7 PM COMPILATION

1st to 12th February, 2022

Features of 7 PM compilation

- **Comprehensive coverage of a given current topic**
- **Provide you all the information you need to frame a good answer**
- **Critical analysis, comparative analysis, legal/constitutional provisions, current issues and challenges and best practices around the world**
- **Written in lucid language and point format**
- **Wide use of charts, diagrams and info graphics**
- **Best-in class coverage, critically acclaimed by aspirants**
- **Out of the box thinking for value edition**
- **Best cost-benefit ratio according to successful aspirants**

Major Highlights of the Economic Survey 2021-22 – Explained, pointwise
Topic:- Economy
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[Yojana February Summary] Early Childhood Care and Education: Teach them Young – Explained, pointwise
Topic:- Issues relating to development and management of Social Sector/Services relating to Education
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Nuclear Fusion Technology: Evolution, Challenges and Future Potential – Explained, pointwise
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[Kurukshetra February Summary] Ayushman Bharat: Achieving Universal Health Coverage – Explained, pointwise

Topic:- Issues relating to development and management of Social Sector/Services relating to Health.

Sub topic:- Universal Health Coverage

Major Highlights of the Economic Survey 2021-22 – Explained, pointwise

Introduction

The Government tabled the Economic Survey 2021-22 in the Parliament on January 31. The survey focuses on the post-pandemic recovery and analyses a range of aspects including inflation, energy prices and global uncertainties.

The survey has also taken stock of growing revenues to indicate the availability of fiscal space for the Government. The Survey has noted that India will witness GDP growth of 8.0-8.5% in FY2022-23, supported by widespread vaccine coverage, gains from supply-side reforms and easing of regulations, robust export growth, and availability of fiscal space to ramp up capital spending. This growth (8.0-8.5%) would make India the fastest-growing major economy in the world.

[Download] Economic Survey 2021-22 pdf

Status mentioned in Economic Survey 2021-22

GDP projections: GDP has climbed past pre-Covid levels with growth registering 9. 2% in 2021-22 after a contraction of 7. 3% in 2020-21. The Survey says, the GDP projection is comparable with the World Bank's and Asian Development Bank's latest forecasts of real GDP growth of 8.7% and 7.5% respectively for 2022-23.

***Note**: The growth projection for 2022-23 is based on the assumption that there will be no further debilitating pandemic related economic disruption, monsoon will be normal, withdrawal of global liquidity by major central banks will be broadly orderly, oil prices will be in the range of US$70-$75/bbl, and global supply chain disruptions will steadily ease over the course of the year.*

Source: PIB

Agriculture and allied sectors: This sector has been the least impacted by the pandemic and the sector is expected to grow by 3.9% in 2021-22 after growing by 3.6% in the previous year.

The area sown under *Kharif* and *Rabi* crops, and the production of wheat and rice, has been steadily increasing over the years. This is due to **1)** Minimum support prices, **2)** Timely supplies of seed and fertilizers, **3)** Good monsoon rains as reflected in reservoir levels being higher than the 10-year average.

Industrial growth: The industrial sector went through a sharp rebound from a contraction of 7% in 2020-21 to an expansion of 11.8% in this financial year. The share of industry in the GVA is now estimated at 28.2%.

The survey mentioned that measures such as the **PLI scheme for various sectors**, along with policy initiatives such as the **emergency credit line guarantee** to micro, small, and medium enterprises will help aid the pace of recovery.

Services sector: The Survey states that the services sector has been the hardest hit by the pandemic, especially segments that involve human contact. This sector is estimated to grow by 8.2% this financial year, following last year's contraction by 8.4%.

Sectors like Finance, Real Estate and the Public Administration segments are now well above pre-COVID levels. However, sectors like Travel, Trade and hotels are yet to fully recover. There has been a boom in software and IT-enabled services exports even as earnings from tourism have declined sharply.

Total consumption: It is estimated to have grown by 7.0% in 2021-22. Government consumption remains the biggest contributor.

Gross Fixed Capital Formation (GFCF): The investment to GDP ratio is about 29.6% in 2021-22, the highest in seven years. While private investment recovery is still at a nascent stage, there are many signals which indicate that India is poised for stronger investment.

Exports and Imports: Merchandise exports have been above US$30 billion for eight consecutive months in 2021-22. Net services exports have also risen sharply. India's total exports are expected to grow by 16.5% in 2021-22 surpassing pre-pandemic levels. Imports are expected to grow by 29.4% in 2021-22.

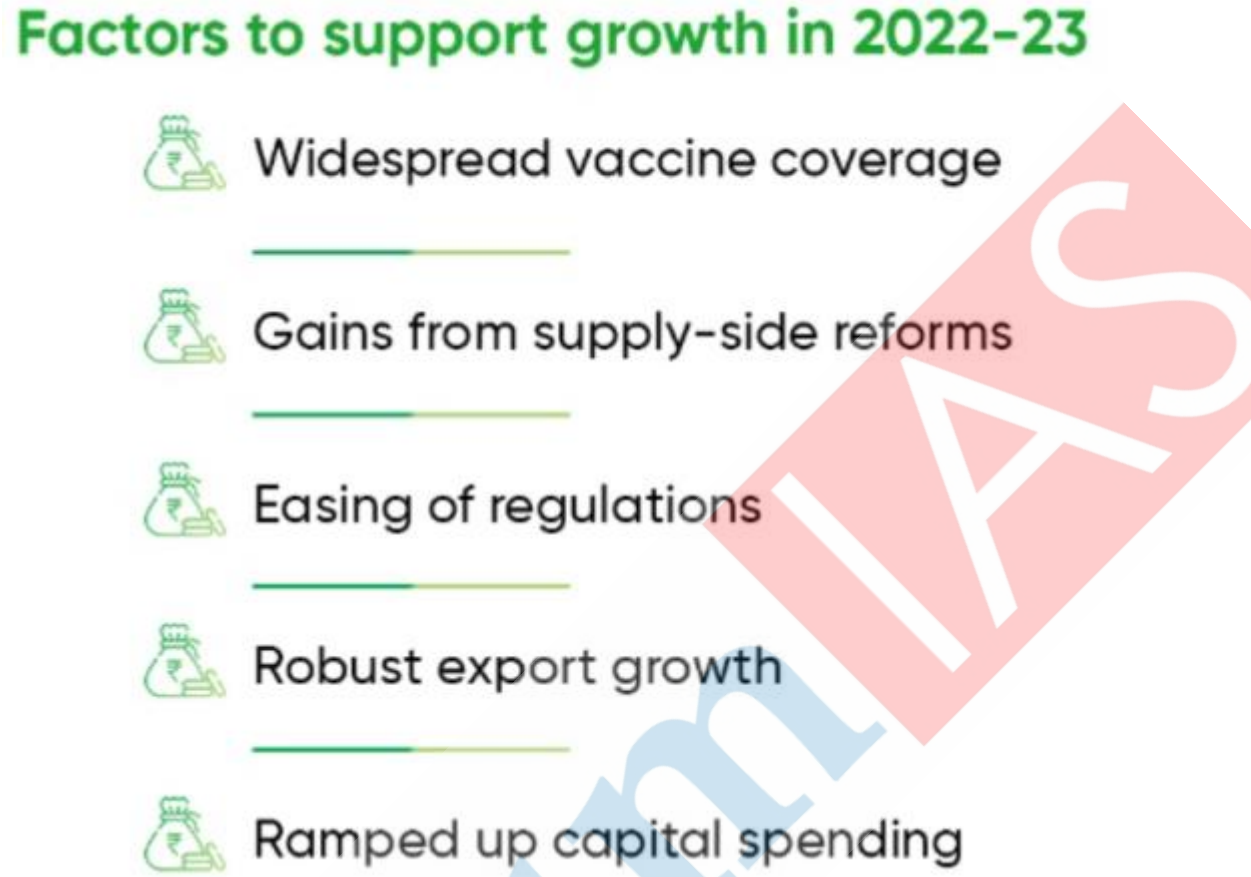
Read more: **Increasing exports in India and challenges in exports- Explained, pointwise**

Balance of payments: India's balance of payments remained in surplus throughout the last two years. This allowed the Reserve Bank of India to keep accumulating foreign exchange reserves, which stand at US$634 billion on 31st December 2021. This is equivalent to 13.2 months of imports and higher than the country's external debt.

Tax collections: The tax collections have been buoyant for both direct and indirect taxes and the gross monthly GST collections have crossed Rs 1 lakh crore consistently since July 2021.

Fiscal deficit: According to the budget estimates, the FD for 2021-22 will be at 6.8%. This figure is a sharp increase from 4.6% in 2019-20.

Other details mentioned in the Economic Survey 2021-22



Source: PIB

Fiscal space: Buoyant tax revenues and government policies have created "headroom for taking up additional fiscal policy interventions".

The **banking sector** is well placed to support the economy, as it is now "well capitalised and the overhang of Non-Performing Assets seems to have structurally declined". For instance, The gross NPA and net NPA ratios declined from 11. 2% and 6% respectively in 2017-18 to 6. 9% and 2. 2% at end-September 2021.

Vaccine economics: The Survey says the progress of vaccination should be seen not just as a health response indicator, but also as a buffer against economic disruptions, especially in the contact-intensive sectors, caused by repeated pandemic waves.

Over the course of a year, India delivered 157 crore doses that covered 91 crore people with at least one dose and 66 crore people with both doses.

India's external sector: With the sizeable accretion of foreign exchange reserves India's external sector is resilient for the withdrawal of liquidity measures.

Barbell Strategy: The Government of India opted for this strategy to overcome challenges in repeated waves of infection, supply-chain disruptions and global inflation. The strategy includes combined safety nets to support the vulnerable on one hand, and a flexible 'Agile' framework that used feedback loops and real-time responsiveness on the other.

a) Providing a bouquet of safety-nets to cushion the impact on vulnerable sections of society and the business sector, **b)** Significant increase in capital expenditure on **infrastructure** to build back medium-term demand, **c)** Aggressively implementing supply-side measures to prepare the economy for the sustained long-term expansion.

Supply-side reforms performed: One of the distinguishing features of India's economic response to the pandemic has been an emphasis on supply-side reforms rather than a total reliance on demand management. These reforms include:

a) Factor market reforms: Deregulation of sectors like space, drones, geospatial mapping, trade finance factoring; process reforms like those in government procurement and in the telecommunications sector; **removal of legacy issues like retrospective tax**; privatization, etc.

b) Reforms aimed at improving the resilience: These include climate/environment-related policies; social infrastructure such as the public provision of tap water, toilets, basic housing, insurance for the poor, a strong emphasis on reciprocity in foreign trade agreements, and so on.

Read more: 24th Financial Stability Report (FSR), December 2021 – Explained, pointwise

What are the challenges highlighted by the Economic Survey 2021-22?

Inflation pressures: WPI inflation has been running in double digits, partly due to base effects. The Survey flags inflation as an issue as inflation is vulnerable to "imported inflation, especially from elevated global energy prices".

The survey mentioned that elevated inflationary pressures could potentially lead to the unwinding of liquidity measures by systemically important central banks, including the US Federal Reserve.

Private consumption and formal sector jobs: The Government's quarterly surveys on urban employment show that jobs have shifted to the informal sector. Similarly, private consumption in 2021-22 is not expected to reach the level that existed two years ago even though the overall GDP will be higher.

Challenges in global trade: Supply-side disruptions, exacerbated by the recovery in demand, pose significant risks for global trade. The biggest downside risk comes from the pandemic. The survey says that along with longer port delays, higher freight rates, and the shortage of shipping containers and inputs such as semiconductors.

Other challenges: Unexpected headwinds from geopolitical developments and spikes in energy prices remain a risk.

What are the suggestions mentioned in the Economic Survey 2021-22?

Change in the Energy sector: The report calls for a "diversified mix of sources of energy of which fossil fuels are an important part", but simultaneously calls for focus on building storage for intermittent electricity generation from solar PV and wind farms to ensure on-demand energy supply.

The survey asks the Government to **focus on the pace of the shift** from conventional fossil fuel-based sources, and **encourage R&D** to ensure an effortless switch to renewable sources of energy.

Use the Government fiscal space: In addition to capital expenditure, the Government needs to use the fiscal space to help contact-intensive services sectors. This will improve the job market and increase private consumption.

Supply-side reforms: The survey calls for an emphasis on **developing a supply-side strategy** to deal with the long-term unpredictability of the post-Covid world, emanating mainly from factors such as changes in consumer behaviour, technological developments, geopolitics, climate change, and their potentially unpredictable interactions.

The Survey proposes the **use of the Agile approach** to policymaking with 80 high-frequency indicators in an environment of "extreme uncertainty". The approach, used in project management and technology development, assesses outcomes in short iterations while constantly making incremental adjustments.

To conclude, the Indian economy is in a good place – macro-indicators are reasonably healthy and the growth engine looks primed to deliver the world's highest growth rate. Overall macroeconomic stability indicators suggest that the Indian Economy is well-placed to take on the challenges of 2022-23, and one of the reasons that the Indian Economy is in a good position is its unique response strategy.

Union Budget 2022-23: Highlights and Concerns – Explained, pointwise

Introduction

The Union Minister for Finance & Corporate Affairs has tabled the Union Budget 2022-23 in Parliament. This year's Union Budget seeks to complement macroeconomic level growth with a focus on micro-economic level all-inclusive welfare.

While observing that India'e economic growth in the current year is estimated to be 9.2%; the Finance Minister remarked, "India is celebrating *Azadi ka Amrit* Mahotsav, and it has entered into ***Amrit Kaal***, the 25-year-long lead-up to India@100... The **budget lays a blueprint for (the next 25 years)**, which is futuristic and inclusive. ...And (provide) big public investment for modern infrastructure, readying for India at 100."

Must read: **Major Highlights of the Economic Survey 2021-22 – Explained, pointwise**

What are the major highlights of Union Budget 2022-23?

PLI Scheme

60 lakh new jobs to be created under the Production Linked Incentive scheme in 14 sectors. PLI Schemes have the potential to create an additional production of Rs. 30 lakh crore.

A new scheme for design-led manufacturing will be launched to build a strong ecosystem for 5G. Apart from that, the budget also announced 5G auctions in FY23.

Entering *Amrit Kaal*, the budget provides an impetus for growth along with **four priorities**:

Infrastructure: PM GatiShakti National Master Plan

Source: PIB

The scope of **PM GatiShakti National Master Plan** will **encompass the seven engines** for economic transformation, seamless multimodal connectivity and logistics efficiency. The 7 engines include Roads, Railways, Airports, Ports, Mass Transport, Waterways and Logistics Infrastructure.

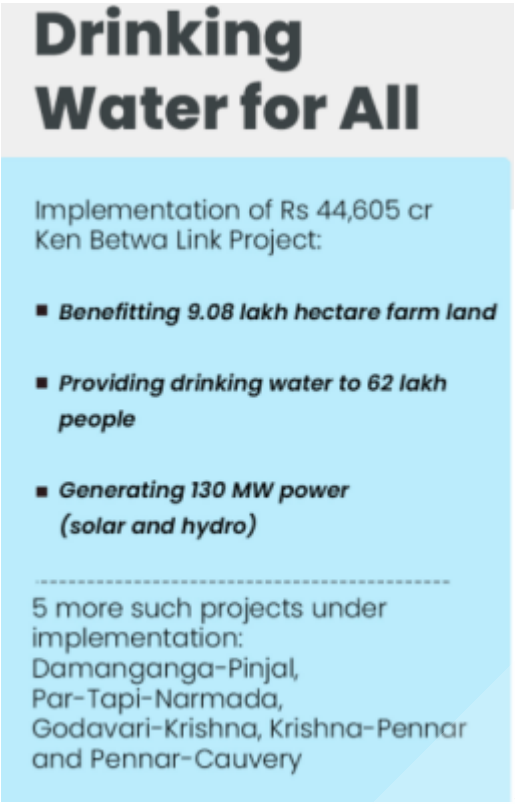
The budget also proposed a new PM Gati Shakti Master Plan for Expressways will be formulated in 2022-23 to facilitate faster movement of people and goods.

Road Transport: National Highways Network to be expanded by 25,000 Km in 2022-23 with outlay of Rs. 20,000 Crore.

Railways: **a) One Station, One Product concept** to help local businesses & supply chains. **b)** 2,000 Km of the railway network to be brought under **Kavach**, the indigenous world-class technology and capacity augmentation in 2022-23. **c)** 400 new generation **Vande Bharat Trains** to be manufactured during the next three years.

Parvatmala, **National Ropeways Development Program**: The program to be taken up on PPP mode. Contracts to be awarded in 2022-23 for 8 ropeway projects of 60 Km length.

