

My Notes....

NATIONAL

NATIONAL CURRICULUM FRAMEWORK (NCF) 2023

On 6 April 2023, the Ministry of Education released the **pre-draft of the National Curriculum Framework (NCF)** for school education for public feedback on the recommendations which will be finalised after further rounds of discussions involving the **national steering committee** led by former ISRO chairperson **K Kasturirangan** that developed it.

What are the proposed changes?

1. Among the **most significant recommendations in the draft NCF on school education** are about choice of subjects and exams in **classes IX-XII**.
2. Over two years, in **class IX and X**, the students will have to study **16 courses categorised under eight curricular areas**.
3. The suggested curricular areas are **Humanities** (that includes languages), **Mathematics & Computing**, **Vocational Education**, **Physical Education**, **Arts**, **Social Science**, **Science**, and **Inter-disciplinary Areas**.
4. Students will have to clear eight board exams, each of which will assess their hold on courses they learnt in class IX and X, **to obtain the final certification** which will factor in their performances in exams held **over two years**.
5. Under the current system, there are **no such links between class IX and X** and students across most boards have to pass **at least five subjects to clear class X**.
6. The committee has recommended more changes at the **level of Class XI and XII**, including the introduction of a **semester system in class XII**.
7. The **NCF pre-draft on school education** is not so much about specific changes in textbooks as those details will be put out in the position papers being developed by the **12-member steering committee** and **sub-committees of experts** under it known as **focus groups**.

What is NCF?

1. The **NCF**, which was **last revised in 2005** under the UPA government, is a key document based on which textbooks are prepared.
2. So the current **set of NCERT textbooks**, barring the deletions, is all based on the NCF 2005.
3. Before 2005, **the NCF was revised thrice**, including once under the NDA government led by **Atal Bihari Vajpayee**.
4. Under the latest round of revision, which is underway since September 2021, **draft frameworks on early childhood care and education and school education** have already been prepared, while work on teacher and **adult education is underway**.

INDIA ELECTED TO UN STATISTICAL COMMISSION

In a significant victory, **India has overwhelmingly been elected** to the **UN Statistical Commission** for a **four-year period** in a “competitive” election in which **China and South Korea** are still vying for the remaining seat from the **Asia Pacific category**. India secured **an overwhelming 46 out of 53 votes**.

What

1. **India** was elected by **secret ballot** while Argentina, Sierra Leone, Slovenia, Ukraine, the United Republic of Tanzania and the United States of America were elected by acclamation for a **four-year term of office** beginning 1 January 2024.

2. The **current members** from the **Asia-Pacific States** are **Japan (2024), Samoa (2024)**, as well as **Kuwait and Republic of Korea**, whose terms are ending this year.
3. The **United Nations Statistical Commission, established in 1947**, is the **highest body of the global statistical system** bringing together the Chief Statisticians from member states from around the world.
4. It is the **highest decision making body** for **international statistical activities**, responsible for setting of statistical standards and the development of concepts and methods, including **their implementation at the national and international level**.
5. The Commission **consists of 24 member countries of the United Nations** elected by the **United Nations Economic and Social Council** on the basis of an **equitable geographical distribution**.
6. **Five members** are from **African States, four from Asia-Pacific States, four from Eastern European States**, four from Latin American and Caribbean States and seven members from Western European and other States.

COASTAL AQUACULTURE BILL 2023

The **Government introduced the Coastal Aquaculture Authority (Amendment) Bill, 2023**, seeks to amend certain **provisions of the Coastal Aquaculture Authority Act, 2005** and **decriminalise offences under it** for “promoting ease of doing business” and fine-tuning the “operational procedures of Coastal Aquaculture Authority”.

More about the Bill

1. The **Bill seeks to clarify that** “coastal aquaculture and activities connected therewith” **shall continue to be regulated by** “the Coastal Aquaculture Authority Act and no other Acts.”
2. The **2023 Bill seeks to broaden the definition of “coastal aquaculture”** or “coastal aquaculture activity” to mean “rearing and cultivation of **any life stages of fish**, including crustacean, mollusc, finfish, seaweed or any other aquatic life **under controlled conditions**, either indoor or outdoor, in cement cisterns, ponds, pens, cages, rafts, enclosures or **otherwise in saline or brackish water in coastal areas**, including activities such as production of brood stock, seed, grow out, **but does not include fresh water aquaculture.**”
3. **It aims to promote newer forms of environment-friendly coastal aquaculture such as** “cage culture, seaweed culture, bi-valve culture, marine ornamental fish culture and pearl oyster culture”, **and has the potential for creating employment opportunities** on a large scale for coastal fisher communities and especially fisherwomen.
4. **It also aims to encourage the establishment of facilities in areas having direct access to seawater to produce genetically improved** and disease-free broodstocks and seeds for use in coastal aquaculture.
5. The **Bill seeks to prevent the use of antibiotics and “pharmacologically active substances”,** which are harmful to human health in coastal aquaculture.

