

## UPSC "PT" DNA (Daily News Analysis)

### International Monetary and Financial Committee-IMFC

GS-II | 16 October, 2021

Union Minister for Finance & Corporate Affairs Smt. Nirmala Sitharaman attended the Plenary Meeting of the **International Monetary and Financial Committee (IMFC)** of the Board of Governors of the International Monetary Fund (IMF) at the Annual Meetings 2021 held in Washington D.C. on 14th October 2021.

#### International Monetary and Financial Committee

- It is the **Ministerial-level committee** of the **International Monetary Fund (IMF)**.
- It **meets twice a year**, once during the **Fund-Bank Annual Meetings in October** and once during the **Spring Meetings in April**.
- The Committee discusses matters of common concern affecting the global economy and advises the IMF on the direction of its work.
- **Functions:**
  - It discusses the **management of the international monetary and financial system**.
  - It **advises the IMF** on any other matters of common concern **affecting the global economy**.
- IMFC has **24 members**, drawn from the pool of 189 governors, and represents all member countries.
- **India is one of the current members**.
- It operates on **consensus**, including on the selection of its chairman.

#### Imp Points of the meeting

- The discussions at the meeting centered on **"vaccinate, calibrate and accelerate"** which is the theme of the Managing Director's Global Policy Agenda. The members of the IMFC elaborated the actions and measures taken by member countries to combat COVID-19 and facilitate economic recovery.
- Finance Minister Smt. Sitharaman conveyed that **India recognises that universal vaccination is the key** to stemming the spread of the virus.
- She asserted that the stark differences in vaccination coverage of low-income countries and advanced countries is of concern and it is critical that **we need to address vaccine inequity**.
- The Finance Minister emphasized importance of the **multilateral approach with the principles of equity and common, but differentiated, responsibilities and capabilities to combat climate change**.
- Smt. Sitharaman stressed that it is important to recognize the formidable

---

## UPSC "PT" DNA (Daily News Analysis)

---

challenges faced by developing countries in getting access to affordable financing and technology.

Source: PIB

ASPIRE IAS

## UPSC "PT" DNA (Daily News Analysis)

### Vector-borne diseases

GS-III | 26 October, 2021

#### What are Vectors?

- **Vectors are living organisms** that can transmit **infectious pathogens between humans**, or from **animals to humans**.
- Many of these vectors are **bloodsucking insects**, which **ingest disease-producing microorganisms** during a blood meal from an infected host (human or animal) and later transmit it into a new host, after the pathogen has replicated.
- Often, once a vector becomes infectious, they are **capable of transmitting the pathogen for the rest of their life during each subsequent bite/blood meal**.

#### Vector-borne diseases in India

- Vector-borne diseases are human illnesses caused by **parasites, viruses and bacteria** that are transmitted by vectors.
- The burden of these diseases is **highest in tropical and subtropical areas**, and they disproportionately **affect the poorest populations**.
- **Since 2014, major outbreaks of dengue, malaria, chikungunya, yellow fever and Zika** have afflicted populations, claimed lives, and overwhelmed health systems in many countries.
- Other diseases such as **Chikungunya, leishmaniasis and lymphatic filariasis** cause chronic suffering, life-long morbidity, disability and occasional stigmatisation.

#### Data related to Vector borne diseases

1. Vector-borne diseases account for more than **17% of all infectious diseases**, causing more than **700 000 deaths annually**. They can be caused by **either parasites, bacteria or viruses**.
2. **Malaria is a parasitic infection** transmitted by **female Anopheline mosquitoes**. It causes an estimated 219 million cases globally, and results in more than 400,000 deaths every year. **Most of the deaths occur in children under the age of 5 years**.
3. **Dengue is the most prevalent viral infection** transmitted by **Aedes mosquitoes – Aedes Aegyptus or Aedes Albopictus**. More than 3.9 billion people in over 129 countries are at risk of contracting dengue, with an estimated 96 million symptomatic cases and an estimated 40,000 deaths

## UPSC "PT" DNA (Daily News Analysis)

every year.

4. Other viral diseases transmitted by vectors include **chikungunya fever, Zika virus fever, yellow fever, West Nile fever, Japanese encephalitis** (all transmitted by mosquitoes), **tick-borne encephalitis** (transmitted by ticks).
5. Other vector-borne diseases such as **Chagas disease** (transmitted by triatomine bugs), **leishmaniasis** (sandflies) and **schistosomiasis (snails)** affect hundreds of millions of people worldwide.
6. **Many of vector-borne diseases are preventable**, through protective measures, and community mobilisation.

### List of vector-borne diseases, according to their vector

The following table is a non-exhaustive list of vector-borne disease, ordered according to the vector by which it is transmitted. The list also illustrates the type of pathogen that causes the disease in humans.

<u>Vector</u>	<u>Disease caused</u>	<u>Type of pathogen</u>
Mosquito	<i>Aedes</i>	Chikungunya
		Virus
		Dengue
		Virus
		Lymphatic filariasis
		Parasite
		Rift Valley fever
		Virus
		Yellow Fever
		Virus
		Zika
		Virus
Mosquito	<i>Anopheles</i>	Lymphatic filariasis
		Parasite
		Malaria
		Parasite
	<i>Culex</i>	Japanese encephalitis
		Virus
		Lymphatic filariasis
		Parasite
		West Nile fever
		Virus
Aquatic snails	Schistosomiasis (bilharziasis)	Parasite
Blackflies	Onchocerciasis (river blindness)	Parasite
Fleas	Plague (transmitted from rats to humans)	Bacteria
		Ecto parasite

## UPSC "PT" DNA (Daily News Analysis)

Lice	Tungiasis	
	Typhus	Bacteria
Sandflies	Louse-borne relapsing fever	Bacteria
	Leishmaniasis	Bacteria
	Sandfly fever (phlebotomus fever)	Virus
Ticks	Crimean-Congo haemorrhagic fever	Virus
	Lyme disease	Bacteria
	Relapsing fever (borreliosis)	Bacteria
	Rickettsial diseases (eg: spotted fever and Q fever)	Bacteria
		Virus
	Tick-borne encephalitis	Bacteria
Triatome bugs	Tularaemia	
	Chagas disease (American trypanosomiasis)	Parasite
Tsetse flies	Sleeping sickness (African trypanosomiasis)	Parasite

### Global Vector Control Response (GVCR) 2017–2030 by WHO

- The "Global Vector Control Response (GVCR) 2017–2030" was approved by the World Health Assembly in 2017.
- It provides **strategic guidance** to countries and development partners for urgent strengthening of **vector control as a fundamental approach** to preventing disease and responding to outbreaks.
- To achieve this a re-alignment of vector control programmes is required, supported by increased technical capacity, improved infrastructure, strengthened monitoring and surveillance systems, and greater community mobilization.

### Specifically WHO responds to vector-borne diseases by:

- providing **evidence-based guidance** for controlling vectors and protecting

## UPSC "PT" DNA (Daily News Analysis)

- people against infection;
- providing **technical support** to countries so that they can effectively manage cases and outbreaks;
- supporting countries to improve their **reporting systems** and capture the true burden of the disease;
- providing **training (capacity building)** on clinical management, diagnosis and vector control with support from some of its collaborating centres; and
- supporting the development and evaluation of new tools, technologies and approaches for vector-borne diseases, including vector control and disease management technologies.
- A crucial element in reducing the burden of vector-borne diseases is **behavioural change**. WHO works with partners to provide **education and improve public awareness**, so that people know how to protect themselves and their communities from mosquitoes, ticks, bugs, flies and other vectors.
- **Access to water and sanitation** is a very important factor in disease control and elimination. WHO works together with many different government sectors to improve water storage, sanitation, thereby helping to control these diseases at the community level.

## National Vector Borne Disease Control Programme

- It was launched in 2003-04 by merging National **anti -malaria** control programme, National **Filaria** Control Programme and **Kala Azar** Control programmes.
- **Japanese B Encephalitis and Dengue/DHF** have also been included in this Program.
- **Directorate of NAMP (National Anti-Malaria Programme)** is the nodal agency for prevention and control of major Vector Borne Diseases.

### List of Vector Borne Diseases Control Programme Legislations:

- 1) National Anti - Malaria programme
- 2) Kala - Azar Control Programme
- 3) National Filaria Control Programme
- 4) Japanese Encephalitis Control Programme
- 5) Dengue and Dengue Hemorrhagic fever



## UPSC "PT" DNA (Daily News Analysis)

### 1) NATIONAL ANTI - MALARIA PROGRAMME (NAMP)

- Malaria is one of the serious public health problems in India.
- At the time of independence malaria was contributing 75 million cases with 0.8 million deaths every year prior to the launching of National Malaria Control Programme in 1953.
- A countrywide comprehensive programme to control malaria was recommended in 1946 by the **Bhore committee report** that was endorsed by the Planning Commission in 1951.
- The national programme against malaria has a long history since that time. In April 1953, Govt. of India launched a National Malaria Control Programme (NMCP).

### 2) KALA -AZAR CONTROL PROGRAMME

- Kala-azar or visceral leishmaniasis (VL) is a chronic disease caused by an intracellular **protozoan** (Leishmania species) and transmitted to man by **bite of female phlebotomus sand fly**.
- Currently, it is a main problem in **Bihar, Jharkhand, West Bengal and some parts of Uttar Pradesh**.
- In view of the growing problem planned control measures were initiated to control kala-azar.

### 3) NATIONAL FILARIA CONTROL PROGRAMME

- Bancroftian filariasis caused by **Wuchereria bancrofti**, which is transmitted to man by the bites of infected mosquitoes - **Culex, Anopheles, Mansonia and Aedes**.
- Lymphatic filaria is prevalent in 18 states and union territories.
- Bancroftian filariasis is widely distributed while brugian filariasis caused by Brugia malayi is restricted to 7 states - UP, Bihar, Andhra Pradesh, Orissa, Tamil Nadu, Kerala, and Gujarat.
- The National Filaria Control Programme was launched in 1955.
- The activities were mainly confined to urban areas. However, the programme has been extended to rural areas since 1994.