Inclusive Development



Source: PIB

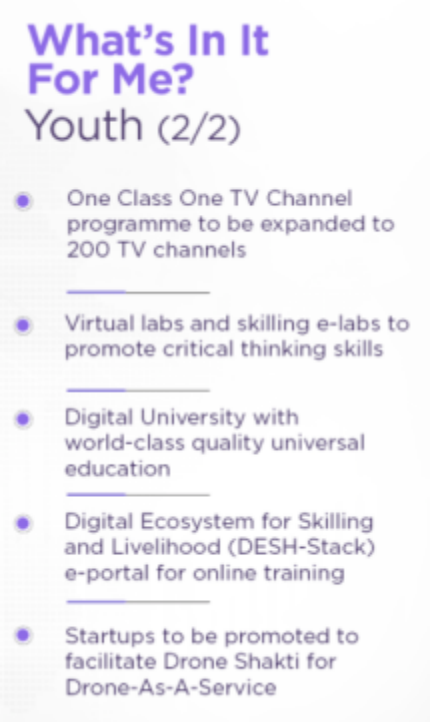
Source: PIB

Agriculture: **a)** Chemical-free Natural farming to be promoted throughout the county. The initial focus is on farmer's lands in 5 Km wide corridors along river Ganga. **b) 'Kisan Drones'** for crop assessment, digitization of land records, spraying of insecticides and nutrients.

Ken Betwa project: Rs. 1,400 crore outlay for implementation of the Ken – Betwa link project which will benefit 9.08 lakh hectares of farmers' lands.

MSME Sector: **a)** Udyam, e-shram, NCS and ASEEM portals to be interlinked. **b)** Emergency Credit Linked Guarantee Scheme (ECLGS) to be extended up to March 2023. **c) Raising and Accelerating MSME performance (RAMP)** programme with an outlay of Rs 6000 Crore to be rolled out.

Skill Development: **a) Digital Ecosystem for Skilling and Livelihood (DESH-Stack e-portal)** will be launched to empower citizens to skill, reskill or upskill through on-line training. **b)** Startups will be promoted to facilitate 'Drone Shakti' and for Drone-As-A-Service (DrAAS).



Source: PIB

Education: **a) 'One class-One TV channel' programme of PM eVIDYA** to be expanded to 200 TV channels. **b) Virtual labs and skilling e-labs** to be set up to promote critical thinking skills and a simulated learning environment. **c) Digital University** for world-class quality universal education with a personalised learning experience to be established.

Health: **a)** An open platform for **National Digital Health Ecosystem** to be rolled out. **b)** '**National Tele Mental Health Programme**' for quality mental health counselling and care services to be launched. **c)** Two lakh anganwadis to be upgraded to **Saksham Anganwadis**.

Water and Housing: **a)** Rs. 60,000 crore allocated to cover 3.8 crore households in 2022-23 under Har Ghar, Nal se Jal, **b)** Rs. 48,000 crore allocated for completion of 80 lakh houses in 2022-23 under PM Awas Yojana.

Source: PIB

Prime Minister's Development Initiative for North-East Region (PM-DevINE): New scheme PM-DevINE launched to fund infrastructure and social development projects in the North-East.

Vibrant Villages Programme: It is for the development of Border villages with sparse population, limited connectivity and infrastructure on the northern border.

Productivity Enhancement & Investment, Sunrise opportunities, Energy Transition, and Climate Action

Banking: **a)** 100% of 1.5 lakh post offices to come on the core banking system. **b)** Scheduled Commercial Banks to set up 75 Digital Banking Units (DBUs) in 75 districts.

Land Records Management: Unique Land Parcel Identification Number for IT-based management of land records.

Other initiatives: **a)** Centre for Processing Accelerated Corporate Exit (C-PACE) to be established for speedy winding-up of companies. **b)** An animation, visual effects, gaming, and comic (AVGC) promotion task force to be set up to realize the potential of the AVGC sector.

Export Promotion and AtmaNirbharta in Defence:

- SEZ Act to be replaced with a new legislation that will enable the states to become partners in 'Development of Enterprise and Service Hubs'.
- Large existing and new industrial enclaves to optimally utilise available infrastructure and enhance competitiveness of exports.
- To facilitate export of jewellery through e-commerce, a simplified regulatory framework shall be implemented by June this year
- To incentivise exports tax exemptions provided on items such as embellishment, trimming, fasteners etc- that may be needed by exporters of handicrafts, textiles and leather garments etc.

Source: PIB

Source: PIB

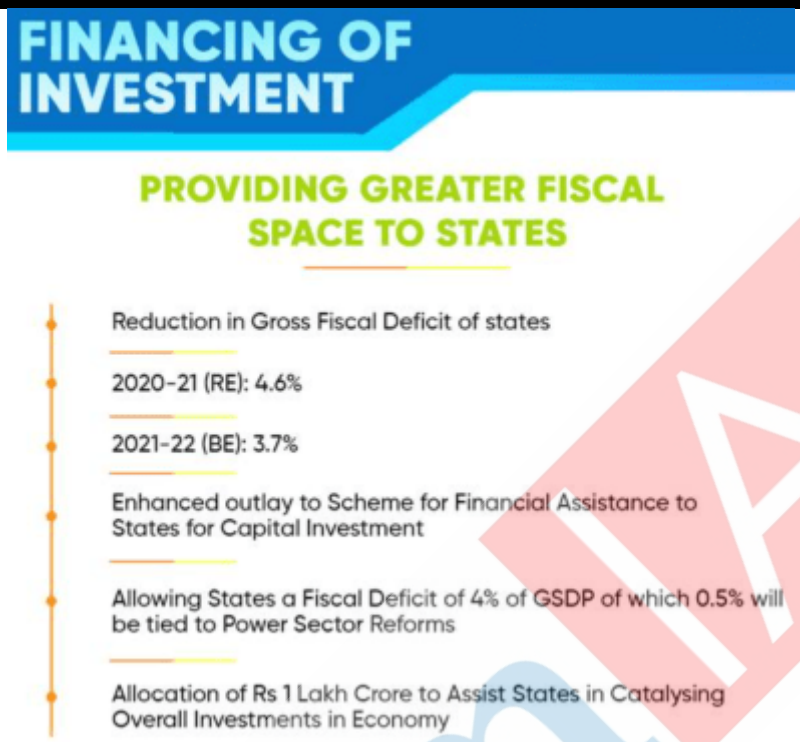
Sunrise Opportunities: Government contribution to be provided for R&D in Sunrise Opportunities like Artificial Intelligence, Geospatial Systems and Drones, Semiconductor and its eco-system, Space Economy, Genomics and Pharmaceuticals, Green Energy, and Clean Mobility Systems.

Energy Transition and Climate Action:

Source: PIB

Source: PIB

Financing of investments



Source: PIB

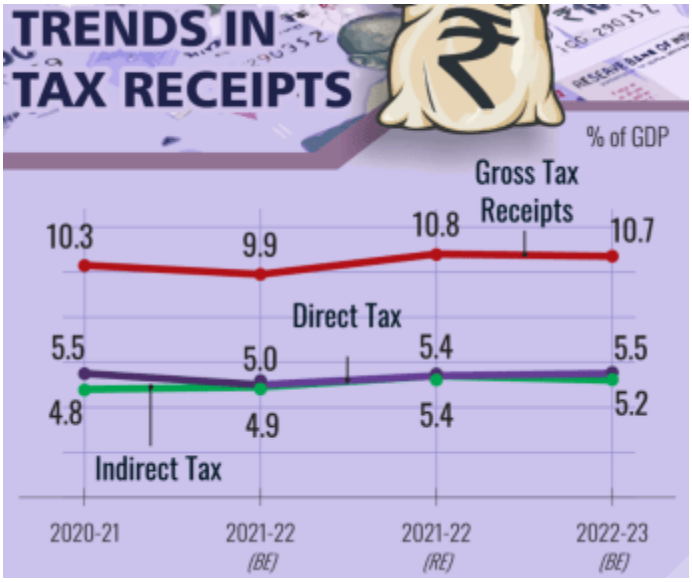
GIFT-IFSC: **a)** World-class foreign universities and institutions to be allowed in the **GIFT City**. **b)** An International Arbitration Centre to be set up for timely settlement of disputes under international jurisprudence.

Mobilising Resources: **a)** Data Centres and Energy Storage Systems to be given infrastructure status. **b)** Sovereign Green Bonds to be issued for mobilizing resources for green infrastructure.

Central Bank Digital Currency: Introduction of Digital Rupee by the Reserve Bank of India starting 2022-23.

What are the Tax proposals mentioned in Union Budget 2022-23?

Direct Taxes



Source: PIB

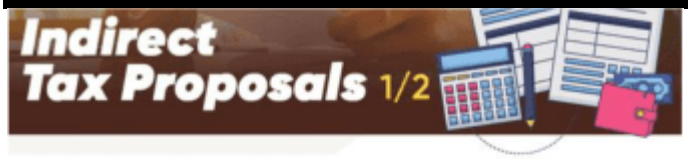
A Scheme for taxation of virtual digital assets: Specific tax regime for virtual digital assets was introduced. Any income from the transfer of any virtual digital asset is to be taxed at the rate of 30% in the hands of the recipient with 1% deducted at the source.

Tax relief to persons with disability.

Parity in National Pension Scheme Contribution: Tax deduction limit increased from 10% to 14% on employer's contribution to the NPS account of State Government employees. This will bring them at par with central government employees.

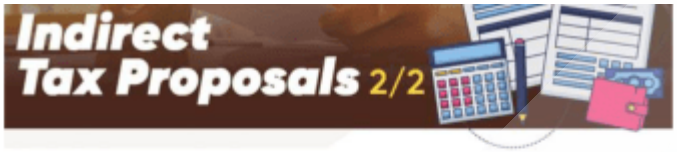
Apart from that, tax incentives to IFSC, rationalization of Surcharge, Health and Education Cess and its income and profits will not be allowed as business expenditure, rationalizing TDS Provisions has also been done.

Indirect taxes



- IT-Driven Customs Administration in Special Economic Zones
- Phasing Out Concessional Rates in Capital Goods and Project Imports Gradually and Apply Moderate Tariff of 7.5%
- Unblended fuel to attract additional differential excise duty
- Customs Duty Rates Calibrated to Provide Graded Rate Structure to Facilitate Domestic Electronics Manufacturing

Source:PIB



- Rationalisation of Exemptions on Implements & Tools for Agricultural Sector Manufactured
- Extension of Customs Duty Exemption to Steel Scrap
- Reduction of Duty on Certain Inputs Required for Shrimp Aquaculture
- Review of Customs Exemptions & Tariff Simplification

Source: PIB

What is the core strategy adopted by the Union Budget 2022-23?

Source: PIB

The budget chose an **investment-led growth strategy** that **substantially ramps up capital expenditure**, while largely holding back revenue expenditure (that is, expenditure to meet day-to-day expenses).

Capital expenditure allocations have increased from 1.65% of GDP in FY20 to 2.16% in FY21 to 2.6% in FY22 and are projected to rise to 2.9% in FY23. Capital spending allocation rose to the highest in 18 years.

According to different studies, one rupee spent towards capital expenditure can give returns between Rs 2.5 and Rs 4.8 (over periods ranging from 1-7 years).

This will **a)** Increase India's GDP growth rate, which was decelerating since 2017-18; **b)** Reduce the unemployment rate which is touching a four-decade high, **c)**Address the **K-shaped recovery**, which resulted in **significant scars for economically weaker sections**. Many projects are local in nature — rural roads instead of a big highway — they may be more effective in providing relief

to the weaker sections of the economy; **d)** Provide much higher returns to the overall GDP; **e)** Create new productive assets that boost future productivity.

New roads, ports etc will reinvigorate several other industries through forward and backward linkages e.g., infrastructure projects will support the cement and steel sectors while enhancing employment. This will **increase private final consumption expenditure (PFCE)**, which is below 2018 levels so far.

In time, as tax revenues from new economic activity increase and as private sector investments become self-sustaining, the government will retreat from its leading role in investments, thus bringing down its borrowing requirements.

Other significant things in the Union Budget 2022-23

Apart from that, Budget 2022-23 has introduced a number of measures to reduce compliance burden, encourage voluntary compliance, reduce litigation, and improve the ease of doing business.

For many who feared that the government will totally ban cryptocurrencies, the tax of 30% came as a relief.

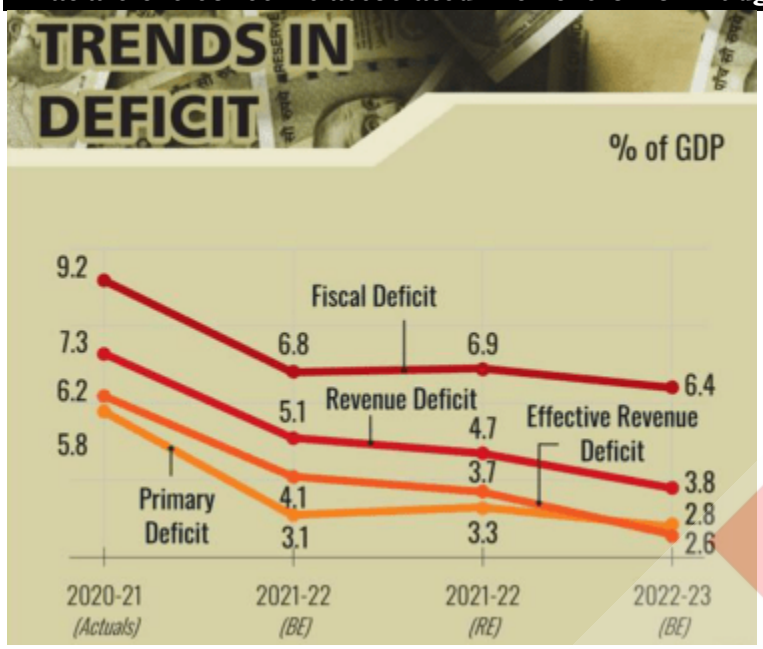
India's dramatically **increased IT and telecom allocations** are an investment in its future. The rollout of 5G promises to create a foundation for next-generation technologies.

Along with an emphasis on semiconductor manufacturing announcements related to the introduction of a digital currency, the issuance of e-passports; IT-based land records etc. **put faith in India's technological capabilities**. This will enable India to transition to a more digital economy.

In **education**, the need for bridging the digital divide has been echoed. The setting up of 200 TV stations, as well as digital universities, are important steps.

The need for more **integrated urban planning** in making the urban sector a true engine of growth has been echoed in the budget with the recommendation of the formation of a high-level committee.

What are the concerns associated with the Union Budget 2022-23?



Source: PIB

The budget shows **1) Increasing protectionist trend and continued differentiation in import duties**. Minute rate differences and taxing inputs at lower rates increase the effective rate of protection, adversely impact competitiveness and give rise to special interest groups lobbying for higher import duties, **2)** The **excessive protection and reservation given to MSMEs** might prevent them from becoming bigger and more competitive to take advantage of the scale economy, **3)** The **government's fiscal deficit** (6.4%) was a cause of concern. In FY22, the government is Rs 1 trillion short of its disinvestment target and incurred capital expenditures to absorb some of Air India's liability. But, the budget spent more for providing direct financial support to various sections of society. This will worsen the fiscal deficit further.

***Note**: The revised fiscal deficit (FD) of the Centre for the current year (2021-22) exceeds the budgeted figure of ₹15 trillion by ₹0.8 trillion. That is 0.4 % of GDP more than the budgeted level.*

4) Issues with Capex push: Capital expenditure has long gestation periods and the expected benefits to the common people may take time to accrue. When all other engines of growth are struggling the investment cycle might not be sustainable. **5)** The Government should have looked at **putting more money in the hands of the people**. For instance, the government missed out to introduce an urban version of **MGNREGS** and cutting the **high excise duty on petrol and diesel**. Several critics have argued that the Government should have spend more on the healthcare sector, given the high suffering of the people during the 2 years of Pandemic. **6)** On the taxation side, there has not been any major giveaway that may have been expected.

What should be done to improve the Indian Economy?

Despite the hype regarding the Union Budget, **almost 60% of the actual spending is at the State level**. Hence, the States should implement the policies and undertake allocated spending.

The top priority for India now is the **creation of jobs**. Many have lost their jobs during the pandemic. Along with infrastructure, **health and tourism,** are the two other sectors that have huge employment generating potential. Hence the government has to work on these sectors too

on top priority. Linking some PLI incentives to job creation would have been something worth trying.

The **GST Council** must now engage in more decisive action in broad banding, inverted duty structure and including excluded items as well as improving all-round compliance.

Apart from that, **1) Public outlay on health** has remained somewhat static. The government has to increase the allocation to the health sector to reap compoundable benefits, **2)** Faster implementation of the delayed programme of the **BharatNet Scheme** for providing high-speed digital connectivity to all villages, **3)** Innovative steps to garner private investment through guarantees and regulatory changes are important.

By and large, Budget 2022-23 is in the desired direction (focus on improving the supply side) in the given circumstances. It has also presented a 25-year blueprint. But the impact of the Budget on the economy and the implementation of the blueprint will depend on the efficiency with which the various proposals are implemented.

Digital Rupee: Advantages and Challenges – Explained, pointwise

Introduction

The Union Minister for Finance & Corporate Affairs has tabled the **Union Budget 2022-23** in the Parliament. One of the major highlights of this year's budget is the announcement of Government's decision to launch Digital Rupee – India's version of a Central Bank Digital Currency (CBDC).