Provisions for “biosecurity”

1. It **refers to measures and strategies for analysing, managing, and preventing the risk of introducing or spreading harmful organisms** like viruses and bacteria within the coastal aquaculture unit, which could lead to infectious diseases.
2. It **provides for the introduction of a “Brood Stock Multiplication Centre”** which receives “post-larvae or juvenile which are specific pathogen free” or tolerant or resistant to such pathogens or other post-larvae or juveniles from a “Nucleus Breeding Centre”, to be reared under strict biosecurity and disease surveillance.

About DAHDF

1. The **Department of Animal Husbandry, Dairying, and Fisheries (DAHDF) was formed in 1991**, earlier responsible for overseeing matters related to animal husbandry, dairy, and fisheries.
2. It **advised states and UTs** on the formulation of policies and programmes, **in 2019, the Department of Animal Husbandry and Dairying was subsumed** under the **newly created Ministry** of Fisheries, Animal Husbandry & Dairying.

SC DIRECTS MEDIA ONE'S LICENCE TO BE RENEWED

The **Supreme Court**, on 5 April 2023, set aside the Centre's order **refusing to grant the renewal of broadcast licence** to Malayalam news channel **Media One**, which had been denied security clearance by the **Ministry of Home Affairs (MHA)** over alleged links with the **Jamaat-e-Islami-Hind**.

The case

1. The **Ministry of Information and Broadcasting** had on 31 January 2022, refused to renew the **broadcast licence of Malayalam channel MediaOne** on the ground that the Ministry of Home Affairs had declined to grant it security clearance while considering the request for renewal of license.
2. The MHA, as per the **Supreme Court judgement** delivered 5 April 2023, cited alleged links between the channel promoters **Madhyamam Broadcasting Limited** and the **Jamaat-e-Islami Hind**.

What did the Supreme Court say?

1. The **Supreme Court** on 5 April 2023 **set aside the Centre's order** revoking the **channel's broadcast license** as well the **High Court order** upholding the government action.
2. The top court was critical of the sealed cover procedure adopted in the HC and the "**cavalier manner**" in which the Centre "**raised the claim of national security**" to deny the security clearance.
3. It said, "While we have held that **it would be impracticable and unwise** for the courts to define the **phrase national security**, we also hold that national security claims cannot be made out of thin air. There must be material backing such inference. The material on the file and the inference drawn from such material has no nexus".
4. It noted that in this case, "**the state is using national security as a tool** to deny citizens remedies that are provided under the law. This is not compatible with the rule of law".

VIBRANT VILLAGES PROGRAMME

Union Home Minister **in Arunachal Pradesh launches the 'Vibrant Villages Programme' (VVP)** in the **border village of Kibithoo**. The **constant threat along the country's border** amid the **on-going standoff with China has led to a concerted push to upgrade infrastructure** in the border areas.

'Vibrant Villages Programme' (VVP):

1. This **village development scheme was first announced in the 2022 Budget**. The **programme's targets are to provide comprehensive development of villages on the border with China and improvement** in the quality of life of people living in identified border villages.
2. The **development in these villages will help prevent** migration, and thus also boost security.
3. The **Parliamentary Standing Committee in 2018 had pointed towards** backwardness, illiteracy, and lack of basic facilities and infrastructure in our border areas. The **VVP aims to address** all these issues.

Funds allocated for the programme

1. A population of about 1.42 lakh people will be covered in the first phase. Under the programme, the government has allocated Rs 4,800 crore for infrastructure development and to provide livelihood opportunities in the border areas.
2. Out of the total outlay, Rs 2,500 crore will be spent exclusively on the creation of road infrastructure. The total outlay is for financial years 2022-23 to 2025-26.
3. There is a conscious effort to not overlap VVP with the Border Area Development Programme.

Objectives of the scheme

1. The aims of the scheme are to identify and develop the economic drivers based on local, natural, human and other resources of the border villages.
2. The centrality of the development of growth centres on the "Hub and Spoke Model" through promotion of social entrepreneurship, empowerment of youth and women through skill development.
3. The programme also intends to leverage tourism potential through promotion of local, cultural, traditional knowledge and heritage in the border areas, thus increasing the employment opportunities of the people and, as a result, stemming migration.
4. It will promote development of sustainable eco-agribusinesses on the concept of "One village-One product" through community-based organisations, cooperatives, SHGs, NGOs etc.
5. The scheme envisages that drinking water, 24x7 electricity, connectivity with all-weather roads, cooking gas, mobile and internet connectivity be made available in the border areas.

Coverage of VVP:

1. Under this centrally sponsored scheme, 2,967 villages in 46 blocks of 19 districts have been identified for comprehensive development.
2. The villages covered in the border areas in the states of Arunachal Pradesh, Sikkim, Uttarakhand and Himachal Pradesh and the Union Territory of Ladakh.
3. In the first phase, around 662 villages have been identified for priority coverage.