### 4) JAPANESE ENCEPHALITIS CONTROL PROGRAMME

- Japanese encephalitis (JE) is a **zoonotic disease** and caused by an **arbovirus, group B (Flavivirus)** and transmitted by Culex mosquitoes.
- This disease has been reported from 26 states and UTs since 1978, only 15

## UPSC "PT" DNA (Daily News Analysis)

states are reporting JE regularly. The case fatality in India is 35% which can be reduced by early detection, immediate referral to hospital and proper medical and nursing care. The total population at risk is estimated 160 million.

- The most disturbing feature of JE has been the regular occurrence of outbreak in different parts of the country.
- Govt. of India has constituted a Task Force at National Level which is in operation and reviews the JE situations and its control strategies from time to time. Though Directorate of National Anti-Malaria Programme is monitoring JE situation in the country.

### 5) DENGUE AND DENGUE HEMORRHAGIC FEVER

- One of the most important resurgent tropical infectious disease is dengue.
- Dengue Fever and Dengue Hemorrhagic Fever (DHF) are acute fevers caused by four antigenically related but distinct **dengue virus serotypes (DEN 1,2,3 and 4)** transmitted by the infected mosquitoes, **Aedes aegypti**.
- Dengue outbreaks have been reported **from urban areas** from all states.
- **All the four serotypes of dengue virus (1,2,3 and 4) exist in India.**
- The Vector Aedes Aegypti breed in **peridomestic fresh water collections** and is found in both urban and rural areas.

Source: TH



## UPSC "PT" DNA (Daily News Analysis)

### Net-Zero Emissions and India's Stand

GS-III | 27 October, 2021

## Net-Zero Emissions and India's Stand

### Context: Net Zero emission is highly important FOR prelims

"Why after PARIS net zero emission becomes the new buzz to solve the problem of climate change and sea level rise. Why? India should not sign it..."

**What is NET ZERO EMISSION:** [Net zero emissions](#) refers to achieving an overall balance between greenhouse gas emissions produced and greenhouse gas emissions taken out of the atmosphere.

- First, human-caused emissions (like those from fossil-fueled vehicles and factories) should be reduced as close to zero as possible. Second, any remaining GHGs should be balanced with an equivalent amount of carbon removal, for example by restoring forests.

#### Time-line:

- It differs significantly if one is referring to CO<sub>2</sub> alone, or referring to all major GHGs (including methane, nitrous oxide, and HFCs).
- **For non-CO<sub>2</sub> emissions**, the net-zero date is later because some of these emissions — such as methane from agricultural sources — are somewhat more difficult to phase out.
- In scenarios that limit warming to 1.5 degrees C, carbon dioxide (CO<sub>2</sub>) reaches **net-zero on average by 2050**.
- Total GHG emissions reach net-zero between **2063 and 2068**.

**Global Scenario:** By the end of 2020 twenty countries and regions have

## UPSC "PT" DNA (Daily News Analysis)

adopted net-zero targets. This list only includes countries that adopted a net-zero target in law or another policy document. **The Kingdom of Bhutan is already carbon-negative**, i.e. absorbs more CO<sub>2</sub> than it emits.

**Indian Condition:** India's per capita **CO<sub>2</sub> emissions** – at 1.8 tonnes per person in 2015 – are around a ninth of those in the USA and around a third of the global average of 4.8 tonnes per person. (India is third-largest emitter of CO<sub>2</sub>, behind China and the USA)

**Pressure On India regarding NEW ZERO EMISSION:** There is global pressure on India to commit net-zero emissions by 2050.

- On one hand, few argue that India should pledge to reduce its "net" emissions (emissions minus uptake of emissions) to zero by 2050, backed by a climate law. This will make India "hypercompetitive", attract investment and create jobs.
- For example, more ambitious policies to promote electric vehicles along with cleaner electricity and hydrogen electrolysis can create jobs in the auto manufacturing industry and in the electricity and construction sectors
- While, on the other hand, **there is a long-standing principle of "common but differentiated responsibility"** that requires richer countries to lead and argue against any pledge that risks prematurely limiting Indian energy use for development.

**Sectors that are the largest emitters:**

**Energy>Industry>Forestry>Transport>Agriculture>Building**

**Why India shouldn't sign to NET ZERO EMISSION!!**

"As the recent report of the Intergovernmental Panel on [Climate Change](#) made it clear, limiting the increase in the world's average temperature from pre-industrial levels to those agreed in the Paris Agreement requires global cumulative emissions of carbon dioxide to be capped at the global carbon budget"

**It is a truism that such a cap means that eventually emissions must go to zero, or more precisely, net zero.**

**IS it POSSIBLE?**

But reaching net zero by itself is irrelevant to forestalling dangerous warming. This

## UPSC "PT" DNA (Daily News Analysis)

is no more rocket science than saying that the promise of when you will turn off the tap does not guarantee that you will draw only a specified quantity of water.

### What promises of net zero do?

- The top three emitters of the world — **China, the U.S. and the European Union** — even after taking account of their net zero commitments and their enhanced emission reduction commitments for 2030, **will emit more than 500 billion tonnes of carbon dioxide before net zero.**
- These three alone will **exceed the limit of about 500 billion tonnes from 2020** onwards, for even odds of keeping global temperature increase below 1.5°C.
- With these committed emissions, there is **no hope of "keeping 1.5°C alive.**

***"The target is dead-on-arrival"***

- For two-to-one odds for the same target, the limit is 400 billion tonnes of carbon dioxide, a limit that is even more certain to be breached.
- **Neither the Paris Agreement nor climate science requires that net zero be reached individually by countries by 2050**, the former requiring only global achievement of this goal "in the second half of the century".
- Claims that the world "must" reach specific goals by 2030 or 2050 are the product of specific economic models for climate action.
- These are **designed to achieve the Paris goals by the "lowest cost" methods, foregoing equity and climate justice.**
- They front-load emission reduction requirements on developing countries, despite their already low emissions, to allow the developed world to backload its own, buying time for its own transition.
- **Less than a fifth of the world has been responsible for three-fifths of all past cumulative emissions**, the U.S. and the EU alone having contributed a whopping 45%.
- Promises of net zero in their current form perpetuate this hugely disproportionate appropriation of a global commons, while continuing to place humanity in harm's way.

### What India must do?

- India is responsible for **no more than 4.37% cumulative emissions of carbon dioxide since the pre-industrial era (UPSC PRELIMS)**, even though it is home to more than a **sixth of humanity.**
- India's **per capita emissions are less than half the world average (UPSC PRELIMS)**, less than **one-eighth of the U.S.'s**, and have shown no

## UPSC "PT" DNA (Daily News Analysis)

---

dramatic increase like China's post 2000.

- For India to declare net zero now is to accede to the further over-appropriation of the global carbon budget by a few.
- India's contribution to global emissions, in **both stock and flow, is so disproportionately low that any sacrifice on its part can do nothing to save the world.**
- Due to such expectations, India would endanger the future of its own population, subjecting it to unprecedented hardship.

India, in enlightened self-interest, must now stake its claim to a fair share of the global carbon budget.

### Critical aspect for NET ZERO!!

- The failure of the developed world to meet its pre-2020 obligations along with its refusal to acknowledge this provides little confidence for the future.
- The **allocation of property rights, without grandfathering**, is essential to ensure equitable access to any global commons.
- The global carbon budget has been subject to no such restriction allowing the developed countries to exploit it fully, in the past and the present.
- Only China, from among the rest, has managed to surmount this barrier to access. Technology transfer and financial support, together with "negative emissions", if the latter succeeds, can compensate for the loss of the past.
- In the absence of such a claim, India's considerable current efforts at mitigation are a wasted effort, only easing the way for the continued over-exploitation of the global commons by a few.

### India's LONG TERM objective for NET ZERO!

- The **responsible use of coal**, its major fossil fuel resource, and oil and gas, to bootstrap itself out of lower middle-income economy status and eradicate poverty, hunger and malnutrition for good.
- India's resource-strapped **small industries sector**, needs expansion and modernization, which provides employment and livelihoods to the majority of the population outside agriculture.
- The **agriculture sector, the second largest source of greenhouse gas emissions** for India after energy (UPSC-Prelims), needs to double its productivity and farmers' incomes and build resilience.
- **Infrastructure for climate resilience** in general is critical to future adaptation to climate change.

All of these will require at least the limited fossil fuel resources made available

---

## UPSC "PT" DNA (Daily News Analysis)

---

through a fair share of the carbon budget.

### Way FORWARD

**Net zero well before 2050:** Developed countries and China, on the other hand, if they are serious about the Paris Agreement targets, must reach **net zero well before 2050**. For a target of 2°C, there is more room for the rest of the world, since the cumulative emission limit for it, with the same even odds, is **1,350 billion tonnes** of carbon dioxide.

### Conclusion

However, without restriction of their future cumulative emissions by the big emitters, to their fair share of the global carbon budget, and the corresponding temperature target that they correspond to made clear, India cannot sign on to net zero.

Even if India were to enhance its short-term Nationally Determined Contributions under the Paris Agreement in some fashion, unnecessary as of now, it should do so while staking a claim to its share of the global commons. This will ensure that its efforts will not further enable the free-riding of the developed world and protect its access to this strategic resource, vital to India's industrial and developmental future.

Source: The Hindu



## UPSC "PT" DNA (Daily News Analysis)

### National Pharmaceutical Pricing Authority (NPPA)

GS-III | 28 October, 2021

#### About NPPA (National Pharmaceutical Pricing Authority)

The National Pharmaceutical Pricing Authority (NPPA) is a government regulatory agency that controls the prices of pharmaceutical drugs in India.

