

Forum IAS

7 PM COMPILATION

3rd to 15th January, 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

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

Topic:- Economy

Sub topic:- Financial Stability Report

[Kurukshehra December Summary] Fostering Innovation and Entrepreneurial Skills among Rural Youth – Explained, pointwise

Topic:- Schemes and Programmes

Sub topic:- Innovation and Entrepreneurial Skill

Income Criteria for the Economically Weaker Sections (EWS) in India – Explained, pointwise

Topic:- Schemes and Programs

Sub topic:- Economic Weaker Sections

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

Topic:- Society

Sub topic:- Rural Women

Merging Film and Media Units with NFDC – Explained, pointwise

Topic:- Govt Schemes and Initiatives

Sub topic:- Committee and Organisations

Excess Supply of Sugar and promoting use in Biofuels – Explained, pointwise

Topic:- Economy

Sub topic:- Excess Supply of Sugar

Mediation Bill: Salient Provisions, Potential Challenges and the Way Forward – Explained, pointwise

Topic:- Bills and Acts

Sub topic:- Mediation Bill, 2021

Natural Farming – process, advantages and challenges – Explained, pointwise

Topic:- Environment

Sub topic:- Natural Farming

Vodafone Idea issue and the telecom sector in India – Explained, pointwise

Topic:- Economy

Sub topic:- Telecom Sector

High-Speed Rail Project and its challenges in India – Explained, pointwise

Topic:- Schemes and Programmes

Sub topic:- Rail Project in India

India State of Forest Report 2021 – Explained, pointwise

Topic:- Schemes and Programmes

Sub topic:- Report and Rankings

[Yojana January Summary] India as a Space Power – Explained, pointwise

Topic:- Science and Technology

Sub topic:- Space Programmes

ForumIAS

24th Financial Stability Report (FSR), December 2021 – Explained, pointwise**Introduction**

The Reserve Bank of India (RBI) has released the 24th Financial Stability Report (FSR). The report explains the robustness and vulnerabilities of the Indian financial system — especially the banking system — to the changes in the economy. The report also tells whether and to what extent will the banks and other lending institutions be able to support future growth.

What is the Financial Stability Report (FSR)?

The FSR details the state of financial stability in the country, and it is prepared after taking into account the contributions from all financial sector regulators.

The FSR explains the current status of different financial institutions including the non-banking lending institutions. It also maps the state of credit growth and the rate at which borrowers are defaulting on paying back loans.

Preparation: The FSR is prepared through collective assessment of the Sub-Committee of the Financial Stability and Development Council (FSDC – headed by the Governor of RBI)

Methodology of FSR: 1. The RBI looks at the state of both the global as well as the domestic economy, 2. The RBI also conducts certain “tests” to figure out how different variables may be affected if the economy does not grow as anticipated, 3. The RBI also conducts a **Systemic Risk Survey (SRS)**, wherein it asks experts and market participants to assess the financial system on five different types of risks — global, financial, macroeconomic, institutional and general.

Report frequency: The FSR is published twice each year (biannual).

What are the key findings of the latest Financial Stability Report (FSR)?

Macro financial Risks: Since the July 2021 issue of the FSR, the rejuvenation of the global recovery was impacted by the resurgence of infections in several parts of the world, supply bottlenecks and disruptions and the persistent inflationary pressures. “The slowdown in activity is occurring even in countries with relatively high vaccination rates that seemed to be emerging as global growth drivers.”

This is reflected in both the Baltic Dry Index and Goods Trade Barometer of the [World Trade Organization \(WTO\)](#).

Note: *Baltic Dry Index* is a measure of shipping charges for dry bulk commodities. and *Goods Trade Barometer* measures the World merchandise trade volumes.

Bank credit growth is improving, but not fast enough: The **banking stability indicator (BSI)**, which indicates the changes in underlying conditions and risk factors of India’s commercial banks, showed improvement in “soundness, asset quality, liquidity and profitability” except the “efficiency.” The recovery is also a “U-shaped” recovery.

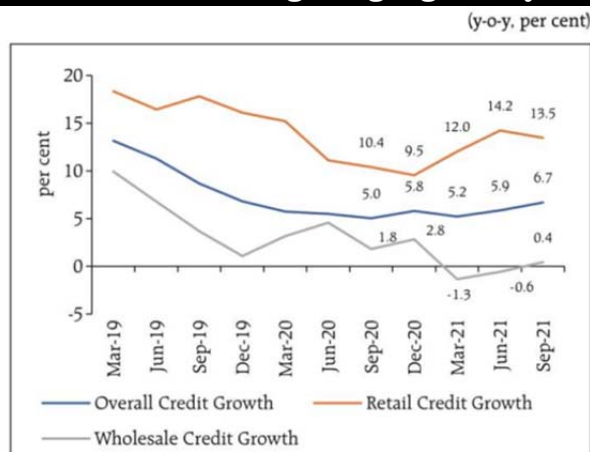
NPAs may rise by September 2022: The latest FSR pegs the NPA of India’s Scheduled Commercial Banks (SCBs) at 6.9% at the end-September 2021. “Stress tests indicate that the Gross NPA ratio of all SCBs may increase to 8.1% by September 2022 under the baseline scenario and further to 9.5% under severe stress.”

Read more: [PSBs to introduce common staff accountability guidelines for NPAs](#)

Systemic risks evenly balanced: On the whole, the Systemic Risk Survey (SRS), “across all broad categories of risks to the financial system were perceived as ‘medium’ in magnitude, but risks arising on account of global and financial markets were rated higher than the rest”.

Time for the Indian economy to make a full recovery from the pandemic: Almost 64% respondents to the survey expect the economy to recover fully in the next 1 to 2 years while 22% believe it may take up to 3 years to recover completely.

What are the challenges highlighted by the latest Financial Stability Report (FSR)?



Source: IE

The **challenges in bank credit include** 1. The growth rate is still far off the ideal level, 2. Retail credit (that is, less than Rs 5 crore) is growing but not the wholesale credit, 3. **Most of the wholesale credit is being picked up by public sector undertakings**, 4. **Credit to the MSME segment slowed down** (y-o-y).

Assessment of Systemic Risk: For India, the **main sources of risks are** commodity prices, domestic inflation, equity price volatility, asset quality deterioration, credit growth and cyber disruptions.

The FSR mentions that the **risks generated by merged state-owned banks were higher** than of their unmerged counterparts.

Table 1.13 : Valuation Metrics

	Long-Term Average	Current
Price-to-Book Value (P/B) Ratio	3.26	3.58
Market Capitalisation/ GDP ratio	75.77	119.16
Shiller Price-Earnings (P/E) Ratio	26.93	38.68

Note: 1. Long-term average of P/B ratio is calculated as average of annual P/B ratio since 1998-99.

2. Long-term average of Market Capitalisation/GDP ratio is calculated as average of annual Market Capitalisation/GDP ratio since 2012-13. Current Market Capitalisation/GDP ratio pertains to September 30, 2021.

3. Long-term average of Shiller P/E is calculated as average of daily values since April 03, 2017.

Source: BSE and Bloomberg



Source: IE

Disconnect between the real economy and India's equity markets: "The Indian equity market surged on strong rallies...." states the FSR. "Strong investor interest has driven up price-earnings (P/E) ratios substantially."

Other valuation metrics such as the price-to-book value (P/B) ratio, the market capitalisation to GDP ratio, and the cyclically adjusted P/E ratio or Shiller P/E are also above their historical averages.

"This reflects some disconnect between the real economy and equity markets," the RBI report. The divergence between stock market valuations and economic growth rate is a cause of concern from the perspective of financial stability, although it has happened in the past as well.

The digitalisation of financial services: Digitalisation can also bring in its wake various risks such as greater reliance on third-party service providers, mis-selling of financial products, breach of data privacy, unethical business conduct and illegitimate operations.

How India can recover from the challenges pointed out by the FSR?

Recommendations of the FSR

Close monitoring of stress in micro, small and medium enterprises (MSMEs) as also in the micro-finance segment going forward.

Regarding FinTech: RBI is currently in the process of consolidating all fintech-related work under one umbrella to manage risks and ensure effective regulation and supervision of fintech entities, products and services. "The new setup will be tasked with managing the entire gamut of [fintech-related activity](#) in coordination with its regulatory and supervisory departments," the report said.