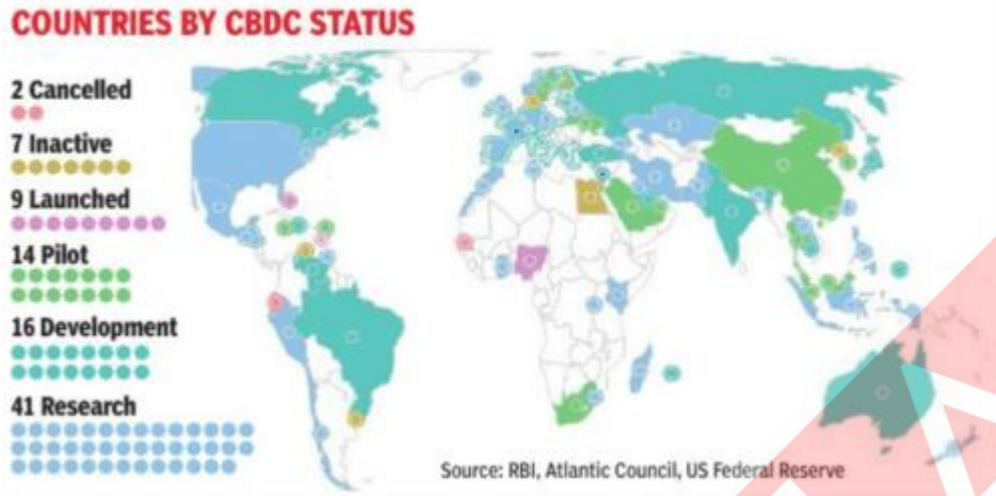
The announcement is a reiteration of the **SC Garg Committee** that had asked the RBI to introduce its own digital currency and ban private cryptocurrencies completely.

What is a Central Bank Digital Currency?

A Central Bank Digital Currency (CBDC), or **national digital currency**, is the digital form of a country's fiat currency. Instead of printing paper currency or minting coins, the central bank issues electronic tokens. This token value is backed by the full faith and credit of the Government.

Read more: **RBI for widening scope of 'bank note' to include digital currency**

About the status of CBDC at the global level



Source: TOI

Currently, 9 countries already use digital currencies. Among the nine countries with active CBDCs, eight are small island nations in the Caribbean. Currently, at least 87 countries are researching or developing CBDCs, including 14 who are running pilot programmes.

1) Sweden is conducting real-world trials of their digital currency **(Krona)**; **2)**The **Bahamas** has already issued their digital currency "**Sand Dollar**" to all citizens; **3)** In October 2021, Nigeria became the latest country to introduce a digital currency, **e-Naira**. **4)** **China started a trial run of their digital currency** **e-RMB** amid pandemic. They plan to implement pan-China in 2022. This is the first national digital currency operated by a major economy.

Countries like Japan, Singapore are currently examining the various facets of such a transition. A few days ago, the US Federal Reserve also released a report outlining the costs and benefits of issuing a central bank-backed digital dollar.

***Note**: CBDC is just a wallet or an electronic purse, issued by a central bank. There are many such wallets operating in the Indian financial system. The CBDC will be one of them, but with a difference that it will be issued by the nation's central bank.*

About the steps announced by the Finance Minister on digital currency(Digital Rupee)?

Source: PIB

Reserve Bank of India will launch a Digital Rupee by 2022-23. The CBDC will be backed by the blockchain and other technologies. The digital rupee will be the digital form of the physical rupee and will be regulated by the RBI.

The budget announcement was made after consultations with the RBI, and the RBI will decide by when it is ready to launch the digital rupee.

According to the Prime Minister, the digital rupee could be exchanged for cash and will open new opportunities in the fintech sector.

Recently, RBI Deputy Governor has said that the central bank is "working towards a **phased implementation strategy**" and will examine the CBDCs in the wholesale and retail segments.

Must read: [Cryptocurrency tax: Budget 2022 unveils norms for virtual digital assets]

Will other digital currencies be allowed in India?

According to the Secretary, Department of Economic Affairs, "**digital rupee will be the first and only digital currency** in India." He also explained that the taxation of crypto assets does not legitimize their usage, as crypto-assets do not mean cryptocurrencies alone. According to him, Crypto, in a general sense, is a digital asset that uses crypto technology.

The Budget has used the term **"Virtual Digital Assets" (VDAs)**. VDAs are a superset for all digital assets being transacted on the blockchain, such as cryptos, non-fungible tokens (NFTs), or any other virtual asset.

***Note**: The **draft Cryptocurrency and Regulation of Official Digital Currency Bill, 2021** aims to prohibit all private cryptocurrencies. The Bill also aims to lay down the regulatory framework for the launch of an "official digital currency".*

Read more: Crypto-assets: To ban or not to ban?

What are the prerequisites before releasing the Digital Rupee?

First, the **design of the currency** with regard to how it will be issued, the degree of anonymity it will have, the kind of technology that is to be used, etc., needs to be sorted out.

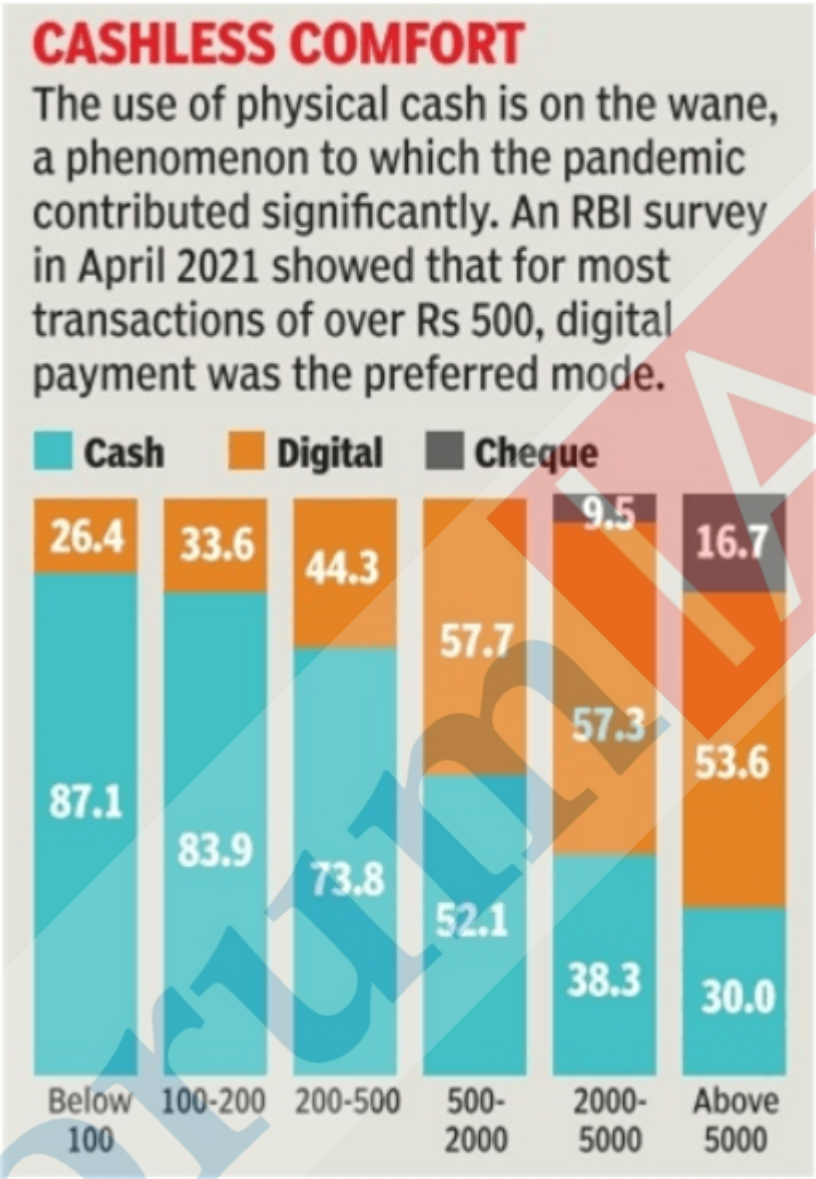
Second, CBDC would need an entirely **new centralized payment system**. This system has to be **linked to electronic wallets** that reside on prepaid cards, smartphones, or other electronic devices.

Third, the government **has to develop an interoperable system** between the other virtual digital assets (VDAs) and the digital rupee for seamless transfer of funds.

Fourth, digital money will be programmable money. Hence, the government has to come out with **suitable products and services** using the digital rupee, such as smart contracts.

Read more: Introducing National Digital Currency in India – Explained, Pointwise

What are the advantages of announcing a digital rupee or CBDC?



Source: TOI

According to the Prime Minister, the Central bank digital currency or the digital rupee will **make online payments more secure and risk-free** and **boost the digital economy** in the years to come. He also mentioned that the digital rupee will lead to ease in the **development of a global digital payment system**.

Further, introducing the digital rupee will **revolutionise the fintech sector** by creating new opportunities and **lessen the burden in handling, printing, logistics management of cash**.

Digital Rupee will lead to a whole lot of improvement in terms of **digitization of the economy, ease of transfer**, not just within the country but across jurisdictions. Further, the Digital rupee **will prevent counterfeiting of currency** and a boost to the war on black money and corruption.

The Digital Rupee will **accelerate financial inclusion, lower costs for financial transactions**, especially in the case of cross-border transactions, the advantages of an **alternate payments system**, the **creation of another instrument in the monetary policy arsenal** of central banks.

Commercial banks sometimes fail, and depositors lose a big chunk of their money despite the deposit guarantee scheme, but when the money is parked with the central bank there is **no risk of default**.

CBDC will **reduce the need for card networks, payment gateways**. There are 1.2 billion mobile phone connections in India right now, but only 582 million bank accounts exist. The CBDC could help to bridge the disconnect.

Read more: Taxing Cryptocurrency transactions

The other advantages include,

Reducing systemic risk: There are about 3,000 privately issued cryptocurrencies in the world. According to IMF, the key reason for considering national digital currency is to counter the growth of private forms of digital money.

Industry estimates suggest there are 15 million to 20 million crypto investors in India, with total crypto holdings of around 400 billion rupees (US$5.37 billion). Most cryptocurrency exchanges are asking people to invest and trade in cryptos without providing basic information about the product and the inherent risks.

There is a possibility of these companies going bankrupt without any protection. But the digital rupee has government backing in case of any financial crisis.

Reduce volatility: The national digital currency will be regulated by the RBI. So, there will be **less volatility compared to other digital currencies**.

Negative interest rate: In tough times, a Central Bank might want people to spend money, hence the concept of negative interest rates. But, presently it can't do so as people will simply withdraw their money from the banks. CBDCs will solve this problem. A negative interest rate could be easily mandated on CBDCs kept in the wallets.

Complement blockchain-led decentralised finance: All crypto assets' final returns will be in sovereign currency, and therefore the digital rupee will aid the virtual digital asset(VDA) markets by bridging the gap between fiat money and decentralised finance.

Read more: Why the Reserve Bank wants to have its own digital currency

What are the challenges associated with issuing a digital rupee?

Globally, pilot projects on CBDC have been underway since 2014. However, progress is slow because this seemingly simple innovation can have unforeseen consequences. These include,

Challenges to the entire banking system: The impact of the digital rupee on the banking system is not clearly understood e.g., if CBDCs are indeed efficient vehicles for retail savers, this could adversely affect bank deposits. Hence, there might be an impact on the role of banks in credit creation, RBI's monetary policy, etc.

Further, **Sweden's Riksbank**, which launched its e-krona project in 2017, is **still studying the need and potential impact** of e-krona on Sweden's economy.

Threat to financial stability: If the RBI offered interest rates on the digital rupee, then it will directly compete with banks. If the regulator ends up competing with the regulated entities, the banking system may see erosion in deposits, threatening the financial sector's stability.

No incentive to switch to digital rupee for user: From a user's standpoint, there is no real incentive to switch to a CBDC as a growing proportion of **retail transactions are already done digitally or by using UPI-based fast payment systems**.

Potential cybersecurity threat: India is already facing **many cyber security threats**. With the advent of digital currency, cyberattacks might increase and threaten digital theft like the **Mt Gox bankruptcy case.**

End of privacy: The digital currency must collect certain basic information of an individual so that the person can prove that he's the holder of that digital currency. This basic information can be sensitive ones such as the person's identity, fingerprints etc.

Further, CBDCs will leave a digital trail even with the phone turned off. For instance, trails such as paying for food, fare and lodging.

Operational issues: There will be many operational issues for the implementation of CBDC, including the KYC (know your customer) norms and privacy of data.

Read more: Rumblings of the coming central bank digital currency

What should be done to improve the performance of the digital rupee?

The Government should **work towards an interoperable system** between the virtual digital asset and the digital rupee. It will unleash opportunities for not only those working or wanting to work in the decentralised finance space (VDAs), but also for traditional finance industry exponents.

Creation of adequate cybersecurity methods: Before the introduction of National Digital currency, the Government has to create certain important things, such as, training of the law enforcement agencies, creating a **policy of basic information** assessed while issuing, verifying someone's digital currency.

The RBI **needs to create a regulatory sandbox**, with limited participants and pre-specified uses, before launching its own digital currency. Only then can the rupee hold its own against other currencies.

Preserving the financial sector stability: The digital rupee can be issued via a **distributed ledger**, synchronised between the banks and the RBI and not a centralised ledger, held solely by the RBI. This **decentralised model** will not end up in competition between RBI and other banks.

Read more: Watch out for an official central bank digital rupee on its way in

Though the introduction of a digital rupee provides various advantages for the government, the government has to create necessary safeguards before rolling it out and must bridge the digital divide.

Biological Diversity Amendment Bill, 2021: Provisions and Concerns – Explained, pointwise

Introduction

The Union Budget 2022-23 highlighted the need for energy transition and mitigating the climate change. At the same time, the proposals for single-form clearances for ease of doing business seem contrary to the climate concerns and commitments. The reflection of such opposite nuances is very much evident in the recently proposed amendments to the **Biological Diversity Act, 2002**.

To reduce the compliance burden, facilitate investments and encourage a conducive environment for research, the Government has proposed various changes to the existing Biodiversity law through the Biological Diversity Amendment Bill, 2021, that completely change the fundamental principles of conservation of biodiversity.

About the Biodiversity Act, 2002

The Biodiversity Act, 2002 was brought with an aim to conserve India's biological diversity and ensure sustainable use of biological resources. The Act ensures that the benefits accrued from the use of traditional and genetic resources are shared with the local communities with prior and informed consent-approval of local communities in a fair and equitable manner.

The Act was an outcome of the **Convention on Biological Diversity, 1992** (which India has adopted and ratified). Later, India also notified Access and Benefit Sharing Regulations, 2014 to give effect to the **Nagoya protocol, 2010** (India became a party in the year 2014).

> ***Note**: Nagoya Protocol is a 2010 supplementary agreement to the 1992 Convention on Biological Diversity (CBD). The Nagoya Protocol is about "Access to Genetic Resources" and the "Fair and Equitable Sharing of Benefit" arising from their utilization.*

The act provides that the **benefits accrued** from the use of traditional knowledge **should benefit the communities** and if the conserver is not specifically known, the access and **benefit-sharing amount can be used for conservation** activities.

This was done to protect the biological resources and prevent the commercial and intellectual property use of associated traditional knowledge without sharing the benefits with the conservers of biodiversity.

The Biodiversity Act, 2002 was brought with a three-tier decentralised system, involving the **National Biodiversity Authority (NBA), State Biodiversity Boards (SBB)** and the **Biodiversity Management Committees (BMC)** at the local level.

Must read: Salient provisions of Biodiversity Act, 2002

What are the salient provisions of Biological Diversity Amendment Bill, 2021?

– Firstly, the Bill **exempts registered AYUSH medical practitioners** from giving prior intimation to State Biodiversity Boards for accessing biological resources for certain purposes.

– Secondly, the Bill **exempts cultivated medicinal plants** from the purview of the Act.

– Thirdly, the Bill **facilitates fast-tracking of research, and patent application** process.

– Fourthly, violations of the provisions of the law (related to access to biological resources and benefit-sharing with communities) that are currently treated as criminal offences and are non-bailable have been **proposed to be made civil offences**.

– Fifthly, the Bill allows foreign investment in research in biodiversity. But, this investment has to be made through Indian companies involved in biodiversity research alone.

– Sixthly, the new Bill introduces a 'member secretary' post to be appointed by the Central Government. The Member-Secretary shall be the chief coordinating officer and the convener of the National Biodiversity Authority and shall assist that Authority in the discharge of its functions under of the Biodiversity Act

Read more: **Role of National Mission on Biodiversity and Human Well-Being on India's Biodiversity**

What are the advantages of the Biological Diversity Amendment Bill, 2021?