NPPA (National Pharmaceutical Pricing Authority) was constituted vide Government of India Resolution dated 29th August 1997 as an attached office of the Department of Pharmaceuticals ([DoP](#)), Ministry of Chemicals & Fertilizers as an independent Regulator for pricing of drugs and to ensure availability and accessibility of medicines at affordable prices.

#### Functions of NPPA (National Pharmaceutical Pricing Authority)

- To implement and enforce the provisions of the Drugs (Prices Control) Order

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

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

## UPSC "PT" DNA (Daily News Analysis)

in accordance with the powers delegated to it.

- To deal with all legal matters arising out of the decisions of the Authority.
- To monitor the availability of drugs, identify shortages, if any, and take remedial steps.
- To collect/ maintain data on production, exports, and imports, market share of individual companies, the profitability of companies, etc, for bulk drugs and formulations.
- To undertake and/ or sponsor relevant studies in respect of pricing of drugs/ pharmaceuticals.
- To recruit/ appoint the officers and other staff members of the Authority, as per rules and procedures laid down by the Government.
- To render advice to the Central Government on changes/ revisions in the drug policy.
- To render assistance to the Central Government in parliamentary matters relating to drug pricing.

Source: PIB

### Artificial Intelligence in India

GS-III | 28 October, 2021

#### Industrial Revolution 4.0

1. It includes AI, Robotics, Blockchain AR, VR, IoT, Supercomputing, Machine Learning, Deep Learning, 3D printing.
2. IoT (Internet of Things): is defined by ICT as a dynamic global network infrastructure with self-configuring capabilities.
3. Deep Learning or Hierarchical Learning is part of machine learning methods based on learning data representations. In deep learning, each level learns to transform its input data into a slightly more abstract and composite representation.
4. Applications like speech recognition, facial recognition, bioinformatics and drug discovery, financial fraud detection, AI in healthcare, etc.

#### What is Artificial Intelligence (AI)?

- The term was coined in 1956 by John McCarthy.

## UPSC "PT" DNA (Daily News Analysis)

---

- AI is a way of making a computer, a computer-controlled robot, or software performing humanlike tasks.
- It refers to the ability of machines to perform cognitive tasks like thinking, perceiving, learning, problem-solving and decision making. It describes the action of machines accomplishing tasks that have historically required human intelligence. It includes technologies like machine learning, pattern recognition, big data, neural networks, self algorithms etc.

ASPIRE IAS

## UPSC "PT" DNA (Daily News Analysis)

- AI involves complex things such as feeding a particular data into the machine and making it react as per the different situations. It is basically about creating self-learning patterns where the machine can give answers to the never answered questions like a human would ever do.
- There are two subsets under the umbrella term AI: Machine learning and Deep learning.

Machine Learning	Deep Learning/ Deep Neural Learning
<ul style="list-style-type: none"><li>• Machine Learning involves the use of algorithms to parse data and learn from it.</li><li>• It provides systems the ability to automatically learn and improve from experience without being explicitly programmed.</li><li>• This enables making a determination or prediction.</li></ul>	<ul style="list-style-type: none"><li>• Deep learning is a subset of machine learning in AI that has networks capable of learning unsupervised from data that is unstructured or unlabeled.</li><li>• Deep learning is technique for implementing machine learning.</li><li>• Deep learning is an AI function that imitates the workings of the human brain in processing data and creating patterns for use in decision making.</li></ul>

### India and Artificial Intelligence

- **G20 Osaka Summit:** PM underscored the significance of Digital Economy & Artificial Intelligence. He emphasised the government's reliance on the 5 'I's that stand for Inclusiveness, Indigenization, Innovation, Investment in infrastructure & International cooperation in developing these two areas.
- According to Global AI Report 2019, India is at 9th in terms of number of AI specialists working in the field. US, China and UK topped.
- CBSE has AI as an elective subject for its 9th Class.
- IIT Hyderabad is the 1st Indian Educational Institute starting B Tech in AI. It is 3rd in the World after Carnegie University and MIT.
- IIIT Hyderabad has also introduced popular executive programmes on AI, Machine Learning and Blockchain.
- Defense, IBM's Blue Project, many startups are now foraying into AI.

## UPSC "PT" DNA (Daily News Analysis)

- It is estimated that AI will add 957 billion \$ to India's GDP by 2035 boosting India's annual growth by 1.3% points.

### Steps taken by the Government to promote Artificial Intelligence

- In 2018-19 Budget, Govt mandated [NITI](#) to established National Program on AI.
- Budget 2018 announced funds for AI, machine learning, robotics and IoT sector.

### NITI Aayog's National Strategy for Artificial Intelligence, 2018

- This strategy was being recommended by the Artificial Intelligence task force headed by V. Kamakoti.
- 5 Core areas for application of AI = Agriculture, Education, Health, Smart cities/ infrastructure; Transport with AI.
- India has the potential to become AI garage or solution provider for 40% of the World.
- Application of AI = Cancer report, Reroute traffic, Telling Farmers where to store, Dropout.
- It doesn't talk about funding. Institutional structure with [CERN](#) like multinational lab.
- Challenges = Only 4% AI professionals trained in Emerging technologies; low H Index (citation) and Data sets.

### Kamakoti Committee

- Set up digital data banks, marketplaces and exchanges to ensure availability of cross-industry information.
- Data ombudsman: to address data-related issues and grievances.
- Ensure availability of funds for R&D
- Setting up National Artificial Intelligence Mission ([N-AIM](#))
- The Commerce and Industry Ministry has also set up task forces to explore the use of AI and Big Data technologies.

### In 2019, NITI Aayog circulated the cabinet note to establish a cloud computing platform called AIRAWAT

- AIRAWAT stands for Artificial Intelligence Research, Analytics and Knowledge Assimilation Platform.
- It is a part of Govt's goal of making India a pioneer amongst emerging economies wrt AI and transform sectors like education, health, agriculture, urbanization and mobility.



## UPSC "PT" DNA (Daily News Analysis)

### National Strategy for Artificial Intelligence 2015-20

- NITI Aayog has published the National Strategy for Artificial Intelligence wherein it has identified five core areas for the application of Artificial Intelligence.

### Application of AI in 5 Core Areas

#### Healthcare:

1. AI based Radiomics focuses on comprehensive quantification of tumor phenotypes.
2. A joint venture between Microsoft and Indian start-up 'Forus Health' has developed a portable device named "3Nethra" that can screen for common eye problems as well as complicated conditions like diabetic retinopathy.

#### Agriculture:

1. AI is being used for soil care, sowing, herbicide optimization, precision farming.
2. Intello Labs, Trithi Robotics are startups in Agri sector.
3. Coffee Board of India started using AI in activities.
4. Assam Tea growers may take AI route to recovery.

#### Education:

1. AI can be used for developing tools for customised learning, interactive and intelligent tutoring systems.
2. For automated teacher posting and transfer systems, using analytics based on demand – supply gaps across schools.

#### Smart Cities and Infrastructure:

1. Service delivery, crowd management, [cyber security](#), public safety and water and waste management.
2. Bandicoot robot have been developed for sewer cleaning to put an end to manual scavenging.

**Smart Mobility and Transportation:** AI-based traffic management system including sensors, CCTV cameras, automatic number plate recognition cameras, speed detection cameras, signalised pedestrian crossings.

### Significance of Artificial Intelligence for India

## UPSC "PT" DNA (Daily News Analysis)

- India can become an AI powerhouse.
- A study by [Google Neural Network](#) correctly identified cancerous skin lesions more often than Dermatologists did. India's shortage of specialist Doctors in rural areas can benefit.
- Compete with the aspirations of USA, China and Japan.
- If used in Agri, it will bring revolution in Farming practices.
- Use in Renewable Energy. Eg. Delhi based firm Climate Connect predicts the amount that a solar plant will generate every 15 mins. It will help in completing the Solar target of 100 GW by 2022.
- ANYA: Chatbot for patient queries. Information is medically verified. 1st of its kind. For disease awareness.
- Social media sites were told to filter content using AI.

### Challenges in Artificial Intelligence

- Norman = Data is fed by a person only. He can be biased. Psychopath AI.
- Lack of enabling data ecosystems.
- Low intensity of AI research.
- Inadequate availability of AI expertise, manpower and skilling opportunities.
- High resource cost and low awareness for adopting AI in business processes.
- Unclear privacy, security and ethical regulations.
- Unattractive Intellectual Property regime to incentivise research and adoption of AI.
- Only 4% AI professionals trained in Emerging technologies; low H Index (citation) and Data sets.

### US India Artificial Intelligence (USIAI) Initiative

- It is an initiative by **Indo-U.S. Science and Technology Forum ([IUSSTF](#))**, a bilateral organization funded by the Department of Science & Technology (DST), Governments of India, and the U.S. Department of States.
- IUSSTF's USIAI Initiative focuses on AI cooperation in critical areas that are priorities for both countries. USIAI will serve as a platform to discuss opportunities, challenges, and barriers for bilateral AI R&D collaboration, enable AI innovation, help share ideas for developing an AI workforce, and recommend modes and mechanisms for catalyzing partnerships.

### Features of USIAI

- The ambitious flagship initiative, USIAI, leverages IUSSTF's unique ability to bring together key stakeholders from India and the United States to create

## UPSC "PT" DNA (Daily News Analysis)

synergies that address challenges and opportunities at the interface of science, technology, and society.

- Over the next year, IUSSTF will conduct a series of roundtables and workshops to gather input from different stakeholder communities and prepare White Papers that identify technical, research, infrastructure, and workforce opportunities and challenges, and domain-specific opportunities for R&D in healthcare, smart cities, materials, agriculture, energy, and manufacturing.

### Benefits of USIAI

- "The AI Initiative is another example of IUSSTF's critical role in catalyzing collaborations between India and the U.S. in cutting-edge areas of science and technology.
- The [U.S.-India](#) AI Initiative will provide an opportunity for key stakeholder groups to share experiences, identify new R&D areas and opportunities that would benefit from synergistic activities, discuss the emerging AI landscape, and address the challenges of developing an AI workforce.