Faster implementation of crypto regulations: The FSR highlights that private Cryptocurrencies pose immediate risks to customer protection, anti-money laundering efforts and combating the financing of terrorism. So, it urged the government to implement crypto regulations faster and facilitate [Central Bank Digital Currency \(CBDC\)](#).

Other recommendations

Generating Demands in the Economy: The government has to generate demand in the economy. The banks and the significant leaders in the economy have a key role. When the demand begins to rise, only then economic recovery can occur at a steady pace.

Increasing the Efficiency of Public Sector Banks: The public sector banks need to be made more efficient, if necessary the government can consider ownership changes (privatisation) too.

Ensure proper functioning of NARCL: National Asset Reconstruction Company Limited has to ensure faster debt consolidation to reduce the rising NPAs.

Carry out Second Generation Reforms: These are microeconomic reforms, which include strengthening the infrastructure of the market economy. The most important segment of the second generation reform is the rural development including agriculture & allied sectors and small scale industries. So, the government has to concentrate on these areas.

The latest FSR's suggests that India's banking and financial system has largely improved since the July 2021 report. But with global growth faltering, monetary tightening in the developed countries (which is likely to hurt foreign fund flows) as well as the rise of omicron, the risks are evenly balanced. The government and the RBI have to work in a coordinative manner to avert these risks.

[Kurukshetra December Summary] Fostering Innovation and Entrepreneurial Skills among Rural Youth – Explained, pointwise

Introduction

Youth are the growth engine of any economy and India has the relative advantage of youth population with a share of 34.33 percent of the total population. As per India's Census, the total youth population increased from 168 million in 1971 to 422 million in 2011. So, fostering Innovation and Entrepreneurial Skills among Rural Youth is essential to meet their aspirations and achieve inclusive growth.

Why India has to focus on Innovation and Entrepreneurial Skills among Rural Youth?

–**Knowledge and education are key factors** to the full and effective participation of youth in the process of social, economic and political development.

–**Youth employment is now a top priority** in most countries across all regions and efforts need to be further accelerated in this post COVID era to negate the ill effects of this period.

–**Agriculture in India needs youth to sustain farming** and youth need non-farm employment opportunities to meet their aspirations and lifestyle. As 90% of agricultural workers in India have no formal training, they require skills for respectable employability.

As the majority of the youth in the rural areas are engaged in agriculture, there is a need to equip them with skills blended with new technologies like Big Data analytics, Supply Chain/market-linked model, Internet of Things (IoT) in agriculture.

Note: The Government of India has taken several initiatives to boost support to the agri-startups. These include,

[Rashtriya Krishi Vikas Yojana- Remunerative Approaches for Agriculture and Allied sector Rejuvenation\(RKVY-RAFTAAR\)](#)

[DigiSaksham](#)

–**Blend of education and Skills increases the ability to innovate** and helps in adopting **new technologies**. Innovations increase and bring diversity to the skills and opportunities.

–**Enhance Rural entrepreneurship**: Through innovation, several startups are not only challenging the dominance of established corporate but are also providing easier and innovative solutions to several emerging problems. So by skilling youth, India can ensure a **practical approach and creative ways to solve regional issues** in a variety of sectors with cost-effective models.

For example, **Arunachalam Muruganantham** from Coimbatore popularly known as '**Padman**', invented low-cost sanitary pad making machines. He has generated tremendous local employment and social impact.

–**Promote India's culture and diversity**: For example, In the Sirmaur district of **Himachal Pradesh**, roadside amenities – '**She Haat**' have been created which includes a shop, a restaurant, a guest room and a '**kaushal vikas kendra**' in a single complex, which is being run by a self-help group of 25 women. It provides a glimpse of the State's culture, cuisine and tradition.

Similarly, the state government of **Telangana** has established '**Telangana State Innovation Cell**' which aims to promote grassroots innovation and has supported noteworthy rural-origin businesses like Vishwaja Reddy's HiCode and has reached all 33 districts of the State.

What are the government initiatives to foster Innovation and Entrepreneurial Skills among Youth?

National Skill Development Policy, 2009: The policy aims to enhance the availability of a skilled workforce in the country.

National Policy for Skill Development and Entrepreneurship, 2015: The primary objective of this policy is to meet the challenge of skilling at a higher scale, requisite quality and sustainability.

Creation of separate Ministry: A separate **Ministry of Skill Development and Entrepreneurship** was created in 2014 for coordination of all skill development efforts across the country, removal of disconnect between demand and supply, building the vocational and technical training, ensuring skill up-gradation and innovative thinking, etc.

National Skill Development Corporation (NSDC): It acts as a catalyst in skill development by providing funding to enterprises, companies and organisations that provide skill training and it works with 267 training partners. Over the past 4 years, NSDC along with its partners have produced over 2 million skilled people in more than 25 sectors.

Skill India Mission: Under it, the government is implementing more than 40 skill development schemes/programmes across 20 Central ministries/departments, for providing a variety of skill development training programmes on a pan India basis. 556.1 lakh persons have been trained so far.

Other initiatives: The other programmes such as **Prime Minister's Employment Generation Programme (PMEGP)**, **Deen Dayal Upadhyaya-Grameen Kaushalya Yojana (DDU-GKY)**, **MGNREGA** and other such initiatives are aided by agencies like Directorate General of Training (DGT), National Skill Development Agency(NSDA), National Council for Vocational Education and Training (NCVET), National Skill Development Corporation (NSDC), etc.

Few Important government schemes to foster Innovation and Entrepreneurial Skills among Youth

National Rural Livelihood Mission – Ajeevika Skills

Pradhan Mantri Kaushal Vikas Yojana (PMKVY)

Skills Acquisition and Knowledge Awareness for Livelihood Promotion (SANKALP)

Read more: [Ministry of Skill Development launches a project to upskill the cane and bamboo artisans of Nagaland](#)

What are the challenges faced in developing Innovation and Entrepreneurial Skills among Rural Youth?

1. **Access to training and Insufficient training capacity:** For instance, nearly 90% of agricultural workers in India have no formal training. Further, the training was not sufficient to ensure a job for those who got the training, 2. **The wide gap between the availability and demand of skilled workforce**, 3. Training institutes have **low industry interface**, 4. **Rapidly changing technology**, 5. **Lack of Initiatives from the industry**.

AGNIi (Accelerating Growth of New India's Innovations)

The AGNIi (Accelerating Growth of New India's Innovations) is a programme of the Office of the Principal Scientific Adviser to the Government of India, and a Mission under the Prime Minister's Science, Technology, and Innovation Advisory Council (PM-STIAC). It is also called as **National Technology Commercialization Program**.

The Mission remains committed to introducing emerging technologies in rural India to

address the complex and unique challenges.

The AGNi Mission, in partnership with Common Service Center, successfully conducted a series of Digital Technology Showcases focused on innovations for rural India. It identified 7 key technologies which reaffirmed capability of Indian innovations to tackle local challenges in villages. These include,

'Dharashakti' is easy-to-use soil organic carbon detection and testing kit which can help the farmers in optimum use of fertilisers.

'Soil Saathi' is a lightweight chemistry analyzer with the ability to test 22 parameters in soil and water and advise fertilizer requirements based on crop and agro-climatic conditions.

'Tan90' is a portable cold storage unit to plug the gaps in cold chain which can help to reduce post-harvest losses in crops.

'Saptkrishi' is also a low-cost, technological solution that extends the shelf life of perishable horticultural produce.

'Krishakti' is smart and intelligent precision spraying drone for crops and can drastically reduce the indiscriminate sprays of pesticides.

'THANOS' is also a drone-based autonomous spraying platform that sprays an acre in a fraction of the time uniformly.

'Avatar Small Wind Turbine' are wind turbines and can be deployed as decentralised and distributed renewable energy solutions for urban and rural

What are the required steps to foster Innovation and Entrepreneurial Skills among Rural Youth?

-Startups play a crucial role in promoting innovations in the entrepreneurial ecosystem, which help to diversify skills and employment. So, the government has to further **accelerate the startup ecosystem** in the country.

-Increased attention is required to improve participation rates of young people, particularly of rural and marginalised.

-**Blend our crop production techniques with technological innovations:** For instance, technologies like Big Data analytics, IoT, are the primary sub-sectors where Agri startups are emerging.