First, **Boosting Indian Medicine System**: The Bill is expected to give much-needed fillip to the "Indian system of medicine" through **a)** Facilitating research and patent filing for AYUSH Practitioners, **b)** Encouraging farmers to increase the cultivation of medicinal plants, **c)** Empowering local communities to utilise resources, particularly of medicinal value, such as seeds.

Second, The Bill is expected to **reduce the pressure on wild medicinal plants** by encouraging the cultivation of medicinal plants.

Must Read: **Acts pertaining to Forests in India**

Third, the Bill intends to expand the composition of the NBA by adding many ex-officio members from different Ministries of the Central Government. This might facilitate the **adoption of biodiversity in national policymaking**.

Fourth, the changes proposed in the Bill are expected to **provide a conducive business environment**: By simplifying the patent application process, widening the scope of access and benefit-sharing with local communities, the Bill will provide a conducive environment for collaborative research and investments.

What are the concerns associated with the Biological Diversity Amendment Bill, 2021?

Legal experts have expressed concerns that easing the norms for the sector could be detrimental to ecology for reasons like,

Paving the way for biopiracy: According to the 2002 Act, the benefits accrued from the use of traditional knowledge should benefit the communities. The Bill has excluded the term "bio-utilisation." Bio-utilization is an important element in the parent Act. The Bill excludes such codified traditional knowledge from the definition of benefit claimants. Excluding 'codified traditional knowledge' would be detrimental to the interests of rural and tribal communities. Further, the Bill allows commercial utilisation and intellectual property rights within or outside India with prior approval of the NBA.

The new changes would open a floodgate for **biopiracy** and commercial utilisation of the biological resources that have been conserved and protected by the local communities for generations.

Read more: India State of Forest Report 2021 – Explained, pointwise

Exemption of AYUSH companies from the purview of law: AYUSH industries or Indian companies are not the traditional knowledge keepers. In the **Divya Pharmacy vs Union of India,**

2018 case, the Uttarakhand High Court mandated that all foreign and Indian companies, institutions, individuals must seek prior consent and approval for access and benefit-sharing with the local community.

The Bill exempts registered AYUSH practitioners from intimating SBBs before obtaining biological resources. This is a clear violation of the 2018 judgement.

Violation of Forest Rights Act, 2006: The new Bill violates the Forest Rights Act, 2006 that recognises and authorises the Gram Sabha for prior permission and approval in case of any access to forests. More than 85% of the raw materials for AYUSH medicines come from the forests.

The Bill exempts cultivated medicinal plants. This would allow companies to show the biological resources of the forests (owned or leased under them) as cultivated areas and escape from the requirement of prior approval or share of benefits with local communities. It is **practically impossible** to detect which plants are cultivated and which are from the wild.

Dilution of penal provisions: The Bill has not only diluted the penalty provision by replacing imprisonment with fines in the proposed legislation but also replaced the Judge (Court) with a joint secretary-level officer to determine the penalties.

The monetary penalty would be nothing for big corporations in the cases of contravention or attempts to contravene.

Read more: Proposed Changes to Forest Conservation Act 1980 – Explained, pointwise

What should be done to preserve Biological Diversity?

Respect and recognise the indigenous communities: Recent international conventions and conferences on biodiversity have recognised the indigenous communities as environmental defenders, whose voice is irrepressible and critical. So, the Government has to recognise the role of indigenous communities and ask AYUSH practitioners/industries to work in coordination.

The Government must build trust between its agencies and the people. This will **facilitate effective implementation of the Forest Rights Act (FRA)**:

Prevent bio-piracy: India has its own share of experiences and struggles on biopiracy cases, such as for neem and turmeric. So, at no cost should India allow commercial utilisation of traditional knowledge withouts the benefits accruing to the custodians of the knowledge.

Document study under PBRs: The People's Biodiversity Registers (PBRs) entail complete documentation of biodiversity in the area like the plants, food sources, wildlife, medicinal sources, etc. The Government should use the PBRs to document traditional knowledge of status, history, uses, ongoing changes in biodiversity resources etc. This documentation can be useful to preserve the rights of the traditional knowledge holders.

Read more: Biological Diversity Bill referred to Joint Committee of Parliament

The new amendments might violate the constitutional provisions of the Right to Environment and the International Environmental Conventions and the Protocols that India is a party of. So, all the concerns raised by experts need to be addressed thoroughly.

[Kurukshetra January Summary] Smart Farming: Towards Sustainable Agriculture – Explained, pointwise

Introduction

Smart farming is performing agricultural operations smartly with more precision, and it relies on the use of the Internet of Things (loT) and Artificial Intelligence (Al). Smart agriculture addresses many issues related to crop production as it allows monitoring of the changes in climatic factors, soil characteristics, soil moisture, etc.

What is defined as climate-smart agriculture?

The FAO defines climate-smart farming as an approach that transforms agri-food systems towards green and climate-resilient practices.

It aims to tackle three main objectives: **(i)** Sustainably increasing agricultural productivity and incomes; **(ii)** Adapting and building resilience to climate change; and **(iii)** Reducing and/or removing greenhouse gas emissions, wherever possible.

The main idea of smart farming is **improving the spatial management practices** to increase crop production and avoid the misuse of fertilisers and pesticides.

What are the smart agriculture technologies available at present?

At present, Smart farming technologies can be divided into three main categories:

(i) Farm Management Information Systems (FMIS): These represent mainly software systems for collecting, processing, storing, and disseminating data in the form required to carry out a farm's operations and functions.

(ii) Precision Agriculture (PA): Precision agriculture is aimed at optimizing use of inputs through use of technology, improving economic returns and reducing environmental impact. Precision Agriculture is able to increase input efficiency using **remote sensing technologies** for data gathering (satellites, aircraft or UAVs), **sensors** for ground data acquisition, **wireless networks** for interconnecting them, **geospatial data analytics** and **Smart Decision Support Systems (SDSSs)** for optimised farming decision-making.

(iii) Agricultural Automation and Robotics: It involves application of automatic control, AI techniques and robotic platforms at all levels of agricultural production. **Robots** are being used in agricultural operations such as harvesting and weeding, and **drones** are being used to fertilise crops and monitor crop growth stages.

In short, Smart farming mainly relies on the use of **artificial intelligence (Al) and the Internet of Things (loT)** in **cyber-physical farm management**.

Read more: Year End Review: 2021- Ministry of Agriculture and Farmers Welfare

Why is there a need for climate-smart agriculture?

There are many challenges associated with 21st-century agriculture. These include

First, Climate Change: Abrupt weather fluctuations around the world have put huge pressure on agricultural food products for quality and sustainable food production. Robots can reduce up to 80% of the environmental pollution caused by farm's pesticides.

Second, the natural resources are dwindling and there is an increasing pressure of population on agricultural systems. There is another issue of requirement of more feedstocks for a

potentially huge bioenergy market in many agriculture-dependent developing countries including India.

The **Food and Agriculture Organisation (FAO)** has estimated that the world population would reach 9.73 billion by 2050, and the increase will continue till it reaches 11.2 billion by 2100.

Third, **challenges pertaining to agricultural production** like soil degradation through salinity, nutrient deficiencies, low soil organic carbon content, lower groundwater table, etc.

Fourth, **lack of adequate water**: Water for irrigation is becoming scarce not only in arid and semi-arid regions but also in the high rainfall regions; because of the uneven distribution of rainfall patterns that is not suitable for most of the crops.

Fifth, lack of monitoring systems: According to the FAO, about **20-40% of crops are lost annually** due to pests and diseases due to lack of good monitoring system of the state of the crop.

Therefore, there is a need to make agriculture smart so that crop productivity could be sustained through the mitigation of such challenges.

Read more: Government to Promote Drone use in Agriculture – Financial Support Being Extended Under 'Sub-Mission on Agriculture Mechanization'

How is the Government of India promoting smart farming?

India's **National Strategy on AI** aims to realise the potential economic and social benefits the technology offers. Further, the National Strategy on AI **recognises agriculture as one of the priority sector** areas for implementation of AI driven solutions.

Many ICAR Institutions have developed **various mobile applications** related to field crops, animals, horticultural crops etc. which helps in the identification and subsequent diagnosis and treatment of various plant diseases.

Agriculture Ministries both at the central and the state levels have been **using drones for anti-locust spraying**.

Recently, in India, the Government has released **Standard Operating Procedure (SOP) for use of drones for the purpose of spraying pesticides** on agricultural crops.

Read more: [Kurukshetra December Summary] Rural Women: Key to New India's Agrarian Revolution – Explained, pointwise

"Grain Bank Model"

Ergos has developed a unique model in the Agri-tech landscape called the "Grain Bank Model" that is providing doorstep access to end-to-end post-harvest supply chain solutions to small and marginal farmers. In this model, the farmers were able to convert their grains into tradable digital assets and avail credit against those assets through partner NBFCs and Banks and get better prices for their produce.

For instance, farmers have the flexibility to store/withdraw even a single bag of grains. Farmers get immediate liquidity and better income, as they don't have to sell all their produce at once at the prevailing market rates during harvest season.

What are the advantages of smart agriculture?

Digital Technologies will **enhance farmer incomes** and **increase the overall efficiency** of the agricultural production processes as well as the **entire value chain**.

Smart farming will provide **added value to the farmers** e.g., it will help in more accurate and timely decision-making and more efficient operation and management.

Smart farming will **improve soil health monitoring, facilitate Smart Irrigation, identify plant diseases, improve post-harvesting activities**, etc.

The other advantages include, **1)** Increasing the amount of real-time data on the crops; **2)** Remote monitoring and controlling of farms; **3)** Controlling water and other natural resources; **4)** Improving livestock management; **5)** Accurate evaluation of soil and crops; **6)** Improving agricultural production, and **7)** eco-friendly farming.

Must read: **[Kurukshetra January Summary] Agri-startups and Enterprises – Explained, pointwise**

What are the challenges in developing smart farming?

1) The main challenge delaying smart farming in India is the **small landholdings and fragmented farms**; **2)** Farmers are unable to adopt smart farming with **limited knowledge and skills**; **3) High cost associated with smart devices**: Drones are expensive, especially those with good software, hardware tools, devices, high-resolution cameras, and thermal cameras. An average Indian farmer cannot afford such devices; **4) Internet Connectivity**: The success of smart systems **depends on high-speed internet, advanced mobile devices, and satellites** to provide images and positioning; **5) Global Positioning System (GPS) signals**: GPS signal transmission is difficult in heterogeneous topography like hilly, forests and field with a dense tree planting; **6) Energy Requirement**: Data collection and processing centres and many loT based sensors need uninterrupted and continuous energy for a successful application. Whereas, in many developing countries like India, there is a lack of access to uninterrupted power supplies in rural areas.

Read more: **Relation between Agri exports and water stress – Explained, Pointwise**

What should be done to promote smart farming in India?

Focus on faster adoption: The smart farming innovation must be focused on **a)** Low-cost technology; **b)** Simple and easily portable tools; **c)** Developing a custom hiring system module and credit facility.

Promote of Farmer Producer Organisations (FPOs): FPOs might make smart farming a reality by enabling farmers to afford expensive tools. They provide the biggest opportunity for smart farming/digital agriculture across the entire agriculture value chain, from inputs and production processes to post-harvest and value addition/food processing.

Smart agriculture also needs **ease of access and operations, easy maintenance of systems, timely grievance redressal and appropriate policy support**.

Robust research and development in the field of smart farming are needed so that smart farming can empower Indian farmers to sustain their farm productivity and livelihood.

In conclusion, smart farming will undoubtedly increase production and improve the efficient use of land, water and other resources used in agriculture. Therefore, smart agriculture is the future, and the Government should facilitate the proper adoption of smart farming technologies.

Regulating ART and Surrogacy: Associated Challenges – Explained, pointwise

Introduction

India's fertility industry has a potential market of US $12 billion. In 2021, the Parliament enacted the Assisted Reproductive Technology (Regulation) Act that seeks to monitor and regulate Assisted Reproductive Technologies (ART) and surrogacy. While many welcome it as a step in the right direction, they also fear that the new laws leave no incentive for surrogates and donors, thus opening the scope for black-marketeering.

What is Assisted Reproductive Technology (ART) and Surrogacy?

The Act defines **Assisted Reproductive Technology (ART)** as all techniques that attempt to obtain a pregnancy by handling reproductive cells (sperm or oocyte) outside the body and transferring the gamete or the embryo into the reproductive system of a woman.

According to the Centers for Disease Control and Prevention (CDC) of the US, ART procedures involve surgically removing eggs from a woman's ovaries, combining them with sperm in the laboratory, and returning them to the woman's body or donating them to another woman.

Examples of ART services include gamete (sperm or oocyte) donation, **in-vitro-fertilisation** (fertilising an egg in the lab) and gestational surrogacy (the child is not biologically related to the surrogate mother).

Surrogacy is an arrangement where a woman bears a child for another couple or person with the intention of handing over the child to them after birth.

What is the progress of ART and Surrogacy legislation in India?

The Surrogacy (Regulation) Bill (SRB) 2016 was introduced to place a ban on commercial surrogacy and allow only altruistic surrogacy. The updated version, **SRB 2019—passed by Lok Sabha** in August 2019, was referred to a Select Committee.

The Committee recommended that the ART Bill to be brought first so that all the technical aspects could comprehensively be addressed by the bill. Accordingly, the government framed the **ART (Regulation) Bill, 2021**.

However, before the passage of the ART (Regulation) Act and the Surrogacy (Regulation) Act, 2021; India did not have any statutory laws regulating ART and surrogacy. The only guidelines available were the ones issued by the Indian Council of Medical Research (ICMR) in 2005.

> ***Note**: According to an Ernst & Young study, about 10-15% of all Indian couples are unable to conceive by natural means. The study also estimated that only 1% of them seek infertility evaluation. High costs seem to be a factor—an IVF cycle roughly costs ₹1.5-2 lakh. Besides, the chances of an IVF cycle leading to pregnancy is only 50-60%.*

What are the salient provisions of the ART Act and Surrogacy Act?

The ART Act outlaws the sale of gametes (unfertilized egg and sperm), zygotes (a single cell organism resulting from a fertilized egg) and embryos (the early development stage of a human). The Act also allows insurance coverage for donors.

The Surrogacy Act permits only altruistic surrogacy permitted. Surrogacy is permitted only for intending couples who suffer from proven infertility or for any condition or disease specified through regulations. Surrogacy is not allowed for commercial purposes or for producing children for sale, prostitution or other forms of exploitation.

The ART Act also impose fines of ₹5-10 lakh and imprisonment of 5-10 years in case medical practitioners and clinics are caught engaging in commercial surrogacy and abandonment of the child born through ART or surrogacy procedures, among others. These offences have been made bailable and cognizable, which means a warrant is not required to start the investigation or arrest the person.

Read more: Lok Sabha passes Surrogacy (Regulation) Bill

Why is there a need to regulate surrogacy and ART?

First, **Growth of ART**: A market projection (by Fortune Business Insights) has noted that the size of the ART market is expected to reach US$45 billion by 2026. Among Asian countries, India's ART market is pegged at third position.

The number of ART clinics in the country is likely more than 40,000, as per the Ministry of Health and Family Welfare. But only about 1,850 clinics and banks are either enrolled or identified with ICMR. This has led to a plethora of legal, social and ethical issues.

Second, prevent the exploitation of patients: The Acts have provisions to protect the rights of the donors, the commissioning couple and the children born out of ART and surrogacy. So, it will be impossible for outlaws to operate within the system and exploit patients to make huge profits.

Third, **Creation of database**: Without registration and a proper database of medical institutions and clinics providing ART services, it is impossible to regulate services like surrogacy and **Medical Termination of Pregnancy**. Hence, both the Acts facilitate proper registration.

Fourth, the Supreme Court in the **Baby Manji Yamada vs Union of India case, 2018**, prompted the Government to pass the Act to regulate surrogacy and ART. The Court recognized the legal status of **"commercial" surrogacy** and ruled that the intending parent may also be a single man or homosexual couple.

Read more: Lok Sabha passes Bill to regulate assisted reproductive technology

What are the challenges associated with regulating ART and surrogacy?

Challenges to perform ART: Permitting only insurance and outlawing the sale of gametes and embryos have few challenges,

a) Out of the total cost of ₹80,000 incurred on egg donation, a gamete donor usually receives ₹40,000-50,000 as compensation. By outlawing the sale, the donors might not donate at all. **b)** Poor women may still enter into illegal transactions but will have no legal recourse in case of any medical or other complications and push the practice to the underground and black market.

Scientifically impossible provisions: The new ART law allows retrieval of not more than seven oocytes from a single donor. A woman typically produces several oocytes in a reproductive cycle, but only one oocyte matures to form an ovum. But, It's clinically impossible to ensure the number

of eggs a woman can produce. Further, eggs produced cannot be left behind in the body as it is risky.

A good donor produces 10-18 eggs. At 18 eggs, there are higher chances of pregnancy during the same IVF cycle. If the number of eggs to be retrieved are capped, there will be requirement of multiple cycles or donor stimulations, which will increase the cost for intending couples.