### Other Artificial Intelligence Initiatives by India

- Artificial Intelligence is being promoted and implemented in the country through a network of 25 technology hubs working as a triple helix set up under the **National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS)**.

#### National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS)

- NM-ICPS is to be implemented by Department of Science & Technology for a period of five years.
- NM-ICPS covers entire India which includes Central Ministries, State Governments, Industry and Academia.

#### Cyber-Physical Systems

- Cyber-physical systems integrate sensing, computation, control and networking into physical objects and infrastructure, connecting them to the Internet and to each other.

## UPSC "PT" DNA (Daily News Analysis)

- Few Potential applications: Driverless cars that communicate securely with each other on smart roads, Sensors in the home to detect changing health conditions, improving agricultural practices and enabling scientists to address issues arising out of climate change, etc.
- Advances in cyber-physical systems will enable capability, adaptability, scalability, resiliency, safety, security and usability that will far exceed the simple embedded systems of today.

### Objective

- The [NM-ICPS](#) is a comprehensive Mission which would address technology development, application development, human resource development & skill enhancement, entrepreneurship and start-up development in Cyber Physical System (CPS) and associated technologies.
- The Mission aims at establishment of 15 Technology Innovation Hubs (TIH), six Application Innovation Hubs (AIH) and four Technology Translation Research Parks (TTRP).
- These Hubs & TTRPs will connect to Academics, Industry, Central Ministries and State Government in developing solutions at reputed academic, R&D and other organizations across the country in a hub and spoke model.
- The Hubs & TTRPs have four focused areas along which the Mission implementation would proceed, namely:

Technology Development,  
HRD & Skill Development,  
Innovation, Entrepreneurship & Start-ups  
Ecosystem Development, and  
International Collaborations.

- **PM-STIAC identified 9 National S&T Missions:** In one of those mission 1 mission is National Mission on Artificial Intelligence:
- By NITI Aayog, Dept of S&T, Ministry of Electronics and Information Technology, Dept of Bio technology.
- It will address societal needs like healthcare, education, agriculture, smart

## UPSC "PT" DNA (Daily News Analysis)

cities and infrastructure, including smart mobility and transportation.

Source: PIB

### Fertilizer Industry - UPSC

GS-III | 28 October, 2021

#### Fertilizer Industry in India

- It is 1 of the 8 **core** industries. Fertilizer has the **minimum share** in Index of Core Industries.
- India is the **2nd largest consumer of Urea fertilizers after China**. India also ranks **2nd in the production of nitrogenous fertilizers** and **3rd in phosphatic fertilizers**. **Potash requirement is met through imports** since we have limited reserves of potash. There are **2 types of Fertilizers**
  - Primary Fertilizers**: classified on the basis of nutrients they supply to soil like **N:P:K**:
    - Nitrogenous (Urea)**,
    - Phosphatic (di-ammonium phosphate - DAP) and**
    - Potassic (muriate of potash (MOP) fertilizers**.
  - Secondary Fertilizers** includes **Calcium, Magnesium and Sulphur**.
  - Micronutrients include Iron, Zinc, Boron, Chloride etc**.
- Fertilizer subsidy** (Food > Fertilizer > Petroleum > Interest payments)
  - Earlier no Fertilizer subsidy was paid till 1977**. **Oil crisis of 1973** led to increase in Fertilizer prices leading to a decline in consumption and an increase in food prices. **In 1977, Govt subsidized manufacturers**.
  - After 1991 crisis, **Govt decontrolled the import of Phosphate and Potash but Urea imports is restricted**.

#### Urea Production and Pricing mechanism

- Urea is the source of Nitrogenous fertilizer** and it is **heavily subsidized** by Center. Today Urea is the **only fertilizer which remains controlled**.
- CCEA approved continuation of Urea Subsidy Scheme upto 2020**
  - It is a part of Central **Sector Scheme**. **Urea price will be same till 2020**.
  - Now **DBT Scheme** is approved for fertilizer subsidy



## UPSC "PT" DNA (Daily News Analysis)

to urea manufacturers and importers. It also includes imported Urea subsidy which is directed towards import to bridge the gap between demand and indigenous production of urea. It also includes freight subsidy for movement of urea.

### 3. Benefits

1. DBT will ensure timely payment of subsidy to urea manufacturers. Fertilizer Co. leading to timely availability of urea to farmers.
  2. This will reduce the leakage of fertilizer subsidy and black marketing.
  3. Ceiling might be put to reduce the overuse of Nitrogenous fertilizers.
4. **Subsidy to Fertilizer manufacturer/ importer** = Farm Gate price - MRP paid by Farmers.

### • New Urea Policy of 2015 (till 2019-20)

1. With the objective of maximizing indigenous urea production, promoting energy efficiency in urea production and rationalize subsidy.
  2. It is applicable to existing 25 gas based units.
  3. It ensures timely payment to urea manufacturers resulting in timely availability of urea to farmers.
- Urea is given at **statutorily controlled price** = Rs. 5360/ MT. Other charges for Neem coating.
  - Center plans to ease control on the retail prices of Urea and wants to make it more targeted.
  - Earlier **Mandatory Neem coated urea production was done to slow down the dissolution of nitrogen into soil, resulting into less nutrient requirement.**
  - Govt is also **planning over fixing a Nutrient Based Subsidy (NBS) rate for Urea** to promote balanced use of fertilizers and bring efficiency in industry.

## CCEA approved continuation of Nutrient Based Subsidy scheme till 2020

- Under this scheme a **fixed amount of subsidy** decided on annual basis, is provided to **fertilizer companies (other than Urea)** depending on its **nutrient content**. It is applicable to **22 fertilizers (other than Urea)**.
- Govt announces a fixed rate of subsidy on each nutrient of subsidized **Nitrogen, Phosphate, Potash and Sulphur** fertilizers. MRP is

## UPSC "PT" DNA (Daily News Analysis)

---

decided by considering international and domestic prices of P&K fertilizers, exchange rate and inventory level in the country.

### Infrastructure

- Fertilizer Corporation of India Limited: has **4 units** at **Sindri (Jharkhand); Gorakhpur (UP); Ramagundam (AP) and Talcher (Odisha) and Korbe (Chhattisgarh)**.
- Hindustan Fertilizer Corporation Limited: at Barauni (Bihar); Durgapur (WB) and Namrup (Assam).
- **Rashtriya** Chemicals and Fertilizers Limited, **Trombay**.
- **National** Fertilizers Limited at **Bhatinda (Punjab) and Panipat (Haryana)**.

Source: PIB

ASPIRE IAS

## UPSC "PT" DNA (Daily News Analysis)

### PM Formalisation of Micro food processing Enterprises (PMFME) Scheme

GS-III | 29 October, 2021

- Launched under the Aatmanirbhar Bharat Abhiyan, the Pradhan Mantri Formalisation of Micro food processing Enterprises (PMFME) Scheme is a **centrally sponsored scheme** that aims to **enhance the competitiveness of existing individual micro-enterprises** in the unorganized segment of the food processing industry and to promote formalization of the sector and provide support to Farmer Producer Organizations, Self Help Groups, and Producers Cooperatives along their entire value chain.
- With an **outlay of Rs. 10,000 crore over a period of five years from 2020-21 to 2024-25**, the scheme envisions to directly assist **the 2,00,000 micro food processing units** for providing financial, technical, and business support for upgradation of existing micro food processing enterprises.
- The Scheme is expected to generate a total investment of Rs. 35,000 crore and 9 lakh skilled and semi-skilled employment.

#### Features of PMFME

- **One District One Product (ODOP) Approach:**
  1. The States would identify food products for districts keeping in view the existing clusters and availability of raw material.
  2. The ODOP could be a perishable produce based or cereal based or a food item widely produced in an area. E.g. mango, potato, pickle, millet based products, fisheries, poultry, etc.
- **Waste to wealth products, minor forest products and Aspirational Districts.**
- **Capacity building and research:** Academic and research institutions under MoFPI along with State Level Technical Institutions would be provided support for training of units, product development, appropriate packaging and machinery for micro units.
- **Financial Support:**
  1. Existing individual micro food processing units desirous of upgrading their units can avail credit-linked capital subsidy at 35% of the eligible project cost with a maximum ceiling of Rs.10 lakh per unit.
  2. Support would be provided through credit linked grants at 35% for development of common infrastructure including common processing facility, lab, warehouse, etc. through FPOs/SHGs/cooperatives or state owned agencies or private enterprise.
  3. A seed capital (initial funding) of Rs. 40,000- per Self Help Group (SHG)

## UPSC "PT" DNA (Daily News Analysis)

member would be provided for working capital and purchase of small tools.

Source: PIB

### Jal Jeevan Mission UPSC

GS-II | 29 October, 2021

- JJM is a flagship programme of the Union Government being implemented in partnership with the States with the objective to **provide tap water connection in every rural household by 2024**.
- The programme will also implement source sustainability measures as mandatory elements, such as recharge and reuse through grey water management, water conservation, rain water harvesting.
- The Jal Jeevan Mission will be based on a community approach to water and will include extensive Information, Education and communication as a key component of the mission.
- The Mission was launched on August 15, 2019.
- Under Jal Jeevan Mission, in 2021-22, in addition to Rs 50,011 Crore budgetary allocation, there is also Rs 26,940 Crore assured fund available under the 15th Finance Commission tied-grant to RLB/ PRIs for water & sanitation, matching State share and externally aided as well as State funded projects.
- Thus, in 2021-22, more than Rs. 1 lakh Crore is planned to be invested in the country on ensuring tap water supply to rural homes.
- JJM focuses on development of **Village Action Plan (VAP) and formation of Village Water and Sanitation Committee (VWSC)** for every village so that the local village community plays a key role in planning, implementation as well as operation and maintenance of the in-village water supply infrastructure created for them.
- This ensures **bottom-up approach** with the participation of the local community.
- Through community engagement, the resources created in the villages/ habitations are **handed over to the Panchayats or VWSC** for monitoring, surveillance and upkeep.
- Under JJM, **water quality testing laboratories at district & State levels are**

## UPSC "PT" DNA (Daily News Analysis)

given priority and community is being encouraged for surveillance of water quality.