-Craftsmanship and creativity of **local artisans** in rural India effectively **need greater acknowledgement** for its novel creations and need **greater financial and promotional support**.

-Ensure the deployment and decentralisation of AGNi (Accelerating Growth of New India's Innovations) technologies and missions.

With **funding, promotion of local talent and fillip to the culture of innovation**, the incubator boom concentrated on villages and smaller towns can create huge demand for skills and employment in rural areas.

Income Criteria for the Economically Weaker Sections (EWS) in India – Explained, pointwise

Introduction

Recently, the Supreme Court raised questions about the basis on which Centre fixed the criteria and income limit for granting reservation to [Economically Weaker Sections \(EWS\)](#). In response, a three member-committee constituted by the **Ministry of Social Justice and Empowerment** to examine the income criteria has submitted its report.

The panel has suggested that its recommendations be implemented only from the next admission cycle and not the ongoing one, as any sudden change will cause major disruption across educational institutes and create complications for both beneficiaries and the authorities.

About the SC question and the Committee

The Supreme Court is hearing a number of petitions, including a special leave petition filed by the Centre against a Madras High Court order on EWS and OBC reservation in the [all-India quota under the NEET entrance exam](#) for postgraduate medical and dental admissions. Following the petitions, the Supreme Court had stayed counselling for admission until the matter is decided.

Read more: [National Entrance cum Eligibility Test\(NEET\) – Issues and Significance- Explained, pointwise](#)

The Court wants to know whether there was any study done before the Centre prescribed the norms for identifying EWS beneficiaries based on indicators of economic disadvantage. The Court had clarified that it was not examining any policy issue but wanted to determine if constitutional requirements have been complied with.

The Ministry of Social Justice and Empowerment had constituted a three-member panel comprising Ajay Bhushan Pandey, V K Malhotra, and Sanjeev Sanyal. Now the committee has submitted its report.

The **government has already accepted the committee's report**. While the government requested an early hearing as counselling for NEET is held up.

Read More: [NEET counselling can begin under existing EWS criteria: Supreme Court](#)

About the Economically Weaker Sections

EWS reservation was granted based on the recommendations of a commission headed by Major General (retd) SR Sinho. The Commission for Economically Backward Classes was constituted in 2005 and submitted its report in July 2010. Based on this, the Cabinet in January 2019 decided to amend the Constitution (103rd Amendment) to provide reservation to EWS.

The 103rd Amendment Act provides for reservation in appointments to posts under the State and in admissions to educational institutions to “economically weaker sections of citizens [EWS]”. This reservation can extend up to 10% of the total seat available.

Salient features of the Act include 1. The Act provides for the reservation of jobs under the Central Government as well as government educational institutions. It is also applicable to admissions to private higher educational institutions, 2. This reservation is “in addition to the existing reservations and subject to a maximum of 10% of the total seats in each category”.

Must read: [103rd Constitutional Amendment presents a more difficult judicial examination than usual](#)

What is the current income criteria fixed for EWS?

The current criteria is,

EWS, AS DEFINED

■ Persons who are not covered under the scheme of reservation for SCs, STs and OBCs and whose family has gross annual income below Rs 8 lakh are to be identified as EWSs for benefit of reservation

■ Income shall also include income from all sources i.e. salary, agriculture, business, profession, etc. for the financial year prior to the year of application

■ Persons whose family owns or possesses any of the following assets shall be excluded from being identified as EWS, irrespective of the family income:
5 acres of agricultural land and above;
Residential at of 1000 sq ft and above;
residential plot of 100 sq yards and



The next hearing in the Supreme Court is on January 6. *Express Archive*

above in notified municipalities;
residential plot of 200 sq yards and
above in areas other than the notified
municipalities

—DoPT, JAN 31, 2019

Source: Indian Express

Read more: [Explained: Revisiting definition of EWS](#)

What are the recommendations given by the panel on the eligibility criteria of EWS?

'NOT OVER-INCLUSIVE'

- ▶ Panel set up to evaluate EWS income limit says **existing system, going on since 2019, if disturbed at fag end of process will create more complications**
- ▶ Says 'a mere 9% and 8.2% of EWS candidates are found to be in income bracket Rs 5-8 lakh, respectively'. **Existing criterion of Rs 8 lakh is not 'over-inclusive'**
- ▶ Says '**EWS may exclude irrespective of income a person whose family has 5 acres of farm land & above**'

Source: TOI

Firstly, drop the existing criteria on residential asset size. This is because mere possession of a residential house may not correctly reflect the economic condition of the candidate or his family, especially if it is used only as a dwelling unit and not for generating any income.

– However, the panel has backed excluding all candidates with agricultural land over 5 acres.

Secondly, "The current gross annual family income limit for EWS of Rs. 8.00 lakh or less may be retained." Moreover, income criteria of EWS and OBC cannot be compared as EWS criteria are more stringent than the one for the OBC creamy layer because:

– EWS's criteria relates to the financial year prior to the year of application, whereas the income criterion for the creamy layer in the OBC category is applicable to gross annual income for three consecutive years.

- In the case of the OBC creamy layer, income from salaries, agriculture and traditional artisanal professions are excluded from the consideration whereas the ₹8 lakh criteria for EWS includes all sources, including farming.

Thirdly, a three-year feedback loop cycle may be used to monitor the actual outcomes of these criteria and then be used to adjust them in future.

Fourthly, data exchange and information technology can be used actively to verify income and assets and improve targeting for EWS reservations.

Read more: [Supreme Court sets aside Madras High Court remarks on EWS quota](#)

What are the concerns associated with committee recommendations on EWS?

First, The court's key question remained unanswered: The committee failed to answer, clearly, whether it “would... be arbitrary to provide the same income limit both for the OBC and EWS categories”.

Second, the Criteria for “being economically weak” is less stringent: The committee's assertion that ₹ 8 lakh corresponds to the “effective income tax exemption limit”. But the only income slab exempt from paying taxes was for those earning below ₹2.5 lakh. Hence, the recommendation bunch up eligible candidates in different income brackets (0-₹2.5 lakh, ₹2.5-₹5 lakh, ₹5-₹8 lakh).

Third, The Committee does **not explain why marks cut-offs were even lower** in recruitment exams **than** that of the **socially and educationally backward OBCs**.

Fourth, the committee failed to provide enough data: The report does not present any data on the estimated number of EWS persons in the population based on the annual family income criterion of ₹8 lakh.

Fifth, unlike the commissions for OBC reservations, there is no study undertaken for EWS reservations. The present report justified EWS criteria, but there was no study undertaken prior to the introduction.

Also read: [Maratha Reservation and the Reservation Policy in India – Explained, Pointwise](#)

Sixth, Recommendations based on the infeasible and complex process: Purchasing power across urban/rural regions and per capita income/GDP across States were considered for these recommendations. But these factors differ across the country,

Seventh, Irrational limit: Consumer expenditure surveys such as the 2011-12 NSSO report, Key Indicators of Household Consumer Expenditure shows that a **bulk of the population will be eligible for EWS reservations**, rendering the limit irrational.

Read more: [Income and quotas](#)

What should be done regarding EWS?

The **validity of the 103rd Constitution Amendment**, through which the EWS quota was introduced in 2019, is still before a Constitution Bench. So, the Court has to adjudicate that case. So, that all the related questions are settled in a holistic way.

The apex court **must seek more clarity on the criteria** adopted by the Government committee to set the income limit for identifying the EWS sections eligible for reservations.

It is high time that the Indian **political class should not continue the tendency of expanding the scope of reservation** in pursuit of electoral gains. They should realise that reservation is not the panacea for problems, and they should **adhere strictly to the 50% cap**, as mentioned in the **Indira Sawhney case(1992)**.

Must read: [The Mandal case and Reservation in India – Explained, Pointwise](#)

Reservation is one of the tools against social oppression and injustice against certain classes. However, reservation is just one of the methods for social upliftment. Hence, the government should **focus on the quality of education, providing scholarships, funds, coaching and other effective social upliftment measures**. Apart from that, the government should **create a spirit of entrepreneurship to make Indian youth job-givers** instead of job seekers.

