshold investments and sales criteria to be achieved by the applicant.
- The total quantum of the incentive for the scheme is Rs 15,000 crore.
- **SIDBI is the Project Management Agency for the Scheme.**
- The applications were invited in three different categories of applicants to ensure fair competition and broad coverage amongst the industry players. The categories were based on the size of the applicant as determined by the global manufacturing revenues from pharmaceutical manufacturing.
- The Production linked incentive scheme covers three different product categories for which applicants have applied under the scheme. These products are expected to give an impetus to innovation, R&D and widening of product profile of India Pharmaceutical industry.

Category 1:

- Biopharmaceuticals; Complex generic drugs; Patented drugs or drugs nearing patent expiry; Cell-based or gene therapy drugs; Orphan drugs; Special empty capsules like HPMC, Pullulan, enteric, etc.; Complex

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excipients; Phyto-pharmaceuticals.

Category 2:

- Active Pharmaceutical Ingredients / Key Starting materials / Drug Intermediates (except the Active Pharmaceutical Ingredients / Key Starting materials / Drug Intermediates covered under the earlier PLI scheme for APIs/KSMs and DIs being implemented by the Department)

Category 3 (Drugs not covered under Category 1 and Category 2):

- Repurposed drugs; Auto immune drugs, anti-cancer drugs, anti-diabetic drugs, anti-infective drugs, cardiovascular drugs, psychotropic drugs and anti-retroviral drugs; In vitro diagnostic devices; Other drugs not manufactured in India.

Other Production Linked Incentive (PLI) Schemes in India

- [PLI scheme "National Programme on Advanced Chemistry Cell Battery Storage"](#)
- [PLI Scheme for IT Hardware](#)
- [PLI Scheme for Food Processing Industry](#)
- [PLI Scheme for 'National Programme on High Efficiency Solar PV Modules'](#)
- [PLI Scheme for White Goods \(AC and LED Lights\)](#)
- [PLI Scheme for Textiles](#)
- [PLI Scheme for Drones](#)
- [PLI Scheme on Automobiles & Auto Components](#)
- [PLI Scheme on Pharmaceuticals](#)

Source: PIB