- 'Jal Shakti Vibhag' is facilitating to empower and engage with the community.

### The broad objectives of the Mission are:

- To provide FHTC to every rural household.
- To prioritize provision of FHTCs in quality affected areas, villages in drought prone and desert areas, Sansad Adarsh Gram Yojana (SAGY) villages, etc.
- To provide functional tap connection to Schools, Anganwadi centres, GP buildings, Health centres, wellness centres and community buildings
- To monitor functionality of tap connections.
- To promote and ensure voluntary ownership among local community by way of contribution in cash, kind and/ or labour and voluntary labour (shramdaan)
- To assist in ensuring sustainability of water supply system, i.e. water source, water supply infrastructure, and funds for regular O&M
- To empower and develop human resource in the sector such that the demands of construction, plumbing, electrical, water quality management, water treatment, catchment protection, O&M, etc. are taken care of in short and long term
- To bring awareness on various aspects and significance of safe drinking water and involvement of stakeholders in manner that make water everyone's business

### The following components are supported under JJM

- Development of in-village piped water supply infrastructure to provide tap water connection to every rural household
- Development of reliable drinking water sources and/ or augmentation of existing sources to provide long-term sustainability of water supply system
- Wherever necessary, bulk water transfer, treatment plants and distribution network to cater to every rural household
- Technological interventions for removal of contaminants where water quality is an issue
- Retrofitting of completed and ongoing schemes to provide FHTCs at minimum service level of 55 lpcd;
- Greywater management
- Support activities, i.e. IEC, HRD, training, development of utilities, water quality laboratories, water quality testing & surveillance, R&D, knowledge centre, capacity building of communities, etc.
- Any other unforeseen challenges/ issues emerging due to natural disasters/



## UPSC "PT" DNA (Daily News Analysis)

calamities which affect the goal of FHTC to every household by 2024, as per guidelines of Ministry of Finance on Flexi Funds

Source: PIB

### Mission Samudrayan – India's first Manned Ocean Mission

GS-III | 29 October, 2021

#### About Mission Samudayan

- Based on the experience gained over two decades in the development of unmanned robotic vehicles and systems for 6000 m operational capability, **MoES-NIOT is indigenously developing a manned submersible with a depth capability of 6000 meters under the aegis of Deep Ocean Mission.**
- The manned submersible is designed to carry three persons in 2.1 meter diameter **Titanium Alloy Personnel Sphere** with an operational endurance of 12h and systems to support emergency endurance up to 96h.
- Some of the critical subsystems of the manned submersibles are development of Ti Alloy Personnel Sphere, Human support and safety system in enclosed space, low density buoyancy modules, Ballast and Trim System.
- Pressure compensated batteries and propulsion system, control and communication systems and Launching and Recovery System.
- System design, concept of operation, subcomponents functionality and integrity, emergency rescue, failure mode analysis are reviewed and certified as per the rules of International Association of Classification and Certification Society for man-rated usage of manned submersible at a depth of 6000 meters.

#### Significance of Ocean Mission

- India joins the elite club of nations such as **USA, Russia, Japan, France and China** to have such underwater vehicles for carrying out subsea activities.

## UPSC "PT" DNA (Daily News Analysis)

- This niche technology shall facilitate Ministry of Earth Sciences, MoES in carrying out deep ocean exploration of the non-living resources such as **polymetallic manganese nodules, gas hydrates, hydro-thermal sulphides and cobalt crusts, located at a depth between 1000 and 5500 meters.**
- The preliminary design of the **manned submersible MATSYA 6000** is completed and realization of vehicle is started with various organization including ISRO, IITM and DRDO roped-in to support the development.
- The Minister informed that sea trials of 500 metre rated shallow water version of the manned submersible are expected to take place in the last quarter of 2022 and the MATSYA 6000, the deep water manned submersible will be ready for trials by the second quarter of 2024.
- The advancing technologies in metallurgy, energy storage, underwater navigation and manufacturing facilities provides opportunity for developing more efficient, reliable and safe manned submersible.
- Underwater vehicles are essential for carrying out subsea activities such as high resolution bathymetry, biodiversity assessment, geo-scientific observation, search activities, salvage operation and engineering support.
- Even though unmanned underwater vehicles have improved manoeuvring and excellent vision systems resembling direct observation, manned submersible provides a feel of direct physical presence for researchers and has better intervention capability.
- With the advancing subsea technologies, the recent Fendouzhe manned submersible developed by China in 2020 has touched ~11000m water depths, the Minister added.

Source: PIB

---

## UPSC "PT" DNA (Daily News Analysis)

---

### Deep Ocean Mission and Sagar Nidhi

GS-III | 30 October, 2021

---

#### About Deep Ocean Mission

The Union Cabinet has approved the long-pending deep ocean mission, which among other things involves **developing a submersible vehicle that will allow a crew to plunge 6,000 metres** into the ocean and hunt the floor for **precious metals**.

- The Deep Ocean Mission was in **2019** envisaged as a Rs. 8,000 crore mission.
- India has been allotted a site of **75,000 square kilometres** in the **Central Indian Ocean Basin (CIOB)** by the **UN International Sea Bed Authority** for **exploitation of polymetallic nodules (PMN)**.
- These are rocks scattered on the seabed containing **iron, manganese, nickel and cobalt**.

## UPSC "PT" DNA (Daily News Analysis)

---

ASPIRE IAS

## UPSC "PT" DNA (Daily News Analysis)

---

- **Funding:** In the works since 2018, the mission is expected to **cost ₹4,077 crore over the next five years**. The estimated cost for the first phase of three years (2021-24) would be ₹2,823.4 crore.
- **Nodal Ministry:** The **Ministry of Earth Sciences (MoES)** will be the nodal Ministry implementing this multi-institutional mission.

ASPIRE IAS



## UPSC "PT" DNA (Daily News Analysis)

---

ASPIRE IAS

## UPSC "PT" DNA (Daily News Analysis)

There are **6 components** to the programme:

- **Submersible Vehicle:** A manned submersible will be developed to carry **3 people to a depth of 6,000 metres** in the ocean with a suite of scientific sensors and tools. An **integrated mining system** will be also developed for mining **polymetallic nodules** at those depths in the central Indian Ocean.
- **Ocean Climate Change Advisory Services:** The second component involves developing Ocean Climate Change Advisory Services, which entails developing a suite of observations and models to understand and provide future projections of important climate variables on seasonal to decadal time scales.
- **Flora and Fauna:** The next component is searching for **deep sea flora and fauna**, including microbes, and studying ways to sustainably utilise them.
- **Hydrothermal minerals:** The fourth component is to explore and identify potential sources of hydrothermal minerals that are **sources of precious metals** formed from the earth's crust along the Indian Ocean mid-oceanic ridges.
- **Desalination and OTEC:** The fifth component involves studying and preparing detailed engineering design for **offshore Ocean Thermal Energy Conversion (OTEC) powered desalination plants**.
- **Expertise:** The final component is aimed at grooming experts in the field of **ocean biology and engineering**. This component aims to translate research into **industrial applications and product development** through on-site business incubator facilities.

### Significance:

- If this works, India will be among a handful of countries able to launch an underwater mission at such depths.
- The exploration studies of minerals will pave way for the commercial exploitation in the near future, as and when commercial exploitation code is evolved by the International Seabed Authority, an United Nations organisation
- Being able to lay hands on a fraction of that reserve can meet the energy requirement of India for the next 100 years.
- The Ministry of Earth Sciences (MoES) has the mandate of providing weather, climate, Ocean and seismological services and to harness living and non-living resources. MoES is also involved in development of relevant Ocean Technology and Ocean Survey of the Exclusive Economic Zone

## UPSC "PT" DNA (Daily News Analysis)

(EEZ) and deep oceans for minerals and energy. National Institute of Technology (NIOT) Chennai has the mandate to develop technologies for the sustainable harvesting living and non-living resources of the ocean.

- NIOT has successfully developed and demonstrated the technologies like Desalination Plants for drinking water in Lakshadweep Islands, extracting energy from Oceans, Restoration of Beach in Puducherry, development of Remotely Operated Underwater Vehicles (ROV) and mining machine for 5500 metre water depths. NIOT also has the mandate to deploy and maintain moored data buoys for the data collection that aids in the weather prediction, cyclone tracking and Tsunami Early Warning.
- Research Vessel (Ships) is an important tool for ocean research and development of ocean technology. MoES has, at present 6 ships, SagarNidhi, SagarManjusha, SagarKanya, SagarSampada, Sagar Tara & SagarAnveshika, which are used for many ocean studies and applications including ocean observations.

### What is in the news?

- India, a traditionally maritime country with rich maritime heritage, has an Exclusive Economic Zone (EEZ) of about 2.37 million square kilometres wherein India enjoys the exclusive legal right to utilize all living and non-living resources. Apart from this, India has been allotted 75000 square kilometers in the Central Indian Ocean 10000 square kilometres in the Southern Indian Ocean by the International Seabed Authority. These areas are rich in minerals like Manganese, Cobalt and Nickel. For the sustainable harvesting of these non-living and living organisms we need to explore and understand the ocean.
- SagarNidhi is exploring the ocean resources and participation in search and rescue operations, more specifically its importance for implementation of Deep Ocean Mission.
- The vessel is capable of carrying out geo-scientific, meteorological and oceanographic research, and is designed with blue-water capability with ranges of up to 10,000 nautical miles (19,000 km) for voyages lasting up to 45 days.