ForumIAS

**[Kurukshehra December Summary] Rural Women: Key to New India's Agrarian Revolution
– Explained, pointwise**

Introduction

India is celebrating and commemorating the progressive 75 years of India after independence and promulgating the mission of warranting women as **“Empowered women, Empowered Nation”**. According to the 2011 Census, India is an agrarian economy, with about 54.6% of the total workforce engaged in agricultural and allied sector activities. Agriculture employs about 80% of rural women. Hence, empowering and mainstreaming rural women workforce in agriculture can bring a paradigm shift towards economic growth.

Why does India have to focus on the rural women workforce to achieve the new Agrarian revolution?

First, In rural communities, agriculture and the allied sector is the primary source of livelihood that includes **80% of all economically active women**, out of which 33% constitute the agricultural labour force and 48% are self-employed farmers. Rural women are engaged at all levels of the agricultural value chain.

Second, As per Pingali et al, (2019), the **ratio of women to men working in the agricultural sector has increased** over time and made a greater amount of contribution to the GDP per capita.

Third, In 2011, Food and Agriculture Organization (FAO) projected that women-oriented reforms, ensuring equal access to resources, skill development and opportunities in agriculture would **increase agricultural output in developing countries between 2.5 and 4%**.

Fourth, According to the **Ministry of Agriculture and Farmers Welfare**, with increased feminisation and pro-women initiatives, the **percentage of female operational holdings** in the country has **increased** from 12.78% during 2010-11 to 13.78% during 2015-16.

Fifth, empowering rural women will **enhance food and nutrition security** and **alleviate poverty and hunger**. It's a **win-win strategy for achieving Sustainable Development Goals by 2030**.

Read more: [\[Kurukshehra December Summary\] Fostering Innovation and Entrepreneurial Skills among Rural Youth – Explained, pointwise](#)

What initiatives have been undertaken to improve the stature of rural women?

Since independence, several government flagship schemes and programmes have been undertaken to improve the stature of rural women in society by creating: livelihood opportunities and engagements in paid employment.

Various schemes, such as the [Prime Minister's Employment Generation Programme \(PMEGP\)](#), [Deen Dayal Upadhyaya-Grameen Kaushalya Yojana \(DDU-GKY\)](#), [MGNREGA](#), [Pradhan Mantri Kaushal Vikas Yojana \(PMKVY\)](#), [Pradhan Mantri Matru Vandana Yojana \(PMMVY\)](#), etc. have made significant contributions in creating gender parity and socio-economic empowerment of women in India.

Initiatives towards Gender Mainstreaming in Agriculture

This is to provide access to resources/schemes to rural women engaged in agriculture and allied sector. Under this, **Special beneficiary-oriented schemes** are laid by the Department of

Agriculture and Farmers' Welfare to mainstream the participation of rural women. These special schemes provide for States and other implementing agencies to **incur at least 30% expenditure on women farmers.**

Various skill-training programmes include,

1. **Agricultural Technology Management Agency (ATMA) Scheme:** It is also known as Support to State Extension Programs for Extension Reforms. The scheme looks to set up a decentralized agriculture extension system. 2. **Skill training courses in agriculture and allied areas** (of minimum 200 hours duration) are also being conducted for women farmers through National Training Institutes, Krishi Vigyan Kendras (KVKs) and others across the country, 3. Ministry of Agriculture and Farmers Welfare has also undertaken the **delivery of Gender Sensitisation Module on Gender Learning through training programmes**, compilation and documentation of **gender-friendly tools/technologies**, **Farm Women Friendly Handbook and compilation of best practices/ success stories** of the women farmers, etc.

Empowering rural Women Farmers: Skill and Capacity Building

1. [Mahila Kisan Sashaktikaran Pariyojana \(MKSP\) scheme](#), 2. [Deendayal Antyodaya Yojana-National Rural Livelihoods Mission\(DAY-NRLM\)](#): Under it, training on the use of the latest agriculture, allied techniques, agro-ecological best practices are being imparted to women farmers, 3. [Biotech-Krishi Innovation Science Application Network \(Biotech-KISAN\)](#), 4. [Mahila Shakti Kendra \(MSK\) Scheme](#), 5. **Specific women farmer training programmes** on particular topics are also held. These topics include household food security by kitchen gardening and nutrition gardening; Gender mainstreaming through SHGs, etc. 6. **Gender-specific interventions** and their adoption are encouraged through training and awareness camps. 7. [Farmers Producer organisation \(FPO\)](#) and **women self-help groups (SHG's)** played a significant role in the dissemination of these programmes amongst rural women.

Over the years, rural women participation in training sessions has been increased to many folds.

Reforms for Social Empowerment of rural women: Sabka Saath, Sabka Vikas

1. [Beti Bachao Beti Padhao scheme](#): provided a significant mass mobilisation drive towards the elimination of gender discrimination and improved sex ratio at birth, 2. [National Creche Scheme](#), 3. [Ujjawala Scheme](#), 4. [Integrated Mission Shakti, Mission Poshan 2.0, and Mission Vatsalya](#), 5. After 33% reservation, now as much as 43% of the seats at village and district levels have women members.

Financial Empowerment of Rural women

1. [Pradhan Mantri Jan-Dhan Yojana \(PMJDY\)](#): According to the Ministry of Finance 2021 data, 55.47% of accounts opened belong to women and 66.69% of accounts belong to rural and semi-urban areas, 2. **Women-specific provisions** are also present in [Pradhan Mantri MUDRA Yojana \(PMMY\)](#), [Stand-Up India Scheme](#). Over 9 crore women have benefitted jointly from Mudra and Stand-Up India since its inception.

What are the challenges faced by rural women?

-Poor literacy rate: Low level of education among rural women is one of the important causes of their dismal participation in developmental activities.

– In **Agriculture**, women farmers face challenges such as 1. **Lack of ownership of land**, 2. **Lack of access to financial credit**, 3. **Lack of safe transport**: Mobility of Rural women to access markets and workplaces is difficult, 4. **Lack of access to resources and modern inputs**: As most farm machinery is difficult for women to operate.

– **Triple burden on rural women**: Socially **home-making, agriculture and child upbringing** all fall in the hands of women. This made women have no time for skilling themselves.

– **Wage Inequality**: Rural women's wages are rarely equal to men's wages, with a few exceptions.

What should be done to further improve the statue of rural women?

The participation of rural women in the workforce can be encouraged by **providing safety, security, good health, education, skill development and equal rights**. Further, the government has to **conserve the sex ratio percentage** in the population and **prevent female infanticides**.

Adequate investment in pro-rural woman schemes and more community-level participation will expedite the empowerment in a mission mode for better future prospects.

Skill development and access to education, health care and digital ecosystem can play a significant role in the lives of rural women. The government should accelerate its effort in such areas.

To improve women's participation in Agriculture: 1. Under the micro-finance initiative of the National Bank for Agriculture and Rural Development, Rural women farmers can be provided **credit without collateral**. 2. Manufacturers should be incentivised to produce **tools and machineries suited to women's needs**.

Proper training and capacity building of rural women on new agricultural technologies will improve not only the Indian economy but also Indian polity, society and culture.

Merging Film and Media Units with NFDC – Explained, pointwise**Introduction**

Recently, the Government has decided to merge four publicly-funded film and media units with National Film Development Corporation (NFDC). This is based on the recommendation of the Union Ministry of Information & Broadcasting constituted **Bimal Julka Committee**.

The committee was formulated to find ways to improve the quality and efficiency of the four media units: Films Division (FD), National Film Archives of India (NFAI), Directorate of Film Festivals (DFF) and Children's Film Society of India (CFSI). The committee looked into every aspect of each individual unit's functioning for a year before submitting the report.

Must read: [Cabinet approves merger of four government-run film and media units](#)

What are the findings of the Bimal Julka committee?

-These media units functioned in an exemplary manner and produced tremendous results, but over the last 10 years, they all faced issues due to inefficiency, over-staffing and corruption within each unit.

-The Committee found that only the DFF was devoid of corruption, but it was suffering due to the inefficiency of some employees, casual and permanent.

-NFDC, which pioneered a revolution in cinema, had in the last 10 years not contributed anything of quality and its workforce was causing heavy expense to the exchequer.

-They all together wasted a huge wealth and wasted huge tracts of real estate.

-Film Division hardly makes any documentaries. They have a panel of directors who are paid, but when FD wants to produce a documentary they outsource the director.

-Similarly, CFSI which is meant exclusively for children, receive Rs 10 crore every year. But they made a film that got a U/A certificate from the censor board.