Increase the cost of ART: The current law restricts the gametes of one donor to be used by only one commissioning couple or woman. Two intending couples sometimes share donated gametes from the same donor to bring down the cost. Restricting the sharing will further increase the costs.

Limit ART's to large cities: The new laws mandate both clinics and banks to ensure the eligibility of intending couples and donors. Only banks are allowed to do screening of donors and retrieve eggs. There are ART clinics in small towns where maintaining banks is not feasible because of economies of scale. If screening or retrieving eggs is limited only to Banks, frozen eggs will have to be transferred to clinics from banks which is not as effective as fresh eggs.

Challenges in responsibility: The law holds medical practitioners and clinics responsible for the abandonment of children born through ART or surrogacy procedure. For instance, If a child is abandoned because of discord between the parents, the medical practitioners and clinics are responsible even though the clinic take proper consent from the couples. This will act as deterrent to clinics.

Ban on commercial surrogacy and associated issues: An entire village in Gujarat's Anand district improved its economic status using commercial surrogacy as an option. As the business of commercial surrogacy flourished, Gujarat's milk capital earned the additional title of being a "baby factory".

With the new law in place, similar hospitals and potential surrogates will have to look for new means of livelihood.

Read more: Significance of Assisted Reproductive Technology Regulation Bill

What should be done to improve ART and surrogacy in India?

Follow the international practices: Countries like the UK, South Africa, Greece and Netherlands allow only altruistic surrogacy, but the eligibility for being a surrogate mother is far relaxed in these countries. They have no such requirement for women being married, and no restrictions on the number of times women can be a surrogate.

The current ICMR guidelines, prepared after a lot of research, allow donations up to six times. So, India must follow similar norms.

Regulating commercial surrogacy would have been a better alternative than banning it. Rather than penalising surrogacy, the person providing a womb for surrogacy must be secured with a contract, ensuring proper, insurance and medical checks.

Make the Act inclusive: LGBTQIA+ and single men can also be included into the ambit. Further, the ART service providers have to form inbuilt ethics committees and mandated counselling services within their facility.

The Great Power Rivalry (China, Russia and the US) and its Impact on India – Explained, pointwise

Introduction

In the height of the Great Power rivalry, the Russian President and Chinese leader had their 38th bilateral meeting (since 2013) on February 04, 2022. The 5,000-word joint statement issued after the summit proclaimed that the "friendship between the two States has no limits, there are no 'forbidden' areas of cooperation".

The German Chancellor is scheduled to meet the US President this week and he'll be under enormous pressure to reassure the US that Germany has not gone soft on Russia and is not abandoning its NATO partners. Meanwhile, the French president is travelling to Moscow to explore the possibilities for de-escalation of the crisis in Ukraine.

The US wants to exploit the cleavages between Russia and China. Hence, the US is rebuilding and expanding its alliances. As both sides consolidate their global coalitions, it will get harder to be in the middle, especially for India.

About the summit between China and Russia

The joint statement criticised US policies six times. The summit highlighted the convergence between the two sides on a range of issues, from NATO expansion to the AUKUS alliance.

Without mentioning Ukraine, the document mentioned that China "sympathises and supports the proposals put forward by the Russian Federation on the formation of long-term legally binding security guarantees in Europe". Similarly, Russia extended "...support for the **One-China principle**, confirms that Taiwan is an inalienable part of China, and opposes any forms of independence of Taiwan".

Read more: **Taiwan-China conflict and India's stand on it**

Apart from that, the statement unveiled a common narrative on a host of global issues such as connectivity, cyberspace, development, democracy and human rights etc. They also agreed to cooperate on frontier issues such as artificial intelligence, international technological standards and Arctic sea lanes.

The document on India: The document did not mention the India-China border issue. The only reference to India was about the intent, "...to develop **cooperation with the 'Russia-India-China' format."**

How is the Great Power rivalry taking shape?

The approach of the US

The US's **decision to pull out of Afghanistan** was rooted in the recognition that the time is now for the US to move away from counterinsurgency in the Greater Middle East **to focus on the conflict with other great powers**.

The **US's outreach to Russia** last year (Biden-Putin Summit in June 2021) was based on the premise that the **US could better focus on the challenges from China** in the Indo-Pacific if there was a **reasonable relationship with Russia in Europe**. To fulfil this objective, the US has

1) Revived the **Anglosphere** (the **AUKUS alliance with the UK and Australia**), **2)** **Elevated the Quad** to the summit level, **3)** Reached out to the **ASEAN**, **4)** In Europe, **Britain** has taken the lead in the diplomatic confrontation with Russia, **5) France** is coordinating with the US in dealing with the Ukraine crisis.

The approach of Russia and China

Both Russia and China want to leverage the united front to negotiate better terms from America.

So, ever since the US's outreach, **Russia** is trying to take advantage of that proposition by raising the stakes in Europe. The present **Ukraine Crisis** is just a part of Russia's strategy.

China continues to challenge the US primacy in Asia.

In short, **Russia** is focused on **military means** to rewrite the European security order. On the other hand, **China** is focused on the **economical means to alter the US ties**.

The US is warning that if China backs Moscow in the Ukraine crisis, there might be major financial costs to Chinese companies.

Must Read: **Why India Needs to Balance Relations with China, Russia and US?**

How does the US has the upper hand in the Great Power rivalry?

Potential of the US: According to many defense experts, the US can risk a two-front challenge with Russia and China. The US has enough military resources to address aggression by both Russia and China. Further, the recent action of Russia in Ukraine might help in strengthening the **NATO alliance**.

Read more: **NATO Summit 2021 – Countries Agreed to Step Up Defense**

Challenges within China-Russia relations: The Sino-Russian relationship over the last seven decades has had many twists and turns. They were allies in the 1950s, enemies in the 1960s and 1970s (erstwhile USSR), and partners again in the 2000s. Hence, there are some potential contradictions in the new united front.

Though the **Treaty of Good Neighbourliness and Friendly Cooperation in 2001** increased their cooperation, foreign policy experts hold that the China-Russia relationship is still far from being an alliance. This is because **a)** Unlike in the 1950s, ideology is not the basis of the congruence between them. The present proximity is due to Geopolitical concerns; **b)** The Crimean crisis of 2014 led Russia to court China to ward off Western pressure.

The power of the US and its allies: Seven countries among the top 10 economies — Japan, Germany, Great Britain, France, Italy, Canada, and South Korea — are allies of the US. They have been at the top of the heap for a century and more. But, Russia and China are in isolation.

India is now a strategic partner of the US and faces growing challenges from China.

Economic inequality between China and Russia: Bilateral trade between China and Russia is expected to reach $200 billion by 2024. But, Russia's GDP of $1. 7 trillion is a tenth of China's and Russia does not figure in the top 10 world economies today. Such economic inequality might impact the stability of power equations between China and Russia.

Must read: **Recent developments in India-Russia Relations – Explained, pointwise**

How do Russia and China have the upper hand in the Great Power rivalry?

American vulnerabilities: According to the Russian and Chinese analysts, the chaos of American domestic politics and the continuing arguments between the US and its European partners amplify the dissonance within the West.

Europe's reliance on Russia for Energy: With the increase in gas prices in Europe because of various reasons like severe winter, post covid economy surge, many industries and food supply chains are under stress. Russia is principal supplier of Gas to Europe. A 1224 km, underwater **Nord Stream Pipeline 2** running from Germany to Russia across the Baltic Sea shows the European reliance on Russia.

The dilemma of Germany applies to many countries: Given Germany's large commercial stakes in Russia and China, Germany seemed unwilling to challenge them. Many of the Least developed, and developing countries are in a similar situation to Germany.

China's economic power with US Corporates: China's economic power made Wall Street bankers in the US to lobby with the US government to scale down the confrontation with China.

Must read: What would be the implications of a Russian invasion on Ukraine for India?

How did the Great Power rivalry impact India's international relations?

The return of great power rivalry coincides with **1)** Difficult phase in Indo-Chinese ties; **2)** Widening and deepening of Indo-US ties; **3)** India's relations with Russia may not have the warmth of the past but they remain crucial in a range of strategic areas.

Russia proposed the 'Russia-China-India' triangle to bring together the three major powers. But due to China's dismissive attitude and emerging China-Pakistan nexus, India started investing its diplomatic energies in rapprochement with the United States.

India's alignment with the US on security and global issues will also pose challenges to India's independence of approach and engagement in mini-lateral and plurilateral groupings such as the **BRICS** and the RIC, which involve Russia and China as key interlocutors.

Read more: Its time to build BRICS better

Further, India has little power to nudge Russia towards the US, nor does it have a veto over Russia's strategic partnership with China.

The upcoming meeting of the Quad foreign ministers in Australia and the planned summit of their leaders in Japan in May 2022 will give some clues to India's future navigation between the great powers.

Read more: India in chair, UNSC adopts resolution on Taliban; Russia and China abstain

What India should do in the Great Power rivalry?

India's approach will depend upon the **new dynamic between the two coalitions** as well as its **own relations with China, Russia, and the US**.

India **needs to assess the import of joint Russian-Chinese actions**. In situations like the great power game, prudence dictates assessing both words and deeds. Till then, India needs to bide its time by managing differences and balancing interests.

India **should leverage its economic potential** (6th Largest) and diverse base of foreign policy to effectively balance the relationship with the trio.

Note: Diverse Base – Actively engaging with US, European powers (France, UK), Asian powers (Japan, Korea, and Australia), etc.

Read more: **Why the Russia-West equation matters to India**

According to C. Raja Mohan, India would like to see Russia find accommodation with the West in Europe; India knew that stabilising the Asian balance of power will be difficult without a measure of US-Russian cooperation in Europe. But if Russia blows its ties with the West in Europe, India is unlikely to let Russia undermine its growing partnership with the US and its allies. The dynamics of this Great Power Rivalry will pose the biggest challenge to Indian diplomacy in the coming times.

Crop Diversification: Need, Advantages and Challenges – Explained, pointwise

Introduction

In a country like India, agriculture is a means of livelihood or subsistence for most farmers and not a business. At present, farmers face various bio-socio-psychological anomalies in farming. The traditional approach of low input-based extensive and diversified agricultural practices termed as 'crop diversification' could be an alternate approach to save farming and act as a counter-strategy for bio-socio-psychological anomalies.

What is Crop diversification?

Crop diversification is a strategy applied to grow more diverse crops from shrinking land resources with an increase in productivity in the same arable land.

Type of diversification	Nature of diversification	Potential benefit
Improved structural diversity	Makes crops within field more structurally diverse	Pest suppression
Genetic diversification in monoculture	Cultivation of mixture of varieties of same species in a monoculture	Disease suppression, Increased production stability
Diversify field with fodder grasses	Growing fodder grasses alongside of food/pulse/ oilseed/vegetables	Pest suppression, opportunity to livestock farming
Crop rotations	Temporal diversity through crop rotations	Disease suppression, Increased production
Polyculture	Spatial and temporal diversity of crops	Insect, pest disease suppression, climate change buffering
Agro-forestry	Growing crops and trees together	Pest suppression and climate change buffering
Mixed landscapes	Development of larger-scale diversified landscapes through mixture of crops and cropping system with multiple ecosystems	Pest suppression, climate change buffering and increased production stability
Micro-watershed based diversification	Integration of crop with other farming components for year round income and employment generation, besides sustaining soil	Insect, pest and disease suppression, climate change buffering and increased production, employment and income

Source: Researchgate

This can be done in various forms such as the addition of new crop(s) as intercrop and/or predecessor or successor crops, changing numbers of the crop (multi-cropping), modified cropping system and adopting a new, integrated cropping pattern with changing agronomical practices.

The traditional pattern of agriculture in India has wider crop diversity, and is more stable and pro-nature. In the **Garhwal Himalayan region** of India, **Barahnaja** is a crop diversification system for cultivating 12 crops in a year. 'Barah anaaj' literally means '12 foodgrains' and is the traditional heritage of the area.

Must read: **How Punjab and Haryana are switching to sustainable cropping techniques to preserve groundwater?**

What are the array of problems faced by farmers today?

1) Today's farmers confront a series of **adversities and climatic vagaries** during agricultural production, such as erratic rainfall, stone hail, drought, flood, and so on. **2)** In addition,

challenges like **post-harvest losses, storage and unavailability of accessible proper marketing** are further aggravating the problem. **3) New array of problems** like the human-wildlife and/or human-crops conflict, forest fires, organic matter deficit soil, monoculture, plant disease and infestation, migration and the reluctance of youth towards agriculture

Read more: [Kurukshetra January Summary] Smart Farming: Towards Sustainable Agriculture – Explained, pointwise

Why does India need crop diversification?

For more than five decades, farmers have been using the common government-promoted Green Revolution cropping pattern — rice-wheat-rice for a longer time to enhance productivity. Unilaterally, following the same cropping pattern for a longer period of time has resulted in

– Extraction of specific nutrients from the soil, resulting in soil deficiency in those nutrients,

– Declining population of microfauna in the soil: The microfaunal population is responsible for the mobilisation and absorption of particular nutrients in the crop rhizosphere. Without microfaunal activities, the soil is lost to self-perpetuate and its ecology for crop production.

– Reduced resource-use efficiency: After the Green Revolution, Indian agriculture has been facing severe problems related to an increase in input cost to increase productivity. The direct increase in productivity in proportion to increase in input is limited to a certain extent and plateaus and then decreases with further increase in inputs. In India, productivity has plateaued in most regions.

– Mono-cropping patterns have **more chances to be attacked by the same types of insects and pests**, which in turn are controlled by pumping the insecticides and pesticides. This **accumulates the residue of these chemicals** in soil which pollutes the soil, crop and environment.

The introduction of diverse crops and cropping patterns help in **a)** Reviving soil health, **b)** Increasing the population of microfauna, **c)** Increasing resource-use efficiency, **d)** Preventing change in soil's chemical and biological properties, **e)** Reducing the application of weedicides or herbicides, etc.

Therefore, there is an **urgent need to change the crops and cropping pattern**, that is crop diversification.

Read more: Government should initiate steps to make Agriculture remunerative

What is the role of agroforestry in crop diversification?

The integration of trees in the cropping system, also known as **agroforestry**, plays a significant role in sustaining crop diversification. Agroforestry is a land-use system that includes trees, crops and/or livestock in a spatial and temporal manner, balancing both ecological and economic interactions of biotic and abiotic components.

Agroforestry can generate food, feed, fruits, fibre, fuel, fodder, fish, flavour, fragrance, floss, gum and resins as well as other non-wood products for food and nutritional security. It can also support livelihoods and promote productive, resilient agricultural environments in all ecologies.

Globally, different agroforestry practices have played a key role in crop diversification. In North America, for instance, farmers preferred agroforestry over agriculture to improve their economic gain and natural resource conservation.

Read more: Pineapple Agroforestry Systems can Address Twin Challenges of Climate Change and Biodiversity Loss

How is agroforestry practised in India?

Agroforestry is a part of primitive and tribal agriculture nourished with indigenous technical knowledge.

The major agroforestry practices in India include multifunctional improved fallows, home gardens, plantation crop-based mixed-species production systems, alley cropping, protein banks, shifting cultivation in different regions.

The home gardens of the southern part of India are a classic example of maintaining temporal and spatial arrangement for crop diversity, with trees resulting in sustainable productivity from the unit area.

Read more: Year End Review: 2021- Ministry of Agriculture and Farmers Welfare

What are the benefits of crop diversification?

Increases Farmers' income: Crop diversification can act as an important stress-relieving factor for the economic growth of the farming community and provide economic stability.

Increases natural biodiversity and productivity: Crop diversification can increase natural biodiversity, strengthening the ability of the agroecosystem to respond to climatic and environmental stresses.

Reduces the risk of crop failure: As different crops will respond to climate scenarios in different ways, crop diversification will significantly reduce the risk of total crop failure. Further, diversification will also help in **mitigating natural calamities.**

Ensure Food and nutritional security: Crop diversification enables farmers to grow surplus products for sale at the market. Thus facilitating both food and nutritional security.

Access to national and international markets: It can enable farmers to gain access to national and international markets with new products, food and medicinal plants.

Environmental Conservation: Adoption of crop diversification helps in the conservation of natural resources like the introduction of legumes in the rice-wheat cropping system, which has the ability to fix atmospheric Nitrogen to help sustain soil fertility.

Read more: Our farm income and nutrition challenge amid climate change

What are the challenges faced in crop diversification?

Dependence on Monsoon: Around 55% of India's Cultivable Land is Rain-fed with heavy dependence on monsoon. Hence, some crops may not be able to survive in the prevailing environmental conditions.

Fragmented land holding: It makes it difficult to use efficient modern technology on large scale, raises the cost of land boundary management, land disputes etc.

The shift from Food crops to Commercial Crops: This especially includes Cotton in the Deccan belt; and Sugarcane in the Green revolution belt and Krishna-Godavari basin.

Inadequate infrastructure: Poor basic infrastructure like rural roads, power, transport, communications etc are major impediments for diversification.