## UPSC "PT" DNA (Daily News Analysis)

Source: PIB

### DAY NRLM - Lakhpati SHG Women

GS-II | 30 October, 2021

- To bring a sharper focus on moving women to the higher economic order, the **Ministry of Rural Development** launched an initiative on creating **Lakhpati SHG women, to enable rural SHG women to earn at least Rs.1 lakh per annum.**
- For the realization of this ambitious goal, the Ministry has envisioned livelihood **support to 25 million rural SHG women in the next 2 years.**
- Based on various models existing across the country, a detailed advisory has been issued to the State Governments.
- In the consultation on 28.10.2021, the importance of well-planned interventions to diversify livelihood activities at the household level ranging from Agriculture and allied, Livestock, NTFP (Non-timber Forest Products) and other interventions through convergence were emphasized to realize an annual income of INR 1 lakh on a sustained basis. The importance of strengthening SHG, VO (Village Organization) and CLFs (Cluster Level Federations) to anchor these kinds of interventions was also highlighted and stressed upon.
- The dedicated Community Cadres of SHG members trained in different fields would be instrumental in realizing their goal.
- The role of Civil Society Organizations, KVKs (Krishi Vigyan Kendras) and other private market players is critical in this intervention. States were advised to encourage and forge these partnerships as well.

### National Rural Livelihood Mission (NRLM)

- NRLM was launched by MoRD with the investment support of World Bank.
- NRLM is to cover 7 crore rural poor households across 600 districts and 2.5 lakh GP and 6 lakh villages through SHG in the period of 8-10 years.
- In 2015, NRLM was renamed **Deendayal Antayodaya Yojana (DAY-NRLM).**
- National Rural Livelihood Mission works on a **saturation approach.**
- As of date, 6768 blocks have been covered under the programme with mobilizing 7.7 crore women into 70 lakh SHGs.
- From providing initial capitalization support to the SHGs are being credited to

## UPSC "PT" DNA (Daily News Analysis)

the tune of almost 80 thousand crore rupees annually.

- Under the mission, **poor women from different cross-sections of class and caste form into Self Help Groups and their federations**, providing financial, economic and social development services to their members for enhancing their income and quality of life.

### Features of DAY-NRLM

- Deen Dayal Antyodaya Yojana is a flagship scheme of the Ministry of Rural Development organizing the rural poor into self-governed institutions with a focus on building capacity and creating diversified livelihood opportunities for Rural Poor Women.
- The mission has made successful strides through the **Mahila Kisan Sashaktikaran Pariyojana** bringing focus on the role of women as farmers. Moving from the phase of community mobilization and building institutions of women, now the focus is on envisaging SHG women in higher-order economic activities through producer groups, FPOs and producer companies.
- Atleast 1 woman from each rural household is to be brought under SHG.
- Special emphasis on vulnerable people, PVTG, PwDs and bonded labour.
- Target Group is identified through Participatory Identification of Poor (PIP) method. This Target group is delinked from BPL. It should be examined by Gram Sabha and approved by GP.
- NRLM provides Revolving Fund (RF) and Community Investment Fund (CIF) as resources.
- It works on demand and supply sides of financial inclusion.
- Demand side: promotes financial literacy & provides capital to SHG.
- On the supply side, Mission coordinates with the financial sector and encourages use of ICT and Bank Mitras.

### Other components of DAY-NRLM

- It also works towards universal coverage of rural poor against risk of loss of life, health and assets. NRLM focuses on 3 pillars - Vulnerability reduction and livelihoods enhancement, employment and enterprises.
- Innovative projects under National Rural Economic Transformation Project (NRETP) for financial inclusion, value chains around rural products, innovative models.
- NRLM has set up support structures at the National (NMMU), State (SMMU), district (DMMU) and sub-district levels (BMMU/PFT). They will be linked with Govt, District Rural Development Agencies (DRDAs), and PRIs.
- In order to implement the NRLM effectively, National Rural Livelihoods



## UPSC "PT" DNA (Daily News Analysis)

Promotion Society (NRLPS) has been set up under Societies' Registration Act of 1860, under MoRD, as the technical arm of the Mission. The NMMU has been made an integral part of NRLPS.

- **Aajeevika Grameen Express Yojana** - under DAY-NRLM to provide alternative employment to SHG members to provide community rural transport to connect rural villages with key services.
- **Mahila Kisan Sashaktikaran Pariyojana (MKSP)**: To meet specific needs of women farmers and technical empowerment especially small and marginal farmers.

Source: PIB

### Legal Awareness Programme for Women

GS-II | 30 October, 2021

- The [National Commission for Women \(NCW\)](#) along with [National Legal Services Authority \(NALSA\)](#) has launched a **pan-India Legal Awareness Program for Women, "Empowerment of Women through Legal Awareness"** to impart practical knowledge about legal rights and remedies provided under various women related laws, thereby making them fit to face the challenges in real life situations.
- The programme aims to **cover all the States and Union Territories** across the country through regular sessions to **make women aware of the various machineries of the justice delivery system available for redressal** of their grievances.
- The project will sensitize women and girls about their rights as provided under the various laws including the Indian Penal Code.
- The project will also make them aware of the procedure of approaching and utilizing various channels available for the redressal of grievances, i.e., the Police, the Executive and the Judiciary.

## Legal Awareness Programme

- Earlier, the Commission had launched a pilot project '**Legal Awareness Programme**' in collaboration with NALSA for women at the grass-root level on August 15, 2020.

## UPSC "PT" DNA (Daily News Analysis)

---

- The Pilot project had covered all the districts of 8 States, Uttar Pradesh, Maharashtra, West Bengal, Madhya Pradesh, Rajasthan, Andhra Pradesh, Telangana and Assam.

Source: PIB

ASPIRE IAS

---

**UPSC "PT" DNA (Daily News Analysis)**

---

**Climate Change and Summits**GS-III | 31 October, 2021

---

ASPIRE IAS

**Context:** Climate Change is one of the most important topics for UPSC Prelims 2021 and it is also important for Mains Answer Writing for IAS Mains 2021. Hence, AspireIAS has come up with a comprehensive document for Climate Change.

---

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

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

Follow us on |    AspireIAS Official

## **UPSC "PT" DNA (Daily News Analysis)**

---

### **What is Climate?**

- Weather is what conditions of the atmosphere are over a short period of time, and climate is how the atmosphere "behaves" over relatively long periods of time (like 100 years).
- Climate change is a complex problem, although Environmental in nature, has consequences for all spheres. It impacts poverty, economic development, population growth, sustainable development and resource management. Hence the solutions should come from all disciplines.

### **Club of Rome**

ASPIRE IAS

## UPSC "PT" DNA (Daily News Analysis)

---

- After World War 2, there emerged a group in 1968 called the Club of Rome. They came up with a model known as Limit's to Growth model.
- The team tracked industrialisation, population, food, use of resources, and pollution.
- They modelled data up to 1970, then developed a range of scenarios out to 2100, depending on whether humanity took serious action on environmental and resource issues. If that didn't happen, the model predicted "overshoot and collapse" – in the economy, environment and population – before 2070.
- This was called the "business-as-usual" scenario.
- The book's central point, much criticised since, is that "**the earth is finite**" and the quest for unlimited growth in population, material goods etc would eventually lead to a crash.
- Thus, it talked about **Sustainable development**.

### The Silent Spring

ASPIRE IAS



## UPSC "PT" DNA (Daily News Analysis)

---

- **Silent Spring** is an environmental science book by Rachel Carson.
- The book was published on September 27, 1962, documenting the adverse environmental effects caused by the indiscriminate use of pesticides.
- Carson accused the chemical industry of spreading disinformation, and public officials of accepting the industry's marketing claims unquestioningly.

**Stockholm Conference/ UNCHE (Conference on Human Environment)/ Man Environment summit, 1972**

ASPIRE IAS

## **UPSC "PT" DNA (Daily News Analysis)**

---

- Stockholm Conference was an international conference convened under United Nations auspices held in Stockholm, Sweden from June 5-16, **1972**. It was the UN's first major conference on international environmental issues, and marked a turning point in the development of international environmental politics.
- It brought the industrialized and developed countries together.
- It not discuss about Climate Change but only about pollution & Environmental degradation.
- To delineate the rights of the human family to a healthy and productive environment.
- It discussed on the rights of people to adequate food, to sound housing, to safe water, to access to means of family planning.

### **World Commission on Environment and Development (WCED)**

## **UPSC "PT" DNA (Daily News Analysis)**

---

- WCED was created in 1983 as an independent body by UNGA. WCED was asked to formulate 'A global agenda for change'.
- Brundtland Report Formally called as: Our Common Future: Report of the World Commission on Environment and Development was made in 1987.
- It gave concept of "sustainable development"
- The Brundtland Commission's characterization of 'sustainable development' is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
- The prominence given to 'needs' reflects a concern to eradicate poverty and meet basic human needs, broadly understood.
- The concept of sustainable development focused attention on finding strategies to promote economic and social development in ways that avoided environmental degradation, over-exploitation or pollution, and side lined less productive debates about whether to prioritize development or the environment.

## **IPCC (The Intergovernmental Panel on Climate Change)**

## UPSC "PT" DNA (Daily News Analysis)

---

- IPCC was established by World Meteorological Organization and UNEP in 1988. It is a Statistical organization or Intergovernmental body.
- IPCC is the scientific body under UN for assessing the science related to climate change.
- The membership is open to all members of UN and WMO. Currently 195 countries are the members.
- It accepted Climate change in 1988. It does not conduct its own original research nor does it monitor climate related data.
- Thousands of scientists work on voluntary basis. It also got Nobel Peace Prize in 2007.
- The **aim of IPCC** is
  1. To provide political leaders with periodic scientific assessments concerning climate change, its implications and risks, as well as to put forward adaptation and mitigation strategies.
  2. To assess scientific information regarding human induced Climate change and its impact and options for adaptation and mitigation.
  3. It produces reports not just for Greenhouse Gases but on topics like aviation, regional impacts of Climate change, technology transfer, land use, CO2 capture and storage and on the relation between safeguarding ozone layer.
- The IPCC has three working groups:
  1. Working Group I, dealing with the physical science basis of climate change.
  2. Working Group II, dealing with impacts, adaptation and vulnerability.
  3. Working Group III, dealing with the mitigation of climate change.