-A couple of years ago the NFAI was allotted Rs 700 crore for the restoration of films. Their mandate is to archive our (film) heritage, but they complained that they were unable to find the right people.

What are the recommendations of the Bimal Julka committee?

The committee was of the unanimous opinion that **all these organisations must be streamlined**.

The committee proposed that all the media units should be reconstituted and streamlined as individual verticals overseen by an **'umbrella' body** to ensure efficiency and synergy.

The government accepted the report, and It was decided that instead of constituting a new body, NFDC, which is a corporation, would be revamped and function as the 'umbrella'. This is because 1. It has a certain amount of respect across the world, 2. Only a corporation can ensure the success of the new initiative.

Read more: [Centre's push to merge film archive and other film bodies will ill serve their original mandates](#)

What are the advantages of merging film and media units?

1. The merger of Film Media Units under one corporation will lead to convergence of activities and resources and better coordination, thereby ensuring synergy and efficiency in achieving the mandate of each media unit.

2. It will also lead to a reduction in duplication of activities and direct savings to the exchequer.
3. The NFDC is expected to turn around its finances once the merger takes place.
4. The only state that has a central Chalachitra Academy is Kerala, which effectively and efficiently manages all film-related activities under the Kerala State Chalachitra Academy. Such an umbrella academy would help retain the cultural ethos of a nation under a single authority.

What are the challenges associated with merging film and media units?

Legacy of the institutes: The NFAI, FD, DFF, CFSI are institutions with a history. They have been a part of independent India's nation-building process and have made stellar contributions to producing, disseminating and preserving the labour and creativity of diverse film cultures in the country. If merged, the functions of these institutions will be constrained.

Read more: [What is the contribution and importance of these publicly-funded cultural institutions?](#)

Production of art-house cinema: All these years, India's public-funded cinema bodies have focussed mostly on making of art-house cinema and documentaries that would not find support from the market. This resulted in the production of works that boldly questioned the very systems and processes that enabled their existence. After the merger, this might not be feasible.

Issues with NFDC: The NFDC was set up based on the recommendations of **Dr Shivaram Karanth Committee**. Four decades since its inception, the NFDC has been on a course of steady decline. The committee failed to study why the NFDC has miserably failed in its assigned mission. Hence, the decision to merge these media units with NFDC will not result in better performance of all the media institutes.

Root cause not addressed: Institutions like the CFSI have been underperforming, it is mostly because they do not get the right kind of leadership.

What should be done to promote India's film heritage?

Archival activities need to be prioritised, empowering the film archiving body as an independent, less bureaucratically burdened body without over-centralisation.

Vesting them with adequate leadership: India is the only country where bureaucrats run a film festival. For example, The International Film Festival. Hence, vesting the film institutes with professionalism will result in better improvement. For instance, the NFAI is functioning exceedingly well under dedicated leadership.

Set up an autonomous body: The government's involvement should be limited to a reasonable annual grant and also its representation on the governing body.

Setting up a separate Ministry for Cinema: The government can consider setting up a separate ministry so that it can nurture and promote cinema, not control it. The ministry should not only include these four media institutes but also other institutes such as the Film and Television Institute of India (FTII) and the Satyajit Ray Film and Television Institute (SRFTI), etc.

Must Read: [Draft Cinematograph Bill – Explained, pointwise](#)

A fine balance between a film industry that defines itself in market terms and a cinema focussed on the politics and aesthetics of art production, should not be disturbed.

Excess Supply of Sugar and promoting use in Biofuels – Explained, pointwise**Introduction**

India is the largest consumer and the second-largest producer of sugar. There is excess and cheap availability of Sugar in India. The Government is taking proactive measures to boost the export of surplus sugar and divert the use of sugarcane to ethanol (Biofuel).

About Sugarcane crop

Sugarcane is grown as a Kharif Crop. It needs a hot and humid climate with an average temperature of 21 °C to 27 °C and about 75-150 cm rainfall. Sugarcane is a water-intensive crop.

Sugarcane can grow in any soil which can retain moisture, however **deep rich loamy soil** is considered ideal for sugarcane.

Read more: [Measures taken by Government for Sugar Industry](#)

How big are global and India's Sugar Industries?

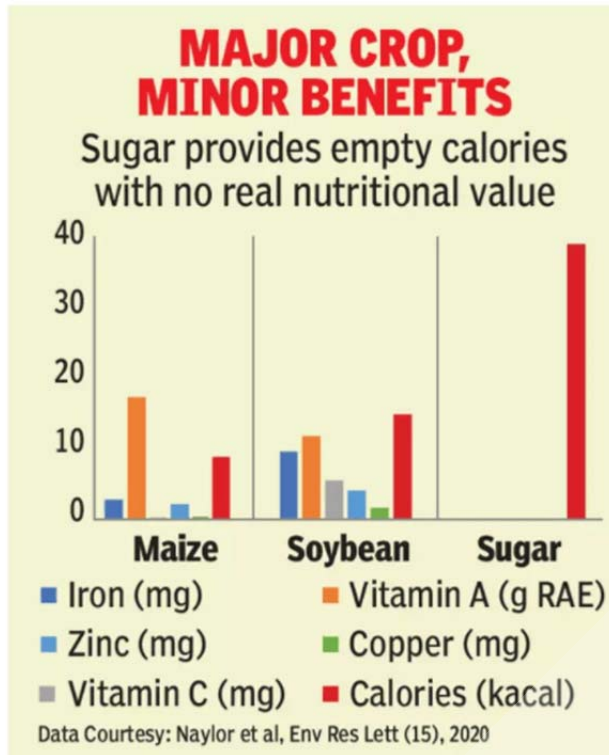
Since the Second World War, many global commercial food and beverage manufacturers have used sugar to promote their products.

The [Food and Agriculture Organization \(FAO\)](#) estimates world sugar production in 2021-22 at 173.7 million tonnes. The global production was 49 million tonnes in 2000.

India is the **second-largest producer** of sugarcane **after Brazil**. In India, the largest sugarcane producing state in India is **Uttar Pradesh**, followed by **Maharashtra**, **Karnataka**, **Tamil Nadu** and **Bihar**.

Why are the reasons behind surplus supply of sugar?**Higher Returns**

Farmers tend to grow more sugarcane due to its **potential for generating higher returns over costs**, about 60-70% more compared to most other crops. Refined white sugar is also cheap for consumers. Since it is valuable, in many countries, it **receives government support** (for instance, [Fair and Remunerative Price \(FRP\)](#) in India). It has thus become a priority crop. As in India and Brazil, many countries **developed entrenched interests** in growing sugar. With this backdrop, surpluses started to develop.

Decrease in consumption

Source: TOI

Scientists and people have now realised the impact of excessive consumption of sugar and its **lifestyle-related chronic health problems** are an **unavoidable global health issue**. This is because,

1. There is a growing awareness among people that there are **no health benefits to consuming more sugar**. Instead, there is a major rise in obesity and related diseases alongside lack of nutrition. Children are also developing obesity and metabolic syndrome at an early stage. 2. **Shift in calorie based diet to nutrient-based diet**: In the second half of the 20th century, around the world, the focus of food security was just to ensure that people could get enough calories from the basic staple crops to enable a productive life. But now, people largely do have adequate calories — yet, there is a globally **increased burden of malnutrition**. This is because people don't have adequate micronutrients and protein for sustained cognitive and physical growth.

For these reasons, the supply of sugar has outpaced its demand.

Read more: [Implications of Cheap Sugar in India – Explained, Pointwise](#)

Why India should move away from more sugar production?

First, WWF estimates that **15 countries devote over 25% of their land area** to sugarcane cultivation, clearing vast biodiversity-rich habitats, from tropical rainforests to seasonal groves.

Slave-grown sugar in the Americas and the Caribbean: Western European powers moved more than twelve million Africans across the Atlantic to grow sugar, later expanding the use of slavery into tobacco and cotton cultivation. After the abolition of slavery, they were worked as indentured (bonded) labour.

Sugar was cultivated in plantations, characterised by the destruction of the natural habitat

over large swathes and the imposition of an intensively grown crop requiring a great deal of water and other inputs.