THE UTTARAMERUR INSCRIPTION

Prime Minister Narendra Modi on 14 April 2023 referred to the **Uttaramerur inscription** in Kanchipuram, Tamil Nadu, while discussing **India's democratic history**. The inscription found there is like a **local constitution for the gram sabha**. It tells **how the assembly should be run**, what **should be the qualification of members**, what should be the process to elect the members, and **how a member would be disqualified**.

What does the inscription say?

1. The inscription gives details of the functioning of the local sabha, i.e. the village assembly.
2. A sabha was an assembly exclusively of brahmans and had specialised committees tasked with different things.
3. The Uttaramerur inscription details how members were selected, the required qualifications, their roles and

Where is Uttaramerur?

1. Uttaramerur lies in present-day Kanchipuram district, approximately 90 km southeast of Chennai.
2. Today, it is a small town and had a population of roughly 25,000 in the census of 2011. It is known for its historic temples built during Pallava and Chola rule.
3. The famous inscription from Parantaka I's reign is found on the walls of the Vaikunda Perumal Temple.

responsibilities, and even the circumstances in which they could be removed.

Is this an example of a democracy?

1. While the **Uttaramerur inscription** gives details of local self-governance, on closer inspection, it is far from a **truly democratic system**.
2. Not only does it restrict sabha membership to a tiny subsection of land-owning brahmans, it also does not have true elections. Rather, it **chooses members from the eligible pool** of candidates through a draw of lots.
3. That being said, this does not mean that **this inscription should not be cited as a precedent for democratic functioning**. The idea of a democracy, as understood today, is a **fairly recent phenomenon**.
4. The United States, often hailed as the **epitome of a liberal democracy**, only gave universal adult franchise to its population in 1965.
5. What the **Uttaramerur inscription details** is a **system of local self-government**, outside the direct authority of the king.
6. Furthermore, for all intents and purposes, the inscription is like a constitution – it describes both the responsibilities of members of the sabha as well as the limitations to the authority of these members.
7. If the rule of law (rather than rule by personal diktat) is **an essential component of a democracy**, the **Uttaramerur inscription** describes a system of government which follows just that.

INTERNATIONAL BIG CAT ALLIANCE (IBCA) LAUNCHED

Prime Minister Narendra Modi said India did not believe in conflict between **ecology and economy** but gave importance to coexistence between the two. **Protection of wildlife is a universal issue, while launching the International Big Cat Alliance (IBCA)** that endeavours to protect and conserve big cats.

ABOUT IBCA

1. In July 2019, the **Prime Minister** had called for an **Alliance of Global Leaders to obliterate demand and firmly curb poaching** and illegal Wildlife trade in Asia.
2. **IBCA will focus on protection and conservation of seven major big cats of the world such as** tiger, lion, leopard, snow leopard, puma, jaguar and cheetah, **with range countries** harbouring these species being its members.
3. The **Sahyadri or Western Ghats have several tribal communities**, who have **worked for** wildlife and tigers to flourish, and their **contribution in conservation efforts** is laudable.

About species richness:

1. India with **just 2.4% of the world's land area**, contributes about **8 percent of the known global diversity**.
2. It is the **largest tiger range country in the world**. With nearly **30,000 elephants**, we are the **largest Asiatic elephant** range country in the world.
3. Our **rhino population of nearly 3,000 makes us the largest single-horned rhino country** in the world."
4. India is the only country to have **Asiatic lions**, and their **population has increased from around 525 in 2015 to 675 in 2020**.
5. The **leopard population is up by 60% in a span of four years**. India **added over 2,200 square kilometres** of forest and **tree cover by 2021 in comparison to 2019 figures**.
6. **In a decade, the number of national parks and sanctuaries around which eco-sensitive zones were notified, increased from 9 to 468.**

INTERNATIONAL

BRITAIN JOINING A TRANS-PACIFIC TRADE PACT

Britain agreed to join the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (**CPTPP**), a trade pact based around the Pacific Rim, as it seeks to build ties around the world after leaving the European Union. Britain seeks post-Brexit trade wins in geographically distant but faster growing economies.

About CPTPP:

1. It is a **free trade agreement (FTA)** that was agreed in 2018 between **11 countries** – Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore and Vietnam.
2. **Britain will become the 12th member**, and the **first to join** the partnership since its inception.
3. **CPTPP countries will have a combined GDP of 11 trillion pounds** (\$13.6 trillion) once Britain joins, or 15% of global GDP.
4. It **does not have a single market** for goods or services, and so regulatory harmonisation is not required, unlike the European Union, whose trading orbit Britain left at the end of 2020.

Britain trade with CPTPP:

1. It **exports to CPTPP countries were worth** 60.5 billion pounds in the twelve months to end-Sept. 2022. **Membership of the grouping will add** another 1.8 billion pounds each year in the long run, and possibly more if other countries join.
2. **Early analysis of CPTPP operations suggested that it was making little difference to trade flows**, and adding it did **little for Britain's service sectors** but imports from countries like Vietnam would grow over time.