## Rio Summit/ Earth Summit/ UNCED (UN Conference on Environment and Development), 1992

## UPSC "PT" DNA (Daily News Analysis)

- Aim: To stabilize the GHG concentrations at a level that would prevent dangerous anthropogenic interference with Climate system.
- The following legally binding agreements (Rio Convention) were opened for signature:
  1. Convention on Biological Diversity (UNCBD)
  2. Framework Convention on Climate Change (UNFCCC)
  3. Convention to Combat Desertification (UNCCD)
- **UNFCCC: (entered in Force in 1994): It has near universal membership. 195 countries ratified. Focus**
  1. **Adaptation:** adjustment in ecological, social or economic systems in response to actual or expected climatic changes. Ex Agriculture pattern.
  2. It has 5 components: Observation; Assessment of climate impacts and vulnerability; Planning; Implementation and Monitoring and evaluation of adaptation actions.
  3. **Climate Finance (through Green Climate Fund):** Annex II parties (Developed countries) are to provide finances to assist Developing countries.
  4. **Mitigation:** Reducing GHG and enhancing sinks & reservoirs. Ex Renewable Energy.
- **GEF (Global Environment Facility)**
  1. GEF was established in 1992 Rio Summit. It is a partnership of 183 countries, International institutions, Civil society organizations & Private sector.
  2. It Grants funds for Environment projects. Since its inception it has provided \$17.9 bn in grants.
  3. It is a financial mechanism for 6 Environmental conventions: UNFCCC, UNCCD, UNCBD, Montreal Protocol on Ozone, Minamata Convention on Mercury, Stockholm for POP
  4. World Bank is the trustee of GEF & administers it.
  5. Council is the GEF's main governing body of 32 members (14:16:2:: Developed:Developing:Economic in Transition).
- **Agenda 21**
  1. It is a non binding, voluntarily implemented action plan of UN for sustainable development.
  2. UNCCD has come from direct recommendation of Agenda 21.



## UPSC "PT" DNA (Daily News Analysis)

3. In 1993, UNCED established the Commission on Sustainable Development (CSD) to follow up on the implementation of Agenda 21.

### 1997 Kyoto Protocol and UNFCCC

- Kyoto Protocol was adopted in 1997 and entered into force in 2005. 191 countries adopted it.
- Through Marrakesh Accords the 2008 - 2012 1st Commitment period. Detailed rules for implementation were adopted.
- Doha Amendment = 2013 - 2020, revised GHG list and New commitments for Annex I.
- It is the first Internationally binding treaty to control emission for Climate change. It legally binds developed countries to emission reduction targets. USA never ratified Kyoto protocol.
- Kyoto Protocol has 6 GHGs = **CO<sub>2</sub>, Methane, Nitrous Oxide (N<sub>2</sub>O), Perfluorocarbons (PFCs), Hydrofluorocarbons (HFCs) and Sulfur Hexafluoride (SF<sub>6</sub>).**
- **3 Parties**
  1. **Annex I** = industrialized countries that are members of OECD + Economies in Transition (EIT) including Russia, Baltic States and Central and Eastern European states.
  2. **Annex II** = OECD members but not EIT parties. They must provide financial resources for Developing countries. Provide finance to GCF.
  3. **Non Annex I** = Mostly developing. UN recognised LDCs. Especially vulnerable to CC, Desertification, drought.
- **Kyoto Mechanism**
  1. It includes Joint Implementation (JI), Clean Development Mechanism (CDM), Emissions Trading, Climate Change.
  2. **Emissions trading**: Countries buy 'Kyoto units' from other to help meet domestic Emission reduction targets.
  3. **CDM**: meet their domestic Emission reduction targets by buying GHG reduction units from non Annex I countries. Invest in Renewable Energy projects.
  4. **Joint Implementation**: Any Annex I country can invest in emission reduction projects (JI projects) in any other Annex I country as an alternative to reduce emissions domestically.

### Important UNFCCC Summits

## UPSC "PT" DNA (Daily News Analysis)

### 1) Bali Summit (COP 13, 2007)

- It has Bali roadmap which gave long term plan for the 1st time.
- Reaching an agreed outcome and adopting a decision at COP15 in Copenhagen.
- The review of the financial mechanism, going beyond the existing Global Environmental Facility.

### 2) Poznan (Poland) Climate Change Conference (COP 14, 2008)

- It launched the **Adaptation Fund** under the Kyoto Protocol.
- The Fund is financed in part by government and private donors, and also from a 2% share of proceeds of Certified Emission Reductions (CERs) issued under Clean Development Mechanism projects.

### 3) Copenhagen (Denmark) Climate Change Conference (COP 15, 2009)

- The Copenhagen Accord included the goal of limiting the maximum global average temperature increase to no more than 2 degrees Celsius above pre-industrial levels, subject to a review in 2015.
- Developed countries promised to provide US\$30 billion for the period 2010-2012, and to mobilize long-term finance of a further US\$100 billion a year by 2020 from a variety of sources.

### 4) Cancun (COP 16, 2010)

- UK was the head.
- **Green Climate Fund** was formed in Cancun summit
  1. It was formed in Cancun summit (100 bn \$/ year by 2020 will be given by developed to developing). HQ = Incheon, South Korea. World Bank is the trustee.
  2. GCF will have thematic funding windows. It gives support to Developing countries to reduce GHG emissions and adapt to Climate change.
  3. GCF is accountable to and functions under COP.
- **Technology mechanisms (CTCN, TEC, TICH)**
  1. CTCN (Climate Technology Center Network) = Technology development and

## UPSC "PT" DNA (Daily News Analysis)

transfer actions that support mitigation and adaptation.

2. TEC (Technology Executive Committee) = implement technology transfer framework with support in developing countries through TNA (Technology Need Assessment process under Poznan strategic program on technology transfer).
3. TICH (Tech Information Clearing House) = provide information.

### 5) Durban (COP 17, 2011) = Turning point. Timetable. Beyond 2020.

- The outcomes included a decision by Parties to adopt a universal legal agreement on climate change as soon as possible, and no later than 2015.
- Second phase of Kyoto Protocol was secured.
- Approved the Governing Instrument for the GCF.
- Formulate a Draft paper of Kyoto Protocol II (KP II) by 2015.
- Discuss the draft paper, clause by clause between 2015-20.
- 100% implementation of Kyoto Protocol II by 2020. Till then extend Kyoto Protocol I till 2017.
- Target 2°C by end of 21st C. (Not 1.5 degree - It was in Paris)
- Think about small Island countries and Sea level rise.

### 6) Doha (COP 18, 2012)

- The conference reached an agreement to extend the life of the Kyoto Protocol, which had been due to expire at the end of 2012, until 2020 (second commitment period 2013 – 2020).
- The extension of the Kyoto Protocol until 2020 limited in scope to only 15% of the global CO<sub>2</sub> emissions. This was due to the lack of participation of Canada, Japan, Russia, Belarus, Ukraine, New Zealand and the United States. (they all refused to join the second commitment period under the Kyoto Protocol)
- Also, developing countries like China, India and Brazil are not subject to any emissions reductions under the Kyoto Protocol.
- It endorsed South Korea as the host of GCF.

### 7) Warsaw (COP 19, 2013)

- The conference led to an agreement that all states would start cutting emissions as soon as possible, but preferably by the first quarter of 2015.
- The term **Intended Nationally Determined Contributions** was coined in Warsaw.
- UN REDD was converted into UNFCCC's "REDD +" = Reducing Emissions

## UPSC "PT" DNA (Daily News Analysis)

from Deforestation and Degradation Plus.

1. REDD was a programme initiated by UN in 2005. To mitigate climate change through enhanced Forest management in developing countries. It creates a financial value for carbon stored in forests by offering incentives for developing countries to reduce emissions. Now, UN-REDD Programme assists countries develop capacities needed to achieve UNFCCC's REDD+ initiative.
- REDD + is a UNFCCC mechanism to incentivize developing countries to better manage, protect and save forests to help in climate change. The talks for REDD+ started in Montreal summit but established in Warsaw summit. 45% of CO<sub>2</sub> can be absorbed from Forests. REDD + could capture 1 billion tonnes of additional CO<sub>2</sub> over next 3 decades. It goes beyond merely checking deforestation and forest degradation, and includes
- REDD+ is Result based = Developing country will have to prove the result 1st, only then they'll get the money through Green Climate Fund.
- **Forest Carbon Partnership Facility**: World Bank is the trustee. It is the partnership of govts, businesses, civil society & indigenous people. For REDD+ incentives. Inter American Development Bank, UNDP are delivery partners under the Readiness Fund and responsible for providing REDD+ services.
- **BioCarbon Fund Initiative for Sustainable Forest Landscapes (ISFL)** is a multilateral fund supported by donor govt & managed by World Bank. It seeks to promote reduced GHG emissions from land sector.
- World Bank's Forest Investment Programme is also a part of REDD +.
- **Lost and Damage**: Lost (permanent loss includes economic/ non economic losses) and Damage (which is repairable like deforestation & temperature rise). Poor countries want money from rich for the CC.
- Further the Warsaw Mechanism was proposed, which would provide expertise, and possibly aid, to developing nations to cope with loss and damage from such natural extremities as heatwaves, droughts and floods and threats such as rising sea levels and desertification.

### 8) Lima Summit (COP 20, 2014)

### 9) Paris Summit (COP 21, 2015)

- Reduce Global average temperature < 2°C and try for < 1.5° C (for the 1st time).
- Move away from CBDR (Common but differentiated responsibilities and new

## UPSC "PT" DNA (Daily News Analysis)

INDC (which talks about post 2020 climate actions).