*These plantations then became the model for timber production, pineapples, tea, rubber, tobacco and so on worldwide. Such agriculture has **impacted huge areas of the tropical and semi-tropical world, destroying biodiversity and imposing a monoculture** that has severe environmental fall-outs.*

Second, Sugarcane is **heavily water-intensive**. Studies in Maharashtra found that it can take up 60% of irrigation supply and impacts groundwater as well. In some sites, the water table has dropped from 15 metres to 65 metres in the last 20 years.

Third, Health impacts of Sugar: Along with other health impacts, diabetes is another cause of worry. While [WHO](#) finds diabetes quadrupling globally since 1980, the [WEF](#) terms this ‘a silent epidemic’, nearly thrice as deadly as Covid-19.

International Diabetes Federation and the **Global Burden of Disease project** predicts that about **98 million Indians could have diabetes by 2030**.

Fourth, With increased sugar production, there is a dilemma in how to use such sugar surpluses while maintaining revenues for producers and avoiding declining prices. One such way to utilise the surplus sugar is to create a whole new demand. For instance, sugar could be used to make biofuel instead of food. Using sugarcane for biofuels can reduce both emissions and ill-health.

What is biofuel?

A BIO-FUELLED FUTURE

● **Biofuels** are derived from biomass or plant, algae or animal material – easily replenished, biofuel is considered a source of renewable energy unlike fossil fuels



● Biofuel is seen as cost-effective and environmentally benign, an important factor with



volatile fuel prices and global warming. Ethanol, the leading liquid biofuel, is made by fermenting sugar or starch – Brazil and the US are its foremost producers

● In the US, ethanol is made from corn or maize grain, blended with gasoline to produce a 10% ethanol fuel. In Brazil, ethanol is made

from sugarcane and used as a 100%-ethanol fuel or in gasoline blends containing 85% ethanol

● India has advanced its target for 20% ethanol blending in petrol or E20 to 2025. This aims at reducing oil imports and CO₂ pollution since large crop residues are burned on farms now – converting these to ethanol can help raise production from 700 to 1,500 crore litres

● Biofuels of the future, derived from species that need little land, water or fertilisers, include corn stalks, hemp, switch grass, jatropha shrubs, algae and giant reeds

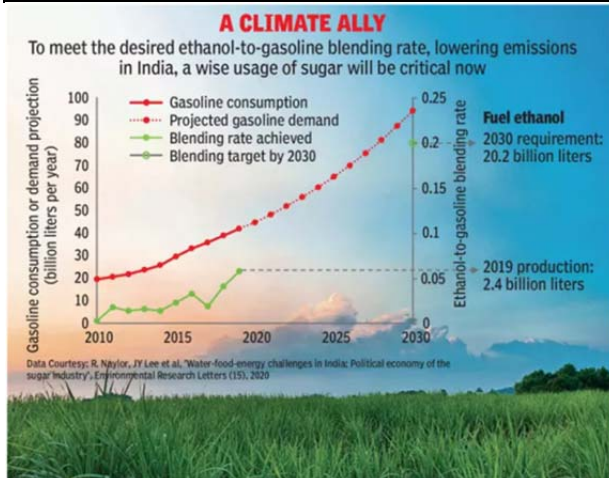


Research: Encyclopaedia Britannica, Smithsonian Magazine, WEF

Source: TOI

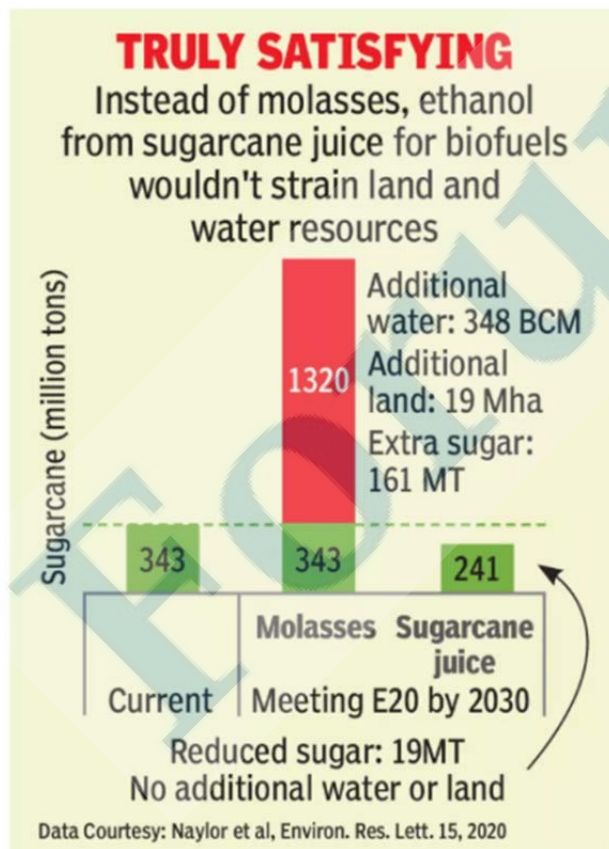
Read more: [National Policy on Biofuels](#)

What are the advantages of using sugarcane for producing biofuel for India?



Source: TOI

Biofuels made from crops can be **used in the transportation sector** as an alternative to fossil fuels. With **climate change mitigations** underway, India can **lower its greenhouse gas emissions** by limiting fossil fuels in the transport sector. **Brazil** already has a biofuel industry based on Sugarcane. The Government of India has also set a target that India's transport sector should be at least **20% comprised of biofuels**.



Source: TOI

In India, **molasses**, a by-product of sugar manufacturing, is used to make biofuel. But if India can **use sugarcane juice** in biofuels, the whole commodity would be used far more **productively and sustainably**. To reach that E-20 mandate with molasses alone means a very large expansion of sugarcane cultivation is needed. This would also lead to a huge amount of extra sugar on the market. If sugarcane juice was used, then the E-20 mandate could be met without any massive production expansion and increasing sugar's water and climate challenges.

Read more: [Centre looking to use stubble as biofuel](#)

What should be done?

Make sugarcane cultivation sustainable: Improvements in sugarcane farming can reduce water intensity significantly. For instance, In Mexico, by using water recycling, sugar's water consumption fell by 94%. So, India can adopt such practices.

Implement a series of post-harvest investments: Sugarcane Farmers are not cultivating fruit and vegetables because of their perishable nature. According to NITI Aayog, about 30% of cane area could be diverted to other crops by providing incentives to farmers at a cost of about ₹9,200 crores.

So, governments could implement a series of post-harvest investments like **drying and refrigeration facilities** so that farmers can save their perishables till they go to market. This would be a big **incentive for more sustainable agriculture**.

Shift to traditional diets: While the US consumes the most sugar per capita, FAO estimates China and India will drive the world's future sugar rush. With the growing desire for a more Western diet, India has to rediscover more traditional and healthier, diverse diets.

Increase Taxes on sweetened beverages: In Mexico, which had an even more worrying situation than India, showed encouraging results by taxing beverages. With the poorest classes proportionately benefitting, India can also implement similar policies.

Research from scholars highlights that there is a crucial intersection between food security, energy and water in India. Initially, the sugarcane juice can be diverted to produce biofuels to utilise excess sugar. But the long term solution would be making sugar cultivation sustainable, efficient and also making people move away from consuming excessive sugar. Thus, the trajectory of sugar can be turned towards suiting both Earth and humanity.

Mediation Bill: Salient Provisions, Potential Challenges and the Way Forward – Explained, pointwise

Introduction

The Chief Justice of India (CJI), while speaking at the **India-Singapore Mediation Summit** in July 2021 has said that mediation should be made mandatory as the first step in dispute resolution and that a law should be framed in this regard. In December 2021, the CJI, while addressing the **International Arbitration and Mediation Centre (IAMC)** at the Hyderabad, said that courts should be the last resort for dispute resolution; therefore, one should explore the options of alternate dispute resolution(ADR).

The **Mediation Bill, 2021** was introduced in Rajya Sabha in December 2021. It seeks to promote mediation (including online), and provide for enforcement of settlement agreements resulting from mediation. The bill has been referred to a standing committee.

What is Mediation?

Mediation is a form of alternative dispute resolution (ADR). It is a way of resolving conflicts where two or more parties decide to reach an agreement with the support of a third, neutral party that guides them through the process.

What are the salient provisions of the Mediation Bill, 2021?

First, The Bill does away with the confusion arising from using both expressions “mediation” and “conciliation” in different statutes. The bill has defined mediation widely in accordance with international practice. Conciliation has been included under the wider definition of mediation.