Rules of Origin Benefits:

1. It said that **exporters could benefit from CPTPP membership** even when **trading with countries** where there is a **bilateral FTA**.
2. To **benefit from preferential tariffs**, exporters must **demonstrate a product as a sufficient proportion** of “locally” sourced parts.
3. **Rules of origin under rolled-over post-Brexit** free trade agreements with Japan, Mexico and Canada, **for instance, allow exporters** to count EU inputs as “local”.
4. **Under CPTPP, inputs from CPTPP members** can usually be **considered local**, giving exporters another option if it is beneficial.

Geopolitical factors:

1. The **long-term benefit for Britain's economy is set to be modest**; its accession was a **big geopolitical strategy** gain with a small economic gain.
2. The **CPTPP could enable the UK to enhance strategic ties** with like-minded countries **to protect a free and open** Indo-Pacific region.

CHINA'S LIST OF NAMES IN ARUNACHAL PRADESH

The Chinese government released a list of “standardised” names of 11 places in Arunachal Pradesh, the Indian authorities on 4 April 2023 said they rejected the move “outright”. In a statement, India’s Ministry of External Affairs spokesperson categorically stated that “Arunachal Pradesh is, has been, and will always” is an integral part of India.

Why is China giving names to places that are in India?

1. China claims **some 90,000 sq km of Arunachal Pradesh as its territory**. It calls the area “**Zangnan**” in the Chinese language and makes repeated references to “**South Tibet**”.

2. Chinese maps show **Arunachal Pradesh as part of China**, and sometimes parenthetically refer to it as "**so-called Arunachal Pradesh**".
3. China makes periodic efforts to underline this **unilateral claim to Indian Territory**. Giving Chinese names to places in Arunachal Pradesh is part of that effort.

Which places were featured in the previous lists?

1. The **first list** came out on 14 April 2017, **containing six places in the state**.
2. The six names on that list then, written in the Roman alphabet, were "**Wo'gyainling**", "**Mila Ri**", "**Qoidengarbo Ri**", "**Mainquka**", "**Bumo La**" and "**Namkapub Ri**".
3. These six places spanned the breadth of Arunachal Pradesh — "**Wo'gyainling**" in the west, "**Bumo La**" in the east and the other four located in the central part of the state.
4. Then, four and a half years later, China put out another set of names for places in the state.
5. This included **eight residential areas, four mountains**, two rivers, and a mountain pass.

ECONOMY

UN DEMOCRACY FUND

India and the US were prime movers behind the **UN Democracy Fund in 2005**, when both were **negotiating the civilian nuclear co-operation deal**.

More about the news:

1. In July 2005, both countries **announced** the **India-US framework agreement on civilian nuclear co-operation**.
2. They also **announced the US-India Global Democracy Initiative**, and support to the UN Democracy Fund that had been set up a couple of months earlier with an inaugural contribution of \$ 10 million each.
3. At the **World Summit during the UN General Assembly in September 2005**, Bush and Singh co-sponsored a fund-raising event for UNDEF. The **UNDEF was part of the World Summit's outcome document**.

India's contribution:

1. **India gave \$5 million to the fund** in 2005, 2006, 2008, 2009 and 2011. **No contribution was made in 2007 and 2010**. The **contributions began dipping** from 2012. That year the contribution was \$4.71 m. The following year it was \$1.85 million.
2. **From 2014, India slashed its funding**. That year, and in 2015 it was \$200,000; in 2016, it was a mere \$50,000. **No contribution was made in 2017**. In 2018 and 2019; **India was back with** \$100,000. In 2020, 2021 and 2022, it gave \$150,000.

About UNDEF

1. **Each year, UNDEF solicits and receives upto 3,000 proposals** from NGOs around the world. **An Advisory Board considers these proposals**, and recommends proposals for approval by the Secretary General.
2. **In 15 Rounds of Funding so far, UNDEF has supported over 880 two-year projects in more than 130 countries**, according to the Fund's website.
3. **India has been a member of the Board since the beginning**. Among the **two CSOs that serve on the board** currently are **CIVICUS and Transparency, Accountability and Participation Network**.

About CIVICUS:

1. It is **head-quartered in Johannesburg**; CIVICUS is a global alliance of civil society organisations.

2. The group, which monitors “civic space” across the world, has rated India as “repressed” on civic freedoms since 2019, including in its latest report.

UN TO START ALLOWING DEEP SEA MINING OPERATIONS

The UN’s decision to take deep-sea mining applications comes when there is no mining code in place. Several countries have insisted that industrial undersea mining should require strict rules. After two weeks of negotiations, the International Seabed Authority has decided that it will start taking permit applications in July from companies that want to mine the ocean’s floor.

What

1. The undersea mining will be conducted to extract key battery materials — cobalt, copper, nickel, and manganese — from potato-sized rocks called “polymetallic nodules” found at depths of 4 kilometers to 6 kilometers (about 2.5 miles to 3.7 miles).
2. The Jamaica-based ISA was established under the UN Convention on the Law of the Sea.
3. It holds authority over the ocean floors outside of its 167 member states’ Exclusive Economic Zones.