Lack of Knowledge and Training: Indian farmers are inadequately trained. Further, there is persistent and large scale illiteracy amongst farmers.

Over-use of resources like land and water resources: Crop diversification might amplify resource consumption, thereby creating a negative impact on the environment and sustainability of agriculture. For instance, Animal agriculture is the second-largest contributor to human-made Greenhouse Gas (GHG) emissions after fossil fuels.

Read more: **How do emerging technologies provide opportunity for crop diversification?**

How to improve crop diversification in India?

India **needs to identify crops and varieties** that may suit a range of environments and farmers' preferences. Then **a)** India **needs to frame adequate skill development policies** to promote the crops and varieties amongst rural livelihoods, **b) Research institutes** such as ICAR **should conduct research** on further crop diversification, **c)** The government should **procure crops produced** other than wheat and rice **at a Minimum Support Price**. **d) Reduce agricultural emissions** through smarter livestock handling, technology-enabled monitoring of fertilizer application and more efficient agricultural techniques.

Read more: **Why does India need MSP for other crops?**

Although there are challenges that need to be addressed, crop diversification provides an opportunity to double farmers income and create food and nutritional security for the nation.

[Yojana February Summary] Early Childhood Care and Education: Teach them Young – Explained, pointwise

Introduction

At present, there are about 100 million children between the ages of 3-6 years. These years are the bridge years between home and school and are critical for the physical, cognitive, socio-emotional, language, and early numeracy development. These components together comprise **Early Childhood Care and Education (ECCE)**.

These years have the 'most important influence in subsequent learning, behaviour and health'. The devastation caused by the lack of early learning for the majority of little children due to the pandemic presents one of the biggest challenge today. There is a need to expand the opportunities to the youngest children of India, as the future depends on how India's youngest children are empowered to learn and craft their own future in a fast-paced, ever-changing world.

What is Early Childhood Care and Education (ECCE)?

According to UNESCO, Early childhood is defined as the period from birth to eight years of age. It is a time of remarkable growth with the brain development at its peak.

Early Childhood Care and Education (ECCE) is more than preparation for primary school. It aims at the holistic development of a child's social, emotional, cognitive and physical needs in order to build a solid and broad foundation for lifelong learning and wellbeing.

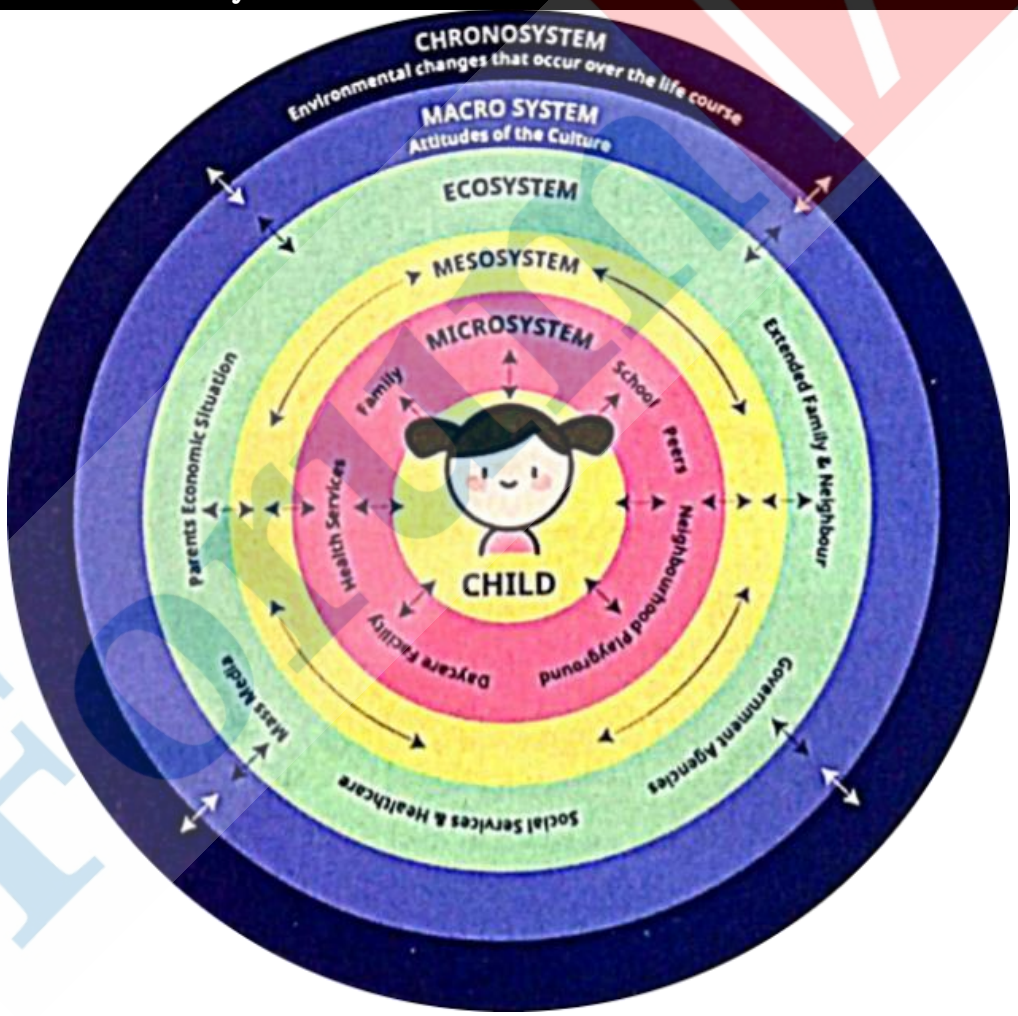
Read more: The need to reopen *anganwadis*

What are the three fundamental requirements for Early Childhood Care and Education?

For overall development, a child in the early years needs **(a) Care**, in the form of good health & nutrition and a safe environment; **(b) Stimulation** that fosters curiosity particularly 'planned play, adult-child interactions, child-child interactions, and opportunities for holistic development'.

Children begin to form a sense of self, but their agency is mediated by caring adults who surround them-—family, teachers, *anganwadi* workers, etc. They play with their peers in the community. That's why there is an adage, "**It takes a village to raise a child.**"

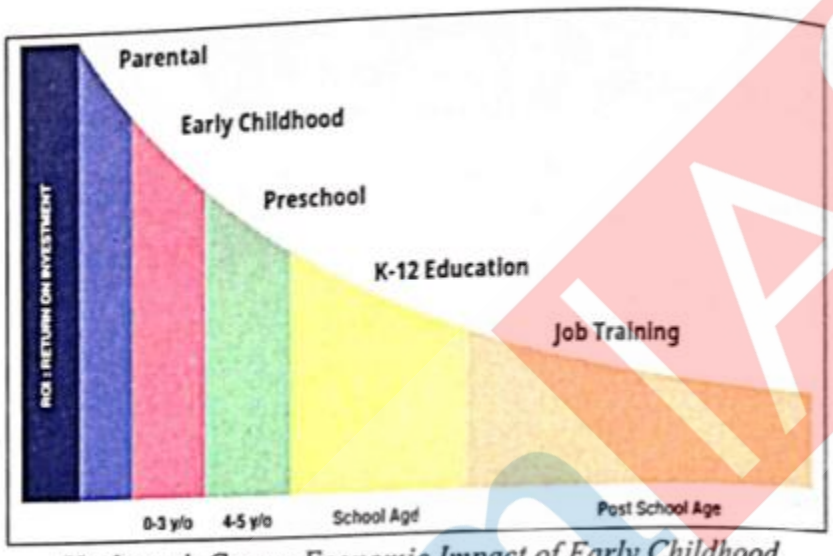
What is the need for Early Childhood Care and Education?



Source: Yojana

Foundation of future: Over the next decade, about 23-24 million births are expected per year. If India does the heavy lifting of educating this one generation, future generations will reap rich dividends.

According to **National Education Policy(NEP) 2020**, "Over 85% of a child's cumulative brain development occurs prior to the age of 6, indicating the critical importance of appropriate care and stimulation of the brain in the early years.



Heckman's Curve: Economic Impact of Early Childhood Learning (Heckman 2021)

Source: Yojana

Disproportionately Higher Returns: Nobel Laureate James Heckman strongly argues that **investing in early childhood education produces the greatest returns** in terms of human capital and ensures quality economic returns. It results in far greater returns than the same investment in schooling.

Key for optimal living: Neuroscience tells that 'a young child's brain develops through stimulation of the sensing pathways (e.g. seeing, hearing, touching, smelling, tasting) from early experiences'. The child's brain in the early years is like plastic, rapidly growing, and yearning for experiences to prepare itself for the future.

The greater the number of experiences, the more neural pathways are created by neurons for optimal learning and development. Early experiences profoundly impact the prefrontal cortex part of brain which plays a vital role in executive skills like the ability to think clearly, self regulate, manage time, organise self, be goal-directed or in short – **the key ingredients for optimal living**.

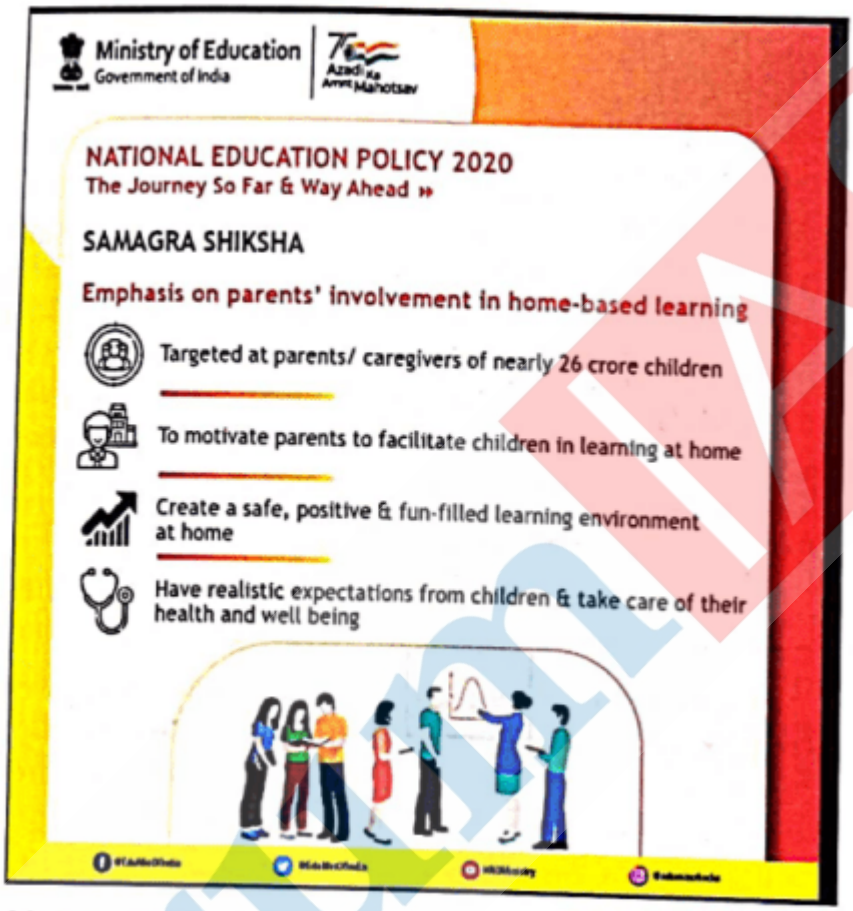
Therefore, missing this critical window of opportunity would be to **deprive the child of an opportunity for learning and a better future**.

Children learn all the time: Children learn from anything and everything they see. They learn from wherever they are, not just in special learning places like schools, *anganwadis*.

Enhance multilingualism: Researchers have shown that children pick up languages extremely quickly between the ages of 2 and 8 and that multilingualism has great cognitive benefits to young students.

Read more: Need of Early Child Development

What is the status of Early Childhood Care and Education (ECCE) in India?



Source: Yojana

The NEP 2020 has taken a big step in making **ECCE a core Policy imperative**: "Universal provisioning of quality early childhood development, care, and education must … be achieved as soon as possible, and no later than 2030, to ensure that all students entering Grade I are school ready."

National Initiative for Proficiency in Reading with Understanding and Numeracy (NIPUN Bharat): The initiative aims to ensure every child in the country attains Foundational Literacy and Numeracy (FLN) at Grade 3 by 2026-27.

The Ministry of Education's '**Guidelines for Parent Participation in Home Learning'** mention a key strategy for early learning, that is to 'turn everyday routines into fun playful moments for learning and brain development'. The Guidelines provide an A-Z listing of moments and activities that can be conducted e.g., the **connect with nature guideline**: Encourage children to observe the flowers, trees, plants, leaves, birds, butterflies, insects in the local environment.

Among other programmes, India has one of the largest networks of **child care or *Anganwadi* centres**. These centres have been set up under the Ministry of Women & Child Development's **Integrated Child Development Services (ICDS) Scheme** (1975), which provides a range of services, from health and nutrition to pre-school non-formal education.

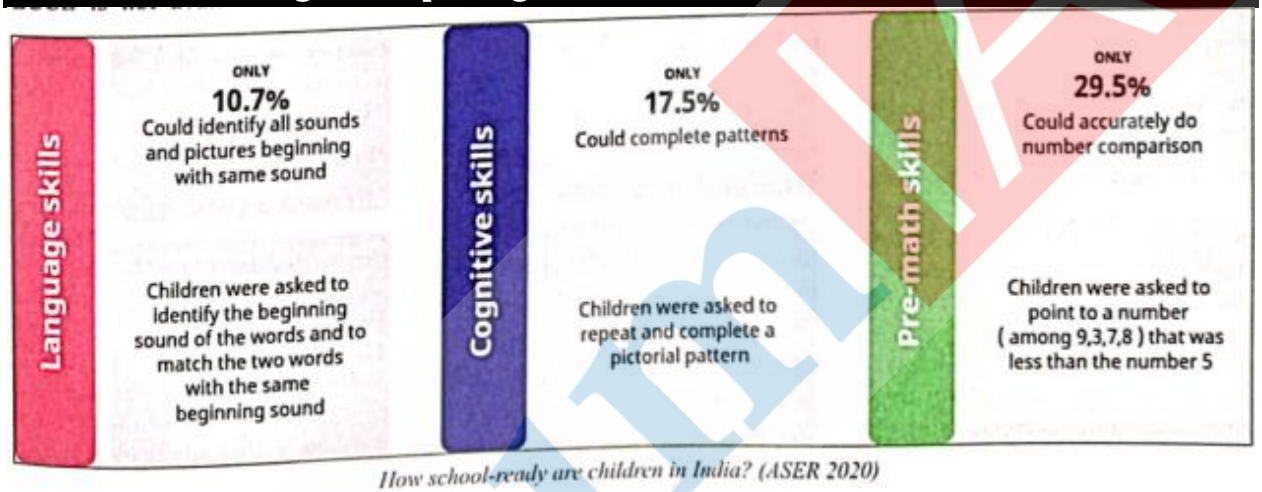
In addition, **private preschool, and daycare services** have been accessible at various price points due to increased demand particularly between 2008 and 2020.

Role of Civil society organisations: CSOs have played a significant role in conducting pioneering research, working extensively with States in building capacity for *anganwadis* and schools, spreading awareness, implementing programmes, and interventions and creating a number of practitioner resources.

These initiatives have generated a buzz in the ecosystem to create an impact in the ECCE space and maximise opportunities for every child's future in India.

Read more: The significance of ECCE and how *Anganwadis* can be instrumental in delivering it

What are the challenges in improving ECCE?



How school-ready are children in India? (ASER 2020)

Source: Yojana

Children are not school ready: Of the nearly 25 million children born in India every year, about 99% enrol in school at the age of 5 or 6. However, as the report **'ASER 2019: 'Early Years'** reveals, many children enter school without being school-ready. Only 10.7% of children aged 5 could match pictures beginning with the same sound, and only 17.5% could complete a simple pictorial pattern.

Lack of quality: Despite multiple actors and a variety of interventions and initiatives, achieving quality ECCE still remains a challenge. According to the NEP 2020, 'Presently, quality ECCE is not available to crores of young children, particularly children from socio-economically disadvantaged backgrounds'.

Neglect from parents/caregivers: The current parent/caregiver mindset is 'Early years are the days for play'. NIPUN Bharat observes that one present barrier is that the parents/caregivers do no have a role to play in education if they themselves are illiterate and their role ends at sending the child to school.

Read more: *Anganwadis* should provide early childhood care and education

What steps can be taken to improve ECCE?

Empower adults: There is a need to empower caring adults to engage in child's early age learning. This can be done by **(a)** Creating access to local language resources, **(b)** Aligning

learning outcomes for preschoolers with Ministry of Education guidelines, **(c)** Creating a National caregiver helpline where caring adults can get complete guidance in their local language, **(d)** Creating a platform that offers everything about "Early Learning" — from curriculums, resources, including books, toys, word activities and word games, etc.

Further, It has been found that male caregivers report higher levels of overall satisfaction compared with female caregivers', thus opening up an opportunity for planned interventions to involve fathers/male caregivers.