Second, the Bill proposes **pre-litigation mediation**. At the same time, it safeguards the interest of the litigants to approach the competent adjudicatory forums/courts for urgent relief.

Third, the successful outcome of mediation in the form of a **Mediation Settlement Agreement (MSA)** has been made enforceable by law.

Fourth, the mediation process protects the **confidentiality of the mediation** process and provides for immunity in certain cases against its disclosure.

Fifth, The Settlement Agreement could be registered with State/District/Taluk Legal Authorities within 90 days to ensure maintenance of authenticated records of the settlement so arrived.

Sixth, the Bill provides for the establishment of the **Mediation Council of India**.

Why does India need to promote Mediation?

No standalone legislation: In India, though **mediation finds legitimacy in some specific laws** such as the **Code of Civil Procedure, 1908**, the **Arbitration and Conciliation Act, 1996**, the **Companies Act, 2013**, the **Commercial Courts Act, 2015**, and the **Consumer Protection Act, 2019**; there is no standalone legislation as yet.

Success of Mediation: The **Tamil Nadu Mediation and Conciliation Centre** is an initiative of the Madras High Court and it provides India’s first court-annexed facility with a mediation centre in every district. It was inaugurated in 2005 has **significantly reduced the pendency of referred cases**.

To fulfil India’s commitment to [Singapore Convention on Mediation](#): India is a signatory to the Singapore Convention on Mediation (United Nations Convention on International

Settlement). Hence, it is appropriate to enact a law on issues of domestic and international mediation.

Read more: [Lok Sabha gives nod to arbitration Bill](#)

What are the advantages of the Mediation Bill, 2021?

Strengthening of Alternative Dispute Resolution (ADR): The bill would facilitate quick disposal of disputes, outside of traditional court systems.

Mediation results in the amicable resolution of disputes in civil, commercial, family, and matrimonial affairs. It helps develop a collaborative approach, reduces the burden on the courts, and protects relationships between disputants.

Impact on doing business: The legislation has the potential to have a significant positive impact on the country's economy and business environment by avoiding delays in the standard process through the courts.

Interests of all stakeholders: Enacting a comprehensive law and allowing for online mediation may serve the interests of all stakeholders as an effective alternative dispute resolution mechanism.

Improve law and order situation and encourage compounding of criminal offences: The Bill provides that 'any dispute likely to affect peace, harmony and tranquillity amongst the residents or families of any area, may be settled through **community mediation**. Also, the courts can **refer any dispute** related to compoundable offences or civil matrimonial offences for mediation.

Thus if any of the above disputes is resolved through mediation, it may lead to compounding of a criminal offence arising out of that civil or commercial dispute. Hence, it can **relieve some of the pressure on law enforcement agencies**.

Note: Compoundable offences are those offences where, the complainant (one who has filed the case, i.e. the victim), enter into a compromise, and agrees to have the charges dropped against the accused.

Read more: [Encouraging mediation to settle disputes](#)

What are the concerns associated with the Mediation Bill, 2021?

Impacts cross-border mediation: The Bill treats international mediation when conducted in India as a domestic mediation. Further, the settlement conducted in India is given the status of a judgment or decree of a court.

But, the **Singapore Convention does not apply to settlements** that already have the status of a judgment or decree. Hence, conducting cross-border mediation in India will **leave out the tremendous benefits of worldwide enforceability**.

Doesn't have a single mediator: The Mediation Council has three members, a retired senior judge, a person with experience of Alternative Dispute Resolution (ADR) law and an academic who has taught ADR. However, it doesn't have a single mediator.

Excludes the Chief Justice of India from making appointments: The mediation is a form of dispute resolution and in the judiciary's domain, but the bill has left the Chief Justice of India from the picture for making appointments.

Disputes not to be mediated: The bill provides for a long list of disputes which should not be mediated. By doing so, it provides that any settlement of disputes involving them needs the court's approval, thereby denying the possibility of a beneficial mediated settlement in these

cases. For example, Fraud, Disputes relating to claims against minors, Patents and copyright cases, proceedings before the TRAI etc.

Read more: [Mediation Bill: Not getting the Act together](#)

What can be done to improve mediation in India?

Need to remove ambiguity: There are certain elements in the Bill which are open-ended and ambiguous, which must be addressed urgently.

Ensure proper cross border mediation: To ensure worldwide enforceability, the settlement conducted in India should not be given a status of a judgment or decree of a court.

Ramp-up infrastructure: India does not have enough infrastructure for mandated mediation, such as a number of mediators, mediation centres, etc. The government has to facilitate them for smoother mediation.

Enhance awareness: The National and State Legal Services Authorities should disseminate more information regarding mediation and ADRs, so that they become the first option explored by potential litigants.

Alternate Dispute Resolutions has proven successful in clearing the backlog of cases in various levels of the judiciary – Lok Adalats alone has disposed more than 50 lakh cases every year on average in the last three years. A similar impact can be observed with Mediation also. Hence, the government should address the concerns in the mediation bill and ensure proper implementation of the same.

Natural Farming – process, advantages and challenges – Explained, pointwise

Introduction

Recently, the Prime Minister urged all state governments to introduce natural farming. The Prime Minister observed, “We need to unlearn the wrong practices that have crept into our agriculture.”

Andhra Pradesh has been promoting natural farming for some time now. Australian soil microbiologist and climate scientist Walter Jehne has said, “regenerative agricultural practices adopted in Andhra Pradesh have fundamentally changed the economic viability of farming and enormously empowered local communities to take charge of their future.”

What is Natural farming?

Natural farming is related to soil microbiology. It involves **chemical-free farming and livestock-based farming methods**.

It is a diversified farming system that integrates crops, trees and livestock, allowing the optimum use of functional biodiversity.

It has many indigenous forms in India, the most popular one is practised in Andhra Pradesh called **Zero Budget Natural Farming (ZBNF)**.

How Natural farming is different from other methods?

Note: Plants, by way of photosynthesis, use CO₂ and water to convert solar energy to biochemical energy or food. About a third of the food manufactured by plants is required by the shoot system over the ground, while 30% is used by the roots. Almost 40%, however, is pushed into the soil as root exudates, which feed microbes. These microbes—bacteria and fungi—in a symbiotic relationship, make the nutrients available to plants.

Modern agriculture is based on the principle that the soil has to be replenished by chemical nutrients such as nitrogen and phosphorous, depending on the intake by the crop. Using chemical inputs reduces the microbe population and hinders this natural process.

In **organic farming**, similarly, the soil is replenished by applying organic manure like cow dung. But since cow dung contains very little nitrogen, massive amounts have to be applied, which may be difficult for a farmer to arrange.

Natural farming works on the principle that there is **no shortage of nutrients** in soil, air and water, and healthy soil biology can unlock these nutrients.

How are the soil nutrients managed in Natural farming?



COMPONENTS OF NATURAL FARMING



Beejamrit

The process includes treatment of seed using cow dung, urine and lime based formulations.

Whapasa

The process involves activating earthworms in the soil in order to create water vapor condensation.



Jivamrit

The process enhances the fertility of soil using cow urine, dung, flour of pulses and jaggery concation.

Mulching

The process involves creating micro climate using different mulches with trees, crop biomass to conserve soil moisture.

Plant Protection

The process involves spraying of biological concoctions which prevents pest, disease and weed problems and protects the plant and improves their soil fertility.

Source: NITI Aayog

A **cow dung-based bio-stimulant is prepared locally by fermenting dung with cow urine, jaggery and pulses flour**. The requirement of dung is very low compared to organic farming, just about 400 kg for an acre of land.

The fermented solution when applied to fields increases the microbial count in the soil, which supplies the plants with essential nutrients (*Jivamrit*).

This farming method also **uses a host of other interventions**. Seeds are treated with cow dung-based stimulant which protects young roots from fungus and other soil and seed-borne diseases (*Beejamrit*).

The fields are managed to have **some green cover around the year** to aid carbon capture by plants from the air and nurture the soil-carbon-sponge. This also **keeps the microbes and other organisms like earthworms alive** which **helps the soil become porous and retain more water** (*Whapasa*).

During the cultivation of main crops, **crop residues are used as mulch** (*Acchadana* or Mulching) to retain soil moisture and **prevent the growth of weeds**.