The mining code is missing

1. The draft decision of ISA’s governing council allows companies to file permit applications from 9 July.
2. In a virtual meeting to be held before July, the governing council will debate whether permission to applications can be delayed.
3. In the absence of a mining code, which has been under discussion for nearly 10 years, the 36-member council is uncertain about the process it should adopt for reviewing applications for mining contracts.
4. In 2021, Nauru invoked a clause that allowed it to demand a mining code be adopted within two years.

Mounting concerns

1. Voicing their concerns, several nations called for a moratorium on industrial mining at the ISA’s council meeting.
2. Non-governmental organizations and experts have warned against the damaging repercussions of deep-sea mining.
3. Deep-sea mining would go beyond harming the seabed and have a wider impact on fish populations, marine mammals, and the essential function of the deep-sea ecosystems in regulating the climate.
4. Several countries including Canada, Australia and Belgium have insisted that mining cannot begin without strict rules.

SCIENCE AND TECHNOLOGY

ISRO SUCCESSFULLY TESTED RLV-LEX

The Indian Space Research Organisation (ISRO) successfully conducted the Reusable Launch Vehicle (RLV) Autonomous Landing Mission (LEX) at the Aeronautical Test Range of the Defence Research and Development Organisation (DRDO) in Karnataka’s Chitradurga. According to ISRO, the RLV took an under-slung load of a Chinook Helicopter of the Indian Air Force and flew to a height of 4.5 km.

More about test

1. The **technique adopted to launch the vehicle was “a first in the world” where a winged body was carried** to an altitude of 4.5 km by a helicopter and **released for carrying an autonomous landing** on a runway.
2. The **autonomous landing was carried out under the exact conditions of Space Re-entry vehicle’s landing (such as)** high speed, unmanned, precise landing from the same return path as if the vehicle arrived from space.
3. The **RLV is essentially a space plane with a low lift-to-drag ratio**, requiring an approach at high glide angles that necessitated a landing at high velocities of 350 kmph.
4. **ISRO had first demonstrated the re-entry** of its winged vehicle RLV-TD in its **HEX Mission in May 2016**.
5. The **LEX mission achieved the final approach** phase that **coincided with the re-entry flight path** exhibiting an autonomous, high-speed (350 kmph) landing.
6. **More experiments are in the pipeline** to ensure that the **RLV succeeds in payload delivery** to low earth orbit, **as ISRO plans to reduce the cost** of the process by 80 per cent. **The Return Flight Experiment** and other related tests of the RLV are also being planned.

Reusable Launch Vehicle:

1. It is one of the **most technologically challenging endeavours** of ISRO towards **developing essential technologies** for a fully reusable launch vehicle **to enable low cost access to space**.
2. **With this various technologies, namely,** hypersonic flight, autonomous landing and powered cruise flight **can be attained**.
3. The **selection of materials like** special alloys, composites and insulation materials **for developing an RLV**.
4. The **crafting of its parts is very complex** and demands highly skilled manpower.

LIGO-INDIA GET GREEN SIGNAL

The government has given the final go-ahead to India's Laser Interferometer Gravitational-Wave Observatory, or LIGO, project, clearing the way for the construction of the country's biggest scientific facility that will join the on-going global project to probe the universe by detecting and studying gravitational waves.

More about LIGO

1. **LIGO is an international network of laboratories** that **detect the ripples in spacetime** produced by the **movement of large celestial objects** like stars and planets.
2. These **ripples were first postulated in Albert Einstein's General Theory of Relativity** that encapsulates our current understanding of how gravitation works.
3. **LIGO-India will be located** in Hingoli district of Maharashtra, about 450 km east of Mumbai, and is scheduled to **begin scientific runs from 2030**.

Origin of gravitational force

1. **Einstein was able to explain the origin of the gravitational force**, and also the **reason for** perpetual, near-circular, motion of all heavenly bodies.
2. **General Relativity also predicted that** moving objects would **generate gravitational waves in spacetime**, just like a **moving boat produces ripples in water**; **gravitational waves have the effect** of causing a temporary deformation in a body when it comes in contact.

JUPITER ICY MOONS EXPLORER (JUICE) LAUNCHED

The European Space Agency (ESA) launched the **Jupiter Icy Moons Explorer**, or **Juice**, mission on 13 April 2023 from its spaceport in **French Guiana** on an Ariane 5 launcher. **Planned to reach Jupiter in 2031**, the mission aims to carry out a detailed exploration of the **Solar System's largest planet** and its **icy moons**, which potentially have **habitable environments**.

What is the Jupiter Icy Moons Explorer (Juice) mission?