Implement the strategy mentioned in NIPUN Bharat: The programme proposes that change should be brought through campaigns, events, etc., drawing on key insights from successful public programmes like Polio eradication and *Swachh Bharat* in order to make ECCE a *Jan Andolan* or People's movement.'

Convert the technology Divide to Dividend: ASER Report 2021 mentions that during the Covid-19 lockdown the availability of smartphones has almost doubled from 2018-2021. This signals a critical shift in parental mindset about the use of smartphones for learning.

Hence, technology in the ECCE space is not child facing, but can become a powerful tool to empower and enable caring adults to raise the quality of interactions with their children in the physical world.

Turning the multilingual classroom into a resource rather than a barrier: The UNICEF-LLF 'Guidelines for Implementation of Early Learning Programs' mentions that including children's local language helps to promote 'an equitable learning environment', 'a strong platform for learning the school language', and 'higher-order work like thinking, reasoning and expression'.

So, the government can fast track the recommendations of the NEP, such as generation of textbooks, Teacher Learning Materials, and 'enjoyable and inspirational books' in local languages.

Make ECCE inclusive: The NEP 2020 specifically calls out that 'children who come from families that are economically disadvantaged' reap the 'greatest dividends' with early childhood education. This can be done by **(a)** Inclusion of all Socio Economically Disadvantaged Groups (SEDGs) at the three levels of access, participation, and learning outcomes; **(b)** Certain geographical areas contain significantly larger proportions of SEDGs. These areas should be declared Special Education Zones (SEZs) where all the schemes and policies are implemented to the maximum; **(c)** Specially targeting girls, who cut across all underrepresented groups; **(d)** Ensuring inclusion and equal participation of children with disabilities in ECCE.

Despite the setback due to the pandemic, with the trend of children now returning to schools, India needs to expand the opportunities to the youngest children of India. Policy intent exists, what is now required is an ecosystem to create, contribute, and leverage building blocks required to create diverse solutions and resources for the sake of ECCE.

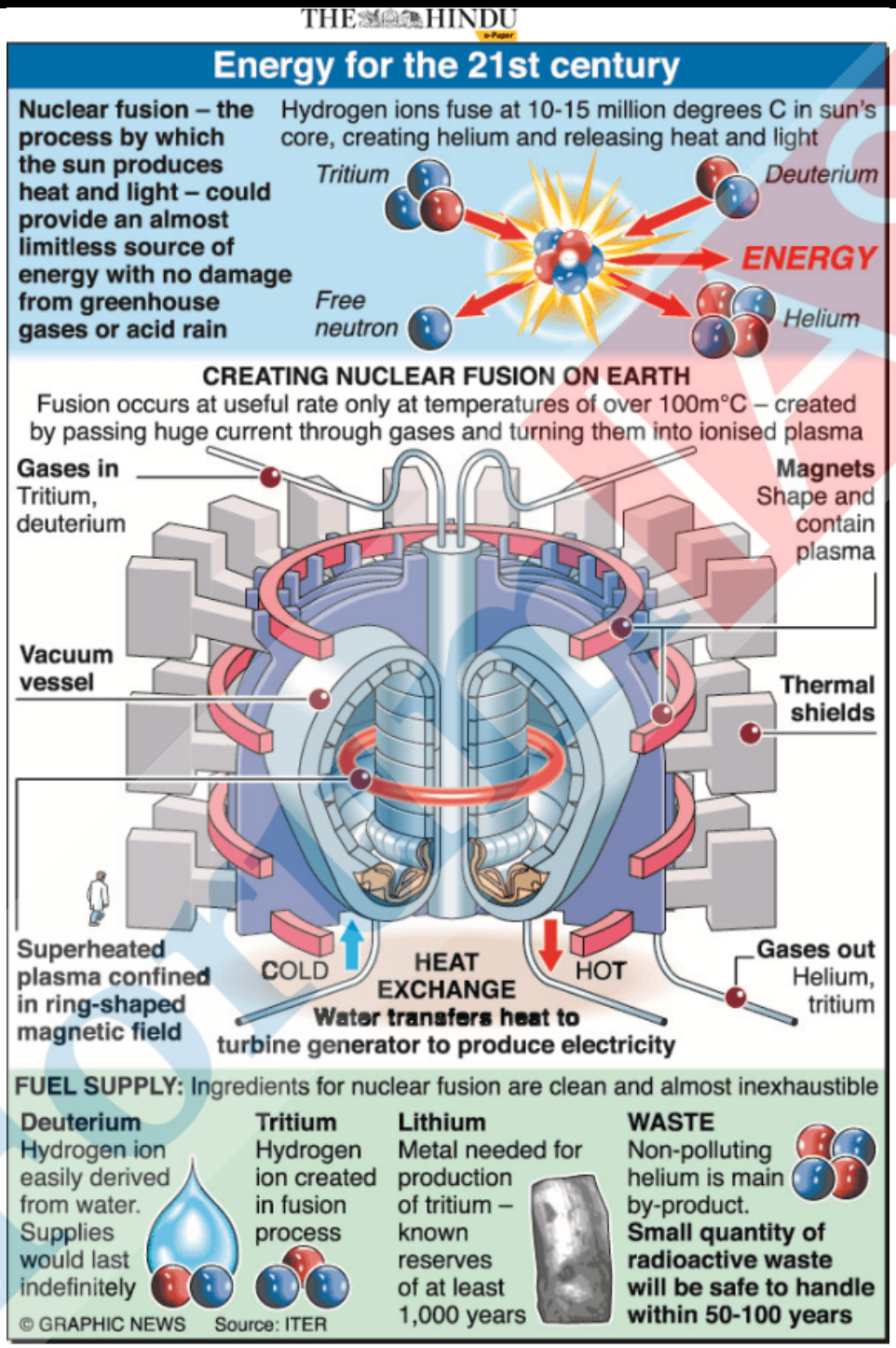
Nuclear Fusion Technology: Evolution, Challenges and Future Potential – Explained, pointwise

Introduction

Scientists in the Joint European Torus (JET) facility, United Kingdom have said that they have achieved a new milestone in producing energy from nuclear fusion. They sustained a super-hot plasma for 5 seconds and produced 59 Mega Joules (MJ) of energy from thermonuclear fusion. This is more than double the record created in 1997 which produced 21.7 MJ of energy in 4

seconds. The record and scientific data from this is a major boost for the International Thermonuclear Experimental Reactor (ITER), the larger and more advanced version of the JET.

What is thermonuclear fusion?



Source: The Hindu

Nuclear fusion is defined as the process of combining several small nuclei into one large nucleus with the subsequent release of huge amounts of energy. A specific case of fusion is the process by which **hydrogen atoms combine to produce helium**, and release immense energy in light and radiation.

The **most efficient fusion reaction** in the laboratory setting is between two hydrogen isotopes, deuterium (D) and tritium (T). Deuterium, also called heavy hydrogen, has a neutron and a proton in its nucleus. Tritium has two neutrons and one proton. The D-T fusion reaction produces the highest energy gain at the 'lowest' temperatures.

Nuclear fusion is possible only at extremely high temperatures and high pressure to push the hydrogen nuclei closer to fuse with each other. Hence, it is also called as 'Thermonuclear reaction or fusion'.

Read more: **Clean Energy from nuclear fusion is our Planet's best hope**

How nuclear fusion will occur in stars?

In a nuclear fusion reaction, lighter atoms of hydrogen fuse to produce slightly heavier atoms like helium. Ordinarily, these atoms cannot fuse. The like charges of the electron clouds surrounding the atoms would repulse and keep them at bay from coming too close.

In the core of the stars, the temperature is around 15 million Kelvins. All the electrons are ripped away at these temperatures, forming what is known as plasma, often referred as the fourth state of matter. Plasma is hot, charged gas made of positive ions and free-moving electrons.

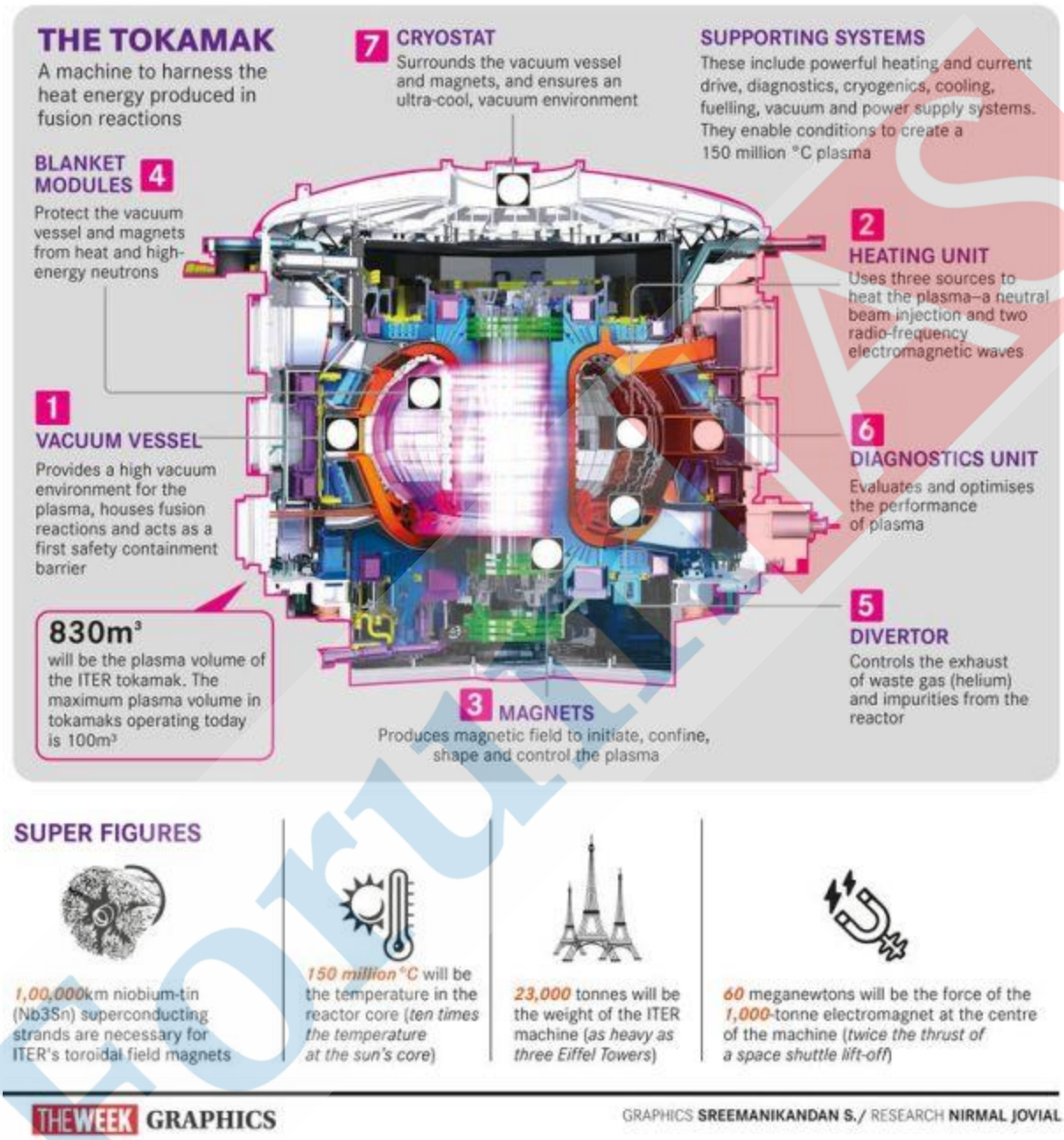
In the sizzling heat at the core of the Sun with the intense pressure and dense core, the plasma of hydrogen fuse with each other to form helium. This will spew colossal energy in the form of light and heat.

The essential condition to achieve nuclear fusion in the laboratory

Hence, three essential conditions are required to achieve nuclear fusion in a laboratory. These are **a)** Extreme high temperature, **b)** Sufficient plasma particle density, **c)** Sufficient confinement time (to hold the plasma, without expanding and containing within a defined volume). These conditions are very difficult to establish and sustain in a controlled manner and pose a big engineering challenge.

Read more: **A leap forward for fusion power**

What are Tokamaks?



Source: The Week

Scientists first thought about producing energy from controlled nuclear fusion in 1940s. Both the USSR and the US stepped up their fusion research in 1950s. Soon, the Soviets came up with a viable design to kindle and sustain nuclear fusion—the **Tokamak**.

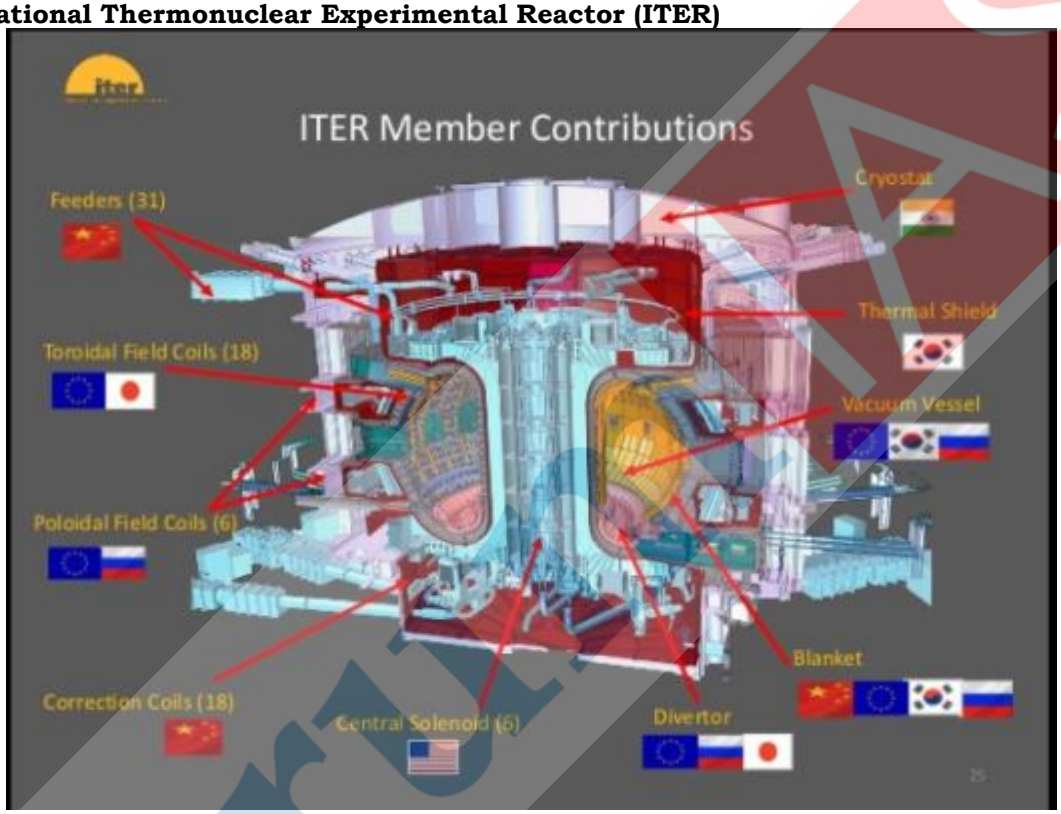
The thermonuclear fusion process is established in fusion reactors such as the Tokamaks. Although alternative designs such as **z-pinch and stellarator** have been designed and tested, tokamaks are still considered the best for achieving fusion.

'Tokamak' is an acronym for Russia term which translates into 'toroidal chamber with magnetic coils'. The Soviet scientists theorised that if one can create a magnetic field in the shape of a torus (doughnut shape) then the scorching plasma could be contained. The scalding of the walls of the container from the intense heat of plasma could be prevented.

Read more: **Nuclear fusion could be close enough to start blue-sky gazing**

What are the famous nuclear fusion projects around the world?

International Thermonuclear Experimental Reactor (ITER)



Source: Fisika

The ITER fusion reaction is based on the isotopes of hydrogen (deuterium and tritium). ITER will be the world's largest tokamak. Thirty-five countries, including India, Russia, the United States, the United Kingdom, China, European Union, are collaborating to jointly build the largest Tokamak as part of the **International Thermonuclear Experimental Reactor (ITER)**. Scientists, engineers and technicians from all the 35 participating countries are working on the site and getting hands-on operational experience and training.

After years of ups and downs since March 2020, the machine assembly is underway in southern France. With the installation of the Cryostat, a device to cool the reactor, covering the assembly is slated to be completed by 2025.

The first plasma is expected to be produced at the end of 2025 or early 2026. After testing and troubleshooting, energy production might commence in 2035. The plant is expected to generate 500 MW power and consume 50 MW for its operation, resulting in a net 450 MW power generation.

China's Experimental Advanced Superconducting Tokamak (EAST) or Artificial Sun

The purpose of the EAST is to replicate the process of nuclear fusion, which is the same reaction that powers the sun. Hence, called the artificial sun. EAST is part of ITER. Recently, China's EAST sustained the plasma at 70 million degrees Celsius for 1,056 seconds in January 2022.