- **India's INDC** (Intended Nationally Determined Contributions) are
  1. Reduce Carbon intensity of its GDP by 33 - 35% by 2030 from 2005 levels.
  2. Additional Carbon sink of 2.5 - 3 billion tonnes of CO<sub>2</sub> equivalent through additional forest & tree cover by 2030.
  3. Increase share of Renewable Energy to 40% of Total Energy.
  4. Sustainable Lifestyles. Cleaner Economic Development. Technology Transfer and Capacity Building.
- **CDKN** (Climate and Development Knowledge Network) created a guide for NDC implementation for LDCs.
- **International Solar Alliance, 2015**
  1. 1st treaty based Inter-governmental organization based in India.
  2. HQ at National Institute of Solar Energy, Gurugram.
  3. Objectives = 1000 GW of Solar capacity globally & 1000 bn \$ investment by 2030.
  4. All 121 countries between Tropics to now all invited.
- **Bonn Challenge (Forest Landscape Restoration) =**
  1. Restore 150 million ha of deforested and degraded land by 2020 and 350 mn ha by 2030.
  2. Launched by Germany & IUCN. Extended to 2030 by New York declaration.
- **Global Stocktake (GST):** is a 5 yearly review of impact of countries' climate change actions. Under the Paris Agreement 1st GST will happen in 2023.
- Long term goal to achieve net zero emissions.
- **4 new things were included**
  1. Global Forest Watch Climate = Potential to shift debate on monitoring forest based emissions.
  2. African Forest and Landscape Restoration Initiative (AFR 100) to restore 100 mn ha of degraded and deforested land in Africa.
  3. Initiative 20x20 is a landscape restoration effort in Latin American & Caribbean countries (28 mn ha)
  4. World Resource Institute announced 25 new partners to Building Efficiency Accelerator as a part of UN SE4All initiative (GM Times).

**Marrakech (COP 22, 2016):**



## UPSC "PT" DNA (Daily News Analysis)

Bonn (COP 23, 2017)

### Katowice (COP 24, 2018) =

- Technology: e-Vehicles & e Mobility; Sustainable cities & Urbanisation. Responsibility of individual cities.
- More Renewable Energy through attitudinal change.
- Afforestation, Implementation of GCF.
- **Talanoa Dialogue** = Led by Fiji. 1st ever International conversation of its kind to assess progress towards goals of Paris. 1.5°C relevance.
- **1st Virtual Climate Summit, 2018** is a part of Talanoa dialogue.
- It was organized by Climate Action Network (CAN) and Climate Vulnerable Forum (CVF). CVF was formed in Copenhagen Summit. Formed by Maldives Govt.
- 1.5° C target by 2020 by improving INDCs.
- Adopted **Jummemj Declaration** = call to action if vigilance against threats.
- Vulnerable nations stepping up and showing real climate leadership.

### 2019 COP 25 - Madrid, Spain.

- Complete rule book by 2020. Creation of Carbon markets. Individual targets still unresolved. Kyoto II failed.
- EU is working on a legislation to bring about Net 0 Emissions. UK has also turned its Net 0 2020 Goal into a legal requirement.
- The international community lost an important opportunity to show increased ambition on mitigation, adaptation and finance to tackle the climate change.

Next Climate Summit is in **Glassgow, UK**. Issues to be discussed are liability for damages caused by rising temperatures that developing countries were insisting on.

For the Article related to 5 Year anniversary of Paris summit: [click here](#)

Source: AspireIAS notes

## Plastic Pollution in India

GS-III | 31 October, 2021

**Plastic Pollution is an important problem in India. It is a part of UPSC GS**

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

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

Follow us on |    AspireIAS Official



---

## UPSC "PT" DNA (Daily News Analysis)

---

Paper III Biodiversity, Environment and Pollution in India. Before learning about Plastic Pollution in India it is highly recommended that you watch [Ankit Sir's lecture about Plastic Pollution crisis](#) and then come back to this write up.

ASPIRE IAS

## UPSC "PT" DNA (Daily News Analysis)

---

### What are Single-use plastics?

- Single-use plastics (SUPs) are those that are discarded after one-time use.
- Besides the ubiquitous plastic bags, SUPs include water and flavoured/aerated drinks bottles, takeaway food containers, disposable cutlery, straws, and stirrers, processed food packets and wrappers, cotton bud sticks, etc.
- Of these, foamed products such as cutlery, plates, and cups are considered the most lethal to the environment.
- Single-use plastics, or disposable plastics, are used only once before they are thrown away or recycled. These items are things like plastic bags, straws, coffee stirrers, soda and water bottles and most food packaging.
- Some states like Telangana, Maharashtra, Tamil Nadu, Himachal Pradesh banned plastic bottles and Tetra packs, single-use straws, plastic/styrofoam tea cups/containers, etc. But many like Bihar banned only polythene bags.

### Pollutants in Plastic

- Plastic includes Diethylhexyl Pthalet, Cadmium, Lead, Mercury.
- **Burning of Plastic** leads to release of Polychlorinated Biphenyls, Pathogens, Heavy metals in water bodies, Phosgene ( $\text{COCl}_2$ ) and Methyl Isocyanate, Dioxins and Furans.
- **Microplastics in India** are those plastics whose size is less than 5 mm. They are mainly made of polyethylene (PE), polypropylene (PP), polyethylene terephthalate (PET), Polymethyl Methacrylate (PMMA) and Nylon. Used in cosmetics (exfoliation), toothpaste, biomedical.
- **Microplastic includes microbeads** (solid plastic particles of less than one millimeter in their largest dimension) that are used in cosmetics and personal care products, industrial scrubbers which are used for aggressive blast cleaning, microfibers used in textiles and virgin resin pellets used in plastic manufacturing processes.

### Marine Plastic

## **UPSC "PT" DNA (Daily News Analysis)**

---

ASPIRE IAS

---

## UPSC "PT" DNA (Daily News Analysis)

---

- About 10 countries including India contributed to the plastic litter in the Great Nicobar island. They were Malaysia, Indonesia, Thailand, Singapore, Philippines, Vietnam, India, Myanmar, China and Japan.
- Major portion of the litter (40.5%) was of Malaysian origin. It was followed by Indonesia (23.9%) and Thailand (16.3%). The litter of Indian origin only amounted to 2.2%
- The overwhelming contribution from Indonesia and Thailand was likely due to its proximity to the island; the plastic is likely to have made its way to the island because of water currents via the Malacca Strait, which is a major shipping route.
- The huge quantities of marine debris observed on this island might be due to improper handling of the solid waste from fishing/mariculture activity and ship traffic.
- Plastic pollution has emerged as one of the severest threats to ocean ecosystems and its concentration has reached 5,80,000 pieces per square kilometre.
- Plastic represents 83% of the marine litter found. The remaining 17% is mainly textiles, paper, metal and wood.

### Problem of plastic in India

- Plastic bags are not safe for the ecosystem, since they are not easy to recycle. They cause severe health hazard for human, animals and the environment.
- According to the Central Pollution Control Board (CPCB), India generates close to 26,000 tonnes of plastic a day and over 10,000 tonnes a day of plastic waste remains uncollected.
- According to a Federation of Indian Chambers of Commerce and Industry (FICCI) study the plastic processing industry is estimated to grow to 22 million tonnes (MT) a year by 2020 from 13.4 MT in 2015 and nearly half of this is single-use plastic.
- India's per capita plastic consumption of less than 11 kg, is nearly a tenth of the United States of America (109 kg).
- Waste plastic from packaging of everything from food, cosmetics and groceries to goods delivered by online platforms remains unaddressed.
- Collect-back system The Plastic Waste Management Rules, 2016 are clear that producers, importers and brand owners must adopt a collect-back system for the plastic they introduce into the environment. However, not much has been done to take the process forward.

## UPSC "PT" DNA (Daily News Analysis)

---

- Extended Producer Responsibility clause: Small producers of plastics are facing the ban, while more organised entities covered by the Extended Producer Responsibility clause continue with business as usual.
- Recently there was also an issue of [Plastic Pollution in Sundarbans](#) and [Microplastic pollution in Ganga](#).

### Alternatives to Plastic

ASPIRE IAS

## UPSC "PT" DNA (Daily News Analysis)

---

- Although compostable, biodegradable or even edible plastics made from various materials such as sugarcane bagasse, corn starch, and grain flour are promoted as alternatives, these currently have limitations of scale and cost.
- Some biodegradable packaging materials require specific microorganisms to be broken down, while compostable cups and plates made of polylactic acid, a popular resource derived from biomass such as corn starch, require industrial composters.
- On the other hand, articles made through a different process involving potato and corn starch have done better in normal conditions, going by the experience in Britain.
- Seaweed is also emerging as a choice to make edible containers.
- In India, though, in the absence of robust testing and certification to verify claims made by producers, spurious biodegradable and compostable plastics are entering the marketplace.

### Solutions to Plastic Pollution in India

1. Government of India has recently notified [Plastic Waste Management Rules, 2021](#) to eliminate single use plastic by 2022. We need to ensure its strict implementation.
2. For Marine plastic pollution, World countries have started an initiative called [MARPOL, BOBLME Project, Automated Moorings, UN led Clean Seas Campaign, 2017 etc.](#)
3. Convert plastic waste into Energy and useful products.



## UPSC "PT" DNA (Daily News Analysis)

---

ASPIRE IAS

## UPSC "PT" DNA (Daily News Analysis)

---

ASPIRE IAS

## **UPSC "PT" DNA (Daily News Analysis)**

---

### **Way Forward**

- Governments must start charging the producers for their waste, and collect it diligently, which will lead to recovery and recycling.
- State and local governments should upgrade their waste management systems, which is necessary to even measure the true scale of packaging waste.
- Role of local bodies: Local bodies should consult manufacturers or importers to assess the problem. Cities and towns need competent municipal systems to achieve this.
- A central legislation with a clear definition of what constitutes single-use plastic is also necessary.

Source: PIB

ASPIRE IAS