1. The Juice “will make detailed observations of the giant gas planet and its three large ocean-bearing moons — Ganymede, Callisto and Europa”, by using **remote sensing**, **geophysical** and **in situ instruments**.
2. Scientists for quite some time have known that these **three moons of Jupiter possess icy crusts**, which they believe contain **oceans of liquid water underneath**, making them **potentially habitable**.
3. Juice will help probe these water bodies by **creating detailed maps of the moons' surfaces** and enable the scientists, for the first time, to look beneath them.
4. Although the mission **will examine all three moons**, the main focus will be on **Ganymede**, as it is the **largest moon in the Solar System — larger than Pluto and Mercury** — and the **only one to generate its own magnetic field**.
5. Juice, which will move into **Ganymede's orbit after approximately four of arriving at Jupiter**, will use its suite of ten sophisticated instruments to measure **how Ganymede rotates, its gravity, its shape and interior structure, its magnetic field, its composition, and to penetrate its icy crust using radar** down to a depth of about **nine km**.
6. Another **primary goal of the mission** is to create a **comprehensive picture of Jupiter** by trying to understand **its origin, history and evolution**.
7. Scientists believe that this would help them provide “**much-needed insight** into **how such a planetary system** and its constituents are formed and evolved over time, as well as revealing **how possibly habitable environments can arise** in Jupiter-like systems around other stars.”
8. Juice will also analyse the **chemistry, structure, dynamics, weather, and climate of Jupiter** and its **ever-changing atmosphere**.

Flashback

1. Juice has been constructed by an industrial consortium led by **Airbus Defence and Space** — a division of the Airbus group responsible for the development and manufacturing of the corporation’s defence and space products — based on the **parameters provided by the ESA**.
2. Only **two other spacecraft** have ever examined Jupiter: the **Galileo probe**, which orbited the **gas giant between 1995 and 2003**, and **Juno**, which has been **circling the planet since 2016**.
3. Notably, by the time Juice reaches Jupiter, another spacecraft, **NASA's Europa Clipper**, would already be orbiting the planet — scheduled **to be launched in October this year**, **Europa Clipper** would arrive at **Jupiter in 2030** and aims **to study its Europa moon**.

TEMPO AIR QUALITY MONITORING INSTRUMENT

NASA's high-resolution air pollution monitoring instrument TEMPO lifted atop a SpaceX Falcon 9 rocket from the Cape Canaveral Space Force Station in Florida on 7 April 2023. The **Tropospheric Emissions: Monitoring of Pollution (TEMPO) instrument** is on its way to a **geostationary orbit** where it will monitor **major air pollutants across North America**.

More about TEMPO

1. **TEMPO** will take **important scientific observations**, including that of **ozone, nitrogen oxide, sulphur dioxide** and **formaldehyde levels**.
2. **TEMPO** is a payload on the satellite **Intelsat 40E**. The satellite separated from the rocket about 32 minutes into launch. It will only begin its science activities in late May or early June.
3. The space agency says that **TEMPO will be the first space-based instrument** that is **capable of measuring air quality** over North America hourly during the daytime with a resolution of several square miles. The **current limit is about 100 square miles**, or about 258 square kilometres.
4. **Using TEMPO data**, scientists will be able to study **rush hour pollution**, the potential for **improved air quality alerts**, the impact of lightning on the ozone layer, the movement of pollution from forest fires and volcanoes and even the effects of fertiliser application.
5. According to the 2022 “**State of the Air**” report by the **American Lung Association**, more than 40 per cent of Americans, which is over 137 million people, live in places with failing grades for **unhealthy levels of particle pollution or ozone**. This presents an increase of nearly 2.1 million people over the previous year’s report.
6. **The TEMPO mission** is about more than just studying pollution – **it’s about improving life on Earth for all**. By monitoring the effects of everything from rush-hour traffic to pollution from forest fires and volcanoes, NASA data will help improve **air quality across North America and protect our planet**.
7. **TEMPO** will join **South Korea’s Geostationary Environment Monitoring Spectrometer** and the **European Space Agency’s Sentinel-4 satellite** to become an air quality monitoring satellite constellation that will track pollution across the Northern Hemisphere.

ANTINEUTRINOS DETECTED

In a lab buried around 2000 kilometres under the ground in Canada, scientists accidentally discovered antineutrinos using extremely pure water for the first time.

What is Antineutrinos

1. **Antineutrinos are the antimatter of neutrinos**. They have an almost **non-existent mass and charge** and they rarely if ever interact with other particles.
2. This makes them **especially difficult to detect**. They are **produced as a byproduct** when **neutrons separate into protons and electrons** in nuclear reactors.
3. The **Sudbury Neutrino Observatory (SNO)** was being upgraded to make it **SNO+** when the discovery was made. The scientists detected the **antineutrino even before the observatory's upgrades were completed**.
4. As the **observatory's detector's components were being upgraded in 2018**, the observatory was filled with **ultrapure water**, and the detector was being calibrated. While looking through the **calibration data**, the researchers picked up signals of **an antineutrino** that came from a **nuclear power station hundreds of kilometres away**.
5. **It intrigues us that pure water** can be used **to measure antineutrinos** from reactors and at such large distances.
6. Usually, **in order to detect antineutrinos, “liquid scintillators”** scientists need to use a method called **liquid scintillation**. Typically, this involves the use of chemicals like **linear alkybenzene**.
7. But this new discovery suggests that **it would be possible to build neutrino detectors using ultrapure water**, which is **non-toxic, relatively inexpensive and easy to handle**.
8. This could mean that detectors such as **SNO+** could be used to monitor the **power output of a nuclear plant** from a distance.