Read more: China turns on 'artificial sun'

What has been the progress in India with respect to Nuclear Fusion technology?

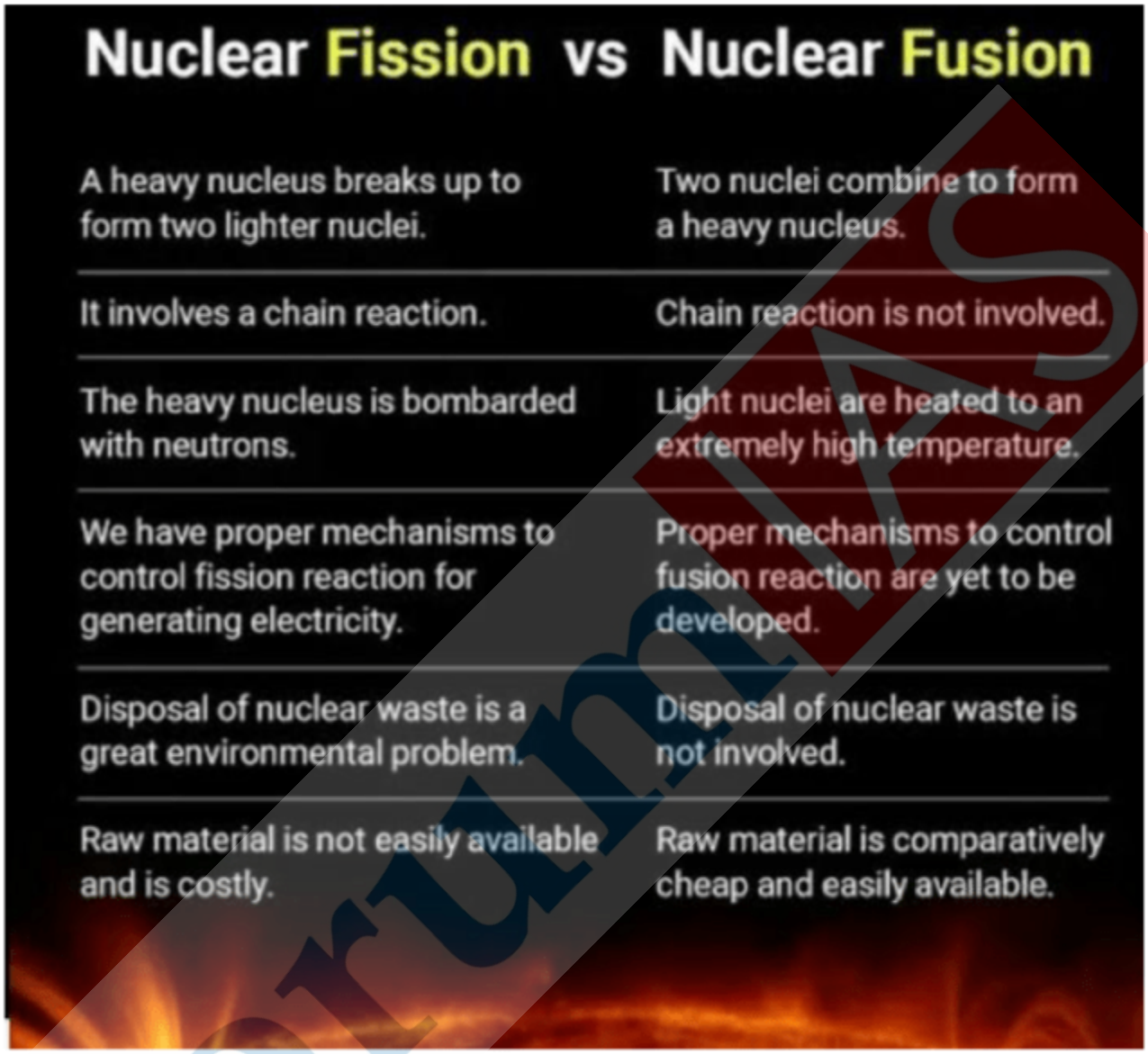
Way back in 1955, in the first 'Atoms for Peace' meeting in Geneva, Homi J. Bhabha saw a future in energy coming from thermonuclear fusion.

The Institute for Plasma Research (IPR) in Gandhinagar and the Hot Plasma Project at Saha Institute of Nuclear Physics (SINP), Kolkata, took the lead in nuclear fusion research in India. The IPR owns **two operational tokamaks** – **ADITYA** and **Steady-State Tokamak (SST)-1**.

ADITYA Tokamak: It is the first indigenously designed and built tokamak of the country. It was commissioned in 1989.

SST-1: It is under design and fabrication at the IPR. The objectives are **a)** Studying the physics of the plasma processes in tokamak under steady-state conditions, **b)** Learning technologies related to the steady-state operation of the tokamak.

How is Nuclear Fusion different from Nuclear Fission?



Source: Brainly

The advantages of nuclear fusion compared to fission include,

Do not pose danger like nuclear fission reactors: Unlike fission reactors, fusion reactors like the tokamaks do not pose the dangers of a radioactive leak. The by-products of fusion reaction is helium which is not radioactive.

Provides more energy: Fusion reactors produce four times more energy than nuclear fission reactions.

Must read: [Yojana October Summary] Energy Security: Nuclear Power – Explained, pointwise

What are the advantages of nuclear fusion?

Abundant energy: Gram for gram, thermonuclear power **produces four million times more energy than burning coal**. A kilogram of fusion fuel contains about 10 million times as much energy as a kilogram of coal, oil or gas e.g., if four grams of hydrogen can be fused into helium, it can light a 60-watt light bulb for over 100 years.

Sustainability: Fusion fuels are widely available and nearly inexhaustible e.g., deuterium can be distilled from all forms of water.

Non-pollutant: Nuclear fusion does not emit harmful toxins like CO2 or other greenhouse gases. The **only waste product** from nuclear fusion **is the harmless helium** which is an inert and non-toxic gas.

No risk of meltdown: Any disturbance/malfunction will lead to the cool down of plasma within seconds and the reaction stops.

What are the challenges associated with thermonuclear fusion?

First, although there are many experimental tokamaks worldwide **none has demonstrated net energy production more than the input**. This is because lot of energy is consumed in creating high temperatures.

Second, one of the critical challenges in the Tokamak is the **sudden appearance of plasma instabilities**.

Third, triggering fusion reactions requires temperatures of 100 million degrees Celsius, and pressures of 100 billion Earth atmospheres.

Fourth, currently, the nuclear fusion process is triggered by the nuclear fission process. However, this process is very destructive, as the fission explosion also releases lethal radiation that may last for millennia.

Scientists are working hard to overcome the engineering challenges in creating and maintaining a stable nuclear fusion process. If scientists are able to overcome these challenges, nuclear fusion could meet humanity's energy needs for millions of years. Harnessing energy from controlled nuclear fusion reactions could play a vital role in mitigating climate change. The recent achievements provide an encouraging way forward in this regard.

[Kurukshetra February Summary] Ayushman Bharat: Achieving Universal Health Coverage – Explained, pointwise

Introduction

According to the **World Health Organization (WHO),** attaining the highest possible standard of health is a fundamental right of every human being. For achieving the targets of **Universal Health Coverage**, the Government of India has implemented a flagship public health scheme – '**Ayushman Bharat**'.

What is Universal Health Coverage?

According to the World Health Organization, Universal Health Coverage includes the full spectrum of essential quality health services – from health promotion to prevention, treatment, rehabilitation, and palliative care across the life span. It aims to reduce morbidity and mortality by facilitating easy, economical and secure access to good quality health services to the masses.

Read more: PM ABHIM (Ayushman Bharat Health Infrastructure Mission) – Explained pointwise

How has the concept of Universal Health Coverage evolved at the global level?

At the global level, the **Alma-Ata Declaration (1978)** had emerged as a major milestone in the field of public health. It had identified **primary health care as the key** for attaining the goal of 'Health for All' by the year 2000 AD.

Thereafter, commitments set in the **Millennium Declaration** had led to the formulation of **Millennium Development Goals (MDGs)**. Three MDGs-4, 5 and 6 directly addressed the health-related issues.

In 2015, UN General Assembly launched the **Sustainable Development Goals (SDGs)**. Of these, the SDG-3 addresses health directly while the SDG-2, SDG-6 and SDG-5 address health indirectly.

The **40th anniversary of Alma-Ata Declaration** (Alma-Ata at 40: from 1978 – 2018) came at a time when Primary Health Care is once again receiving well-deserved attention.

However, the **Astana Declaration (2018)** is a shift from Alma-Ata (Primary Health Care) towards Universal Health Coverage (UHC) for attaining sustainable development goals.

To meet the SDGs targets, **nations** across the globe are trying to achieve UHC with a **focus on its three major pillars**: (1) **Service Delivery**, (2) **Health Financing**, (3) **Governance**.

Read more: Ayushman Bharat Digital Health Mission – Explained, pointwise

The concept of universal health coverage in India

Table 1: Time Trends in Salient Health Indicators (1950-2021)

Year	Life Expectancy at Birth (years)	Fertility rate	Birth rate	Infant Mortality rate	All-cause Mortality rate
1950	35.21	5.91	44.18	189.63	28.16
1960	41.13	5.89	42.07	161.74	22.48
1970	47.41	5.6	39.23	141.82	17.45
1980	53.47	4.86	36.22	114.74	13.5
1990	57.66	4.09	31.82	88.79	11.01
2000	62.28	3.35	26.64	66.73	8.80
2010	66.43	2.64	21.51	45.31	7.59
2020	69.73	2.2	17.59	29.85	7.31
2021	69.96	2.18	17.38	28.77	7.34

Source: https://population.un.org/wpp/Download/Standard/Population/

Note: Life Expectancy at Birth (in years) refers to the average number of years a newborn is expected to live under the prevailing mortality rates; Fertility rate is the average number of live children born per woman; Birth rate is number of children born per thousand persons in a year; Infant Mortality Rate refers to the number of children dying under one year of age per 1,000 live births; All-cause Mortality rate refers to the number of persons dying from all causes of death per thousand persons in a year.

Source: Kurukshetra

The concept of universal health coverage (UHC) is not new to India, it was first proposed by the **Bhore Committee** in **1946** highlighting that all individuals and communities should receive the health services they need without any economic stress. The Committee recommended the integration of preventive and curative services at all levels and laid out a plan for strengthening primary healthcare.

During the post-independence to pre-pandemic period, India was making good progress in terms of scaling up its national health and nutrition services.

The COVID-19 has tested the strengths and weaknesses of the Indian health sector including **risk identification, risk assessment and risk alertness** which are important components of a surveillance system.

A comparison of the data pertaining to some salient health indicators over a period of 70 years (1950-2021) indicates India is moving towards UHC. For instance, **(1)** The life expectancy at birth has nearly doubled; **(2)** There is a reduction in the fertility rate (by ~2.7 folds), birth rate (by >2.5 folds), infant mortality (by ~6.6 folds) and all-cause mortality rate (by ~3.8 folds).

Despite the favourable trends, a lot more is yet to be achieved to improve the health status of our people.

About the Ayushman Bharat Scheme

This scheme was formulated and implemented based on the recommendations of the National Health Policy. It is envisaged that this initiative **will help India in achieving the Sustainable Development Goals (SDGs)**; its mandate is "**leave no one behind.**" The scheme is under the Ministry of Health and Family Welfare.

Aim: **(1)** To holistically address the healthcare system-covering prevention, promotion and ambulatory care at all levels – primary, secondary and tertiary, **(2)** To enhance the quality, efficiency and efficacy of healthcare delivery.

Ayushman Bharat has two major components namely: **(1)** **Health and Wellness Centres (HWCs)** and **(2)** **Pradhan Mantri Jan Arogya Yojana (PM-JAY)**.

Read more: **Critical evaluation of ayushman bharat**

About HWCs

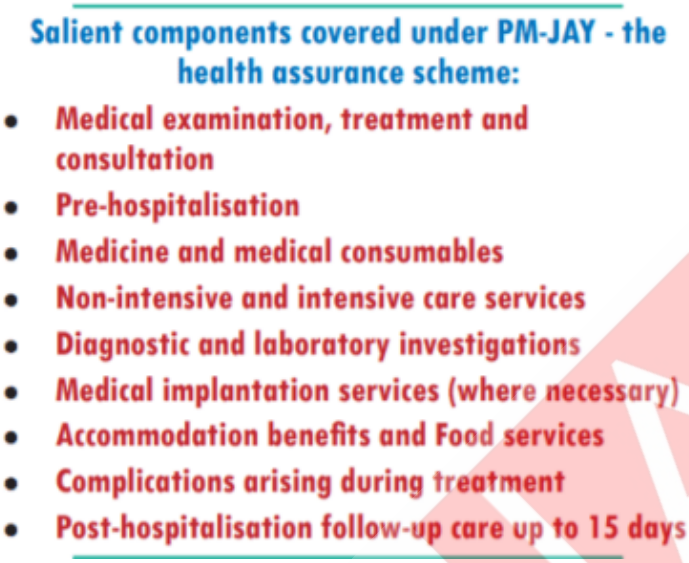
Under this, 1.5 lakh health care centres will be established. The major objective of HWCs would be to provide Comprehensive Primary Health Care (CPHC) closer to the residence/vicinity of the people.

These centres would particularly aim at providing maternal and child health services, along with the delivery of health services for major non-communicable diseases. These centres will also provide free essential drugs and diagnostic services.

Read more: **Govt launches school health programme under Ayushman Bharat**

About PM- Jan Arogya Yojana (PM-JAY)

The scheme aims to provide health cover of Rs. 5 lakhs per family per year for secondary and tertiary care hospitalization to over 10.74 crores of poor and vulnerable families (approximately 50 crore beneficiaries) from the bottom 40% of the Indian population. It is the largest government-funded health assurance scheme in the world.



Source: Kurukshetra

National Health Authority is the apex body responsible for implementing 'PM-JAY'.

Salient features of the scheme are

-The annual benefits of Rs. 5 Lakh can be used by any one or more members of the family covering up to all the members.

-There is no capping on family size or age of the family members. In addition, pre-existing diseases are also covered from the very first day.

-It covers up to 3 days of pre-hospitalisation and 15 days post-hospitalisation expenses incurred on diagnostics and medicines.

-Public hospitals are reimbursed for the healthcare services at par with the private hospitals.

Read more: **Union Minister launches Arogya Dhara 2.0 to increase reach of Ayushman Bharat**

What have been the achievements of the Ayushman Bharat scheme since its inception?

Figure 4: Salient Milestones of PM-JAY (from 1st February 2018 to 10th August 2020)

Source: Kurukshetra

Since its inception, Ayushman Bharat has been trying to successfully meet its objectives of ensuring comprehensive coverage for catastrophic illnesses, reduce catastrophic out-of-pocket expenditure, improving access to hospitalisation/health care, reducing unmet needs, and converging various health insurance schemes across the different states of India.

By December 2021, more than **17.3 crore Ayushman Cards** had been issued to the beneficiaries. Data indicate that of these, more than 2.6 crore individuals were admitted to the hospitals and 8.3 lakh COVID-19 cases have been treated successfully. Ayushman Bharat has also facilitated the successful implementation of the COVID-19 vaccination drive.

Several notable achievements have been observed in various Indian states/Union Territories like Jammu & Kashmir, Madhya Pradesh to name a few e.g., the Government of J&K has decided to extend the benefits of AB PMJAY to the entire population through 100% government funding mechanism and launched the **Universal Health Coverage (AB PM-JAY SEHAT)**.

Read more: **Govt to rationalise rates of health benefit packages under Ayushman Bharat**

What further steps are required to provide UHC in India?

There is a need to **develop a need-specific Framework of Action** keeping in mind the following aspects:

Finance: **(a)** Increase domestic resource mobilisation and budget re-allocation at frequent intervals, **(b)** Facilitate efficient and judicious time-bound utilisation of financial resources.

Health Services: **(a)** Prioritise health services which are of most significances to reducing mortality and morbidity, **(b)** Invest in pre-service medical and paramedical education, **(c)** Engage in multi-sectoral partnerships to address determinants of health.

Equity: **(a)** Scale-up safety net approaches including vouchers and conditional cash-transfers which directly or indirectly support good health and well being, **(b)** Expand service delivery for marginalised and vulnerable groups.

Preparedness: **(a)** Prepare and regularly improve National preparedness plans especially for natural disasters, **(b)** Enhance State level and international collaborations to prepare for and respond to public health emergencies such as epidemics/pandemics.

Governance: **(a)** Ensure that all citizens have access to data and information on UHC, **(b)** Strengthen national institutions and organisations through capacity building, **(c)** Ensure workable effective mechanisms for inter-sectoral dialogue and work.

Read more: "Apart from curing, Ayushman Bharat Scheme is empowering several Indians."

Further efforts should be made to provide the benefits of the Ayushman Bharat scheme to the entire population through 100% Government funding like in Jammu and Kashmir. This will make India strong by ensuring good health of people irrespective of their class, creed, gender and socio-economic status.