MISCELLANEOUS

ANTARCTIC ICE MELT WILL SLOW GLOBAL OCEAN FLOWS

Rapidly melting Antarctic ice is dramatically slowing down the flow of water through the world's oceans, and could have a disastrous impact on global climate, the marine food chain and even the stability of ice shelves, new research has found. The "overturning circulation" of the oceans, driven by the movement of denser water towards the sea floor, helps deliver heat, carbon, oxygen and vital nutrients around the globe.

What the study found

1. As temperatures rise, freshwater from Antarctica's melting ice enters the ocean, reducing the salinity and density of the surface water and diminishing that downward flow to the sea's bottom.
2. While past research has looked at what could happen to similar overturning circulation in the North Atlantic – the mechanism behind the doomsday scenario that would see Europe suffer from an Arctic blast as heat transport falters – less has been done on Antarctic bottom water circulation.
3. Scientists relied on around 35 million computing hours over two years to crank through a variety of models and simulations up to the middle of this century, finding deepwater circulation in the Antarctic could weaken at twice the rate of decline in the North Atlantic.
4. They are massive volumes of water... and they are bits of the ocean that have been stable for a long time.

Disrupting the base of the food chain

1. The effect of meltwater on global ocean circulation has not yet been included in the complex models used by the IPCC to describe future climate change scenarios, but it is going to be considerable, England said.
2. Ocean overturning allows nutrients to rise up from the bottom, with the Southern Ocean supporting about three-quarters of global phytoplankton production, the base of the food chain, said a second study co-author.

Leaving more CO₂ in the atmosphere

1. The study's findings also suggest the ocean would not be able to absorb as much carbon dioxide as its upper layers become more stratified, leaving more CO₂ in the atmosphere.
2. The study showed that warm water intrusions in the western Antarctic ice shelf would increase, but it did not look at how this might create a feedback effect and generate even more melting.

INDIGENOUS IDU MISHMIS ARE PROTESTING

The National Tiger Conservation Authority (NTCA) chief SP Yadav said that the Dibang Wildlife Sanctuary in Arunachal Pradesh would soon be notified as a tiger reserve. The announcement has caused disquiet among the area's Idu Mishmi people, who feel that a tiger reserve would "hinder their access" to the forest.

More about Idu Mishmi, the 'tiger brothers'

1. The Idu Mishmi is a sub-tribe of the larger Mishmi group (the other two Mishmi groups are Digaru and Miju) in Arunachal Pradesh and neighbouring Tibet.
2. Known for their weaving and craftsmanship skills, the Idu Mishmis primarily live in Mishmi Hills, bordering Tibet.

3. Their **ancestral homelands** are spread over the districts of **Dibang Valley** and **Lower Dibang Valley** as well as **parts of Upper Siang and Lohit**.
4. The tribe is estimated to comprise **around 12,000 people** (as per census 2011), and their language (also called **Idu Mishmi**) is considered **endangered by UNESCO**.
5. Traditionally **animists**, the **tribe has strong ties with the region's rich flora and fauna**.
6. Animals such as the **hoolock gibbons and tigers** have deep cultural relations with the Idu Mishmi.
7. **Tigers are especially important to the Idu Mishmis** — according to **Idu mythology**, they were born to the same mother, and thus, **tigers are their "elder brothers"**.
8. While **hunting has traditionally been a way of life**, the **Idu Mishmis** also follow a strict belief system of myths and taboos — '**iyu-ena**' — that restrict them from hunting many animals, including a **complete prohibition on killing tigers**.
9. Anthropologists and other researchers who have studied the area say that this belief system has led to a **unique model of wildlife conservation**.

FIFTY YEARS OF 'PROJECT TIGER'

The **number of tigers in India** has **increased by 6.74 per cent** from 2,967 in 2018 to 3,167 in 2022, according to the figures of the **5th cycle of India's Tiger Census**, which was released by Prime Minister Narendra Modi at an event in Karnataka's Mysuru to mark **50 years of 'Project Tiger'** on 9 April 2023. The PM also released the **government's vision for tiger conservation** during '**Amrit Kaal**', and launched the **International Big Cats Alliance (IBCA)**. IBCA will focus on the **protection and conservation of seven major big cats** of the world, including **tiger, lion, leopard, snow leopard, puma, jaguar and cheetah**, with membership of the range countries harbouring these species.

What is Project Tiger?

1. **Project Tiger** was launched by the **Central government** on 1 April 1973, in a bid to **promote conservation of the tiger**. The programme came at a time when **India's tiger population was rapidly dwindling**.
2. According to reports, while there were **40,000 tigers in the country at the time of the Independence**, they were soon reduced to below 2,000 by 1970 due to their widespread hunting and poaching.
3. Concerns around the issue further intensified when the same year, the **International Union for Conservation of Nature** declared the **tiger as an endangered species**. Two years later, the Indian government conducted its own tiger census and found that there were **only 1,800 of them left in the country**.
4. To tackle the problem of hunting and poaching of not just tigers but also other animals and birds, then Prime Minister Indira Gandhi promulgated the **Wildlife Protection Act in 1972**.
5. A year later, after a task force urged the government to create a chain of reserves dedicated to tiger preservation, **India unveiled Project Tiger**.
6. **Launched at the Jim Corbett National Park**, the programme was initially started in **nine tiger reserves of different States** such as **Assam, Bihar, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Uttar Pradesh and West Bengal**, covering over 14,000 sq km.

7. Today, **there are 54 tiger reserves across India**, spanning **75,000 sq km**. As mentioned before, the **current population of tigers in the country stands at 3,167** as opposed to 1,411 in 2006, 1,706 in 2010 and 2,226 in 2014.

AAP NOW NATIONAL PARTY

The **Election Commission recognised the Aam Aadmi Party (AAP) as a national party**, while **revoking that status of** the All India Trinamool Congress, Nationalist Congress Party (NCP) and the Communist Party of India (CPI).

More about the news:

1. The BJP, Congress, CPI (M), Bahujan Samaj Party (BSP), National People's Party (NPP) and the AAP **are the remaining national parties now**.
2. The **Commission revoked the state party status granted** to RLD in Uttar Pradesh, BRS in Andhra Pradesh, PDA in Manipur, PMK in Puducherry, RSP in West Bengal and MPC in Mizoram.
3. The **Commission said that** NCP and Trinamool Congress will be recognised as **state parties in Nagaland and Meghalaya respectively based on their performance in the recently concluded Assembly elections**.
4. It **also granted “recognised state political party” status** to the Lok Janshakti Party (Ram Vilas) in Nagaland, Voice of the People Party in Meghalaya, and the Tipra Motha in Tripura.

MATERNITY BENEFITS TO ADOPTIVE MOTHERS

The **Supreme Court** 12 April 2023 agreed **to hear a petition** challenging the **constitutional validity of Section 5(4) of the Maternity Benefit Act, 1961**, which states that a woman **who legally adopts a child below three months old** will be **entitled to 12 weeks of maternity leave**. A bench led by Chief Justice of India **DY Chandrachud** agreed to hear the **Public Interest Litigation (PIL)**, filed by **Karnataka-based Hamsaanandini Nanduri**, on 18 April 2023. The petition challenges **Section 5(4) of the Act** on grounds of being **“discriminatory”** and **“arbitrary”** towards **adoptive mothers** and **orphaned children over three months**.

What is this provision?

1. The **original 1961 legislation** did not have **specific provisions for mothers who adopt**, and these were inserted with the 2017 amendment to the Maternity Benefit Act.
2. According to **Section 5(4) of the amended Act**, “A woman who **legally adopts a child below the age of three months** or a **commissioning mother** shall be **entitled to maternity benefit** for a period of **twelve weeks** from the date the child is handed over to the adopting mother or the **commissioning mother**, as the case may be.”
3. The term **“commissioning mother”** refers to a **surrogate mother** and has been defined as **“a biological mother who uses her egg to create an embryo implanted in any other woman.”** A woman adopting a child older than three months gets no benefits.
4. The PIL challenges this provision on grounds of **being “discriminatory” and “arbitrary”** towards adoptive mothers.
5. **“Section 5(4) apart from being discriminatory and arbitrary towards the adoptive mothers, also arbitrarily discriminates against orphaned, abandoned or surrendered children above the age of three months**, which is completely incompatible to the object of the **Maternity Benefit Act** as well as the **Juvenile Justice Act**,” the plea contends.

6. Dubbing the purported benefit of **12 weeks' maternity leave** as “mere lip service”, the petition also states that when compared to the **26 weeks' benefit for biological mothers**, the provision fails to stand the basic scrutiny of **Part III of the Constitution**, which is linked to the concept of non-arbitrariness.

FACT TO REMEMBER:

- 1. NATIONAL CURRICULUM FRAMEWORK (NCF) 2023 DRAFT**
- 2. COASTAL AQUACULTURE BILL 2023**
- 3. VIBRANT VILLAGES PROGRAMME**
- 4. THE UTTARAMERUR INSCRIPTION**
- 5. INTERNATIONAL BIG CAT ALLIANCE (IBCA) LAUNCHED**
- 6. BRITAIN JOINING A TRANS-PACIFIC TRADE PACT**
- 7. UN DEMOCRACY FUND**
- 8. ISRO SUCCESSFULLY TESTED RLV-LEX**
- 9. LIGO-INDIA GET GREEN SIGNAL**
- 10. FIFTY YEARS OF ‘PROJECT TIGER’**

QUESTIONS IN LAST YEAR (2022) PT FROM MY NOTES

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pag 15