Growing multiple crops in the same patch of land also raises soil fertility.

About Natural farming in India

Bharatiya Prakritik Krishi Paddhati (BPKP) is a sub-mission under the **Paramparagat Krishi Vikas Yojana (PKVY)** which falls within the umbrella of the **National Mission on Sustainable Agriculture (NMSA)**. The scheme aims to promote traditional indigenous practices, which give freedom to farmers from externally purchased inputs.

Initiatives at the state level

Andhra Pradesh launched natural farming as a state policy in 2015. The state is now home to the largest number of farmers in India who have transitioned from chemical nutrients to applying locally prepared natural inputs.

Further, **Gujarat** and **Himachal Pradesh** have adopted natural farming as part of the state policy.

Read more: [What is Zero Budget Natural Farming? Critically examine whether Zero Budget Natural Farming should be included into agricultural policies or not?](#)

What are the advantages of shifting to Natural farming?

Small and marginal farmers who spend a lot of money on chemical inputs will **benefit the most** by taking up this type of farming.

Improving farmers' income: The use of chemical fertilizers and pesticides can be replaced with locally prepared stimulants while maintaining comparable yields. This will reduce cost of cultivation by 60-70%. Natural farming also makes soil softer and enhances the taste of food. Thereby, it can result in **higher net income for farmers**.

A study undertaken by Andhra University (surveyed over 3500 natural and conventional farms) found that Net revenues for paddy farmers were higher by 15-65% depending on the crop season, while for commercial crops like chillies, cotton and onion, net revenues were 40-165% more than conventional farming. Average net returns from natural farming were 50% higher.

Reduce the dependence on credit: A panel survey of 260 farm households which were surveyed in 2018-19 and 2019-20, found that natural farming reduced the dependence on credit, freeing many farmers from exploitative and interlinked input and credit markets.

Reduce India's fertilizer subsidy bill: India's fertilizer subsidy bill, driven by a spike in natural gas and other raw material prices, is estimated to touch a staggering ₹1.3 trillion in 2021-22. Promoting natural farming can reduce these costs to the exchequer.

More flexible than organic farming: Organic farming is more about certification, while natural farming is a gradual process. But, there is relative flexibility in natural farming for adoption. This makes it easier for small farmers to transition.

Benefit end consumers: At present, consumers are forced to purchase food with chemical residues in it. Certified organic food is more expensive, but the sheer cost savings in natural farming can **ensure safe food at affordable prices**.

Helps in combating climate change: Natural farming not just create cost savings for farmers, but also ensure **higher carbon fixation into the soil**, which can mitigate climate change.

Natural farming based land management and farming practices can rehydrate and re-green the global landscape. Further, it can meet fertility (requirements of soil) and the nutritional integrity of the food.

Reduce Ocean acidification: Since natural farming eliminates chemical fertilisers and pesticides, it reduces ocean acidification and marine pollution from land-based activities. It also helps to reduce the contamination and degradation of rivers and oceans, like

contamination of ammonium nitrate in fertilisers, and hazardous chemical pollutants from pesticides into rivers and oceans.

Read more: [Sustainable Agriculture demands Optimum Water Management](#)

What are the challenges in adopting natural farming?

First, some agriculture experts feel that it is premature to recommend widespread adoption of natural farming as it may lead to **massive damage to the hard-earned knowledge and benefits** of agricultural research and development over the last 70 years.

Second, India's **crop protection industry** is valued at ₹18,000 crores. Promoting natural methods will threaten the very existence of their entire business ecosystem.

Third, natural farming can improve soil health and reduce the incidence of pest infestation, but that **does not mean farmers can manage without chemicals during outbreaks**.

Fourth, limited support from the Central Government: India's National Mission on Sustainable Agriculture receives only 0.8% of the agricultural budget.

Read more: [NITI Aayog organises knowledge sharing workshop on Natural Farming](#)

What should be done to promote natural farming?

First, a **balanced approach should be adopted** while promoting Natural farming. The experience of Sri Lanka must be kept in mind where the Government at once prohibited the use and import of chemical fertilizers leading to massive drop in production and shortage of food.

Second, the experience in **Andhra Pradesh** shows that a transition can be successful if farmers are convinced and gradually ease into natural farming, a process that **can take between three-five years**. Hence, the government should provide adequate time, promote awareness campaigns with practical examples. **Civil Society Organizations** can be engaged to promote farmer-to-farmer capacity building for sustainable agriculture.

Third, the practice of **natural farming needs to be validated** by scientific research. The [Indian Council of Agricultural Research](#) is designing a curriculum on natural farming for both undergraduate and post-graduate courses, which is a good first move.

Read more: [Natural farming: ICAR to research on, demonstrate and promote natural farming](#)

Fourth, the application of pesticides in India is many times lower than in countries like US and Japan. **Farmers need to use chemicals judiciously** to further lower the application of pesticides.

National policy focus should be shifted from food to nutrition security, looking beyond yields. Government can **support the transition and bear short-term losses**. Instead of input-based subsidies for fertilizer and power, the focus should be to incentivize outcomes like nutrition output, water conserved or desertification reversed.

Vodafone Idea issue and the telecom sector in India – Explained, pointwise

Introduction

The board of Vodafone Idea (VI) has approved the [spectrum auction](#) instalments and [Adjusted Gross Revenue \(AGR\) Dues](#) (an estimated Rs 16,000 crore) in the form of equity to the Government of India. Once done, the Union Government will own 35.8% of VI, while the Vodafone Group and Aditya Birla Group—the promoters of this joint venture—will see their stake dilute to 28.5% and 17.8%, respectively. The move will make the government a single largest shareholder of Vodafone Idea.

At present, the company (VI) faces liabilities of close to Rs 2 trillion. Reacting to this announcement, shares of Vodafone Idea fell 20.8%, indicating investor concerns over the prospects of the company.

The move will provide immediate cash flow relief to the company and help them to expand their 4G spectrum, as per experts. On the other hand, some view the move as a partial nationalization of a private joint venture. Despite the decision warding off the imminent crisis, the move towards a greater government role in the telecom businesses seems retrograde.

Read more: [Spectrum Auctions in India – Explained, Pointwise](#)

About the Telecom Reforms Package

Due to various challenges in the telecom sector, the **Department of Telecommunications (DoT)** had provided various options to telecom firms in October 2021 as a part of its Telecom Reforms Package to clear their dues.

One of the offers was to defer payment of spectrum auction instalments and AGR-related dues by four years. The interest arising out of the deferred payment could be paid to GoI in the form of equity shares.

The Vodafone Idea board accepted the offer and approved deferring payment in the form of equity.

Read more: [What are spectrum auctions?](#)

About the Vodafone Idea issue and Vodafone Idea Rescue Plan

The financial health of Vodafone Idea has suffered since 2016 when Reliance Jio Infocomm Ltd. sparked a brutal price war and quickly became the top player in terms of market share. Reliance Jio's takeover of the telecom market led to huge losses for other telecom operators, which quickly lost their loyal consumer base.

In 2019, the Supreme Court ruled in favour of the government on the definition of Adjusted Gross Revenue (AGR). This vested VI with a liability of Rs 58,000 crore, topped by penalties and interest.

Read more: [AGR Case: SC dismisses plea for recomputation of dues](#)

Despite the merger, Vodafone Idea faced three issues of **cash flow, profit and loss and a weak balance sheet**. In short, the company faced major losses and was **cash strapped**, which halted its expansion efforts. The company has continued to lag behind Reliance Jio and Bharti Airtel. Today, as others prepare for the roll-out of 5G services, VI may have much to catch up on.

Hence, the recent decision of VI board will ease Vodafone Idea's cash flow woes. The government recently said that it intends to liquidate its holdings "in due course" through the Department of Investment and Public Asset Management (DIPAM) and wants the companies to work out independent and strong revival and growth strategies.

TO LIQUIDATE HOLDINGS

<ul style="list-style-type: none"> ➤ Government intends to liquidate its holdings “in due course” through department of investment and public asset management ➤ It wants companies (Voda Idea, Tata Tele) to work out independent and strong revival and growth strategies 	<ul style="list-style-type: none"> ➤ Equity in companies will be treated merely as investments, accumulated as part of bailout schedule ➤ Directionally, the government has been moving out of its holdings across various industries, and it would be no different in case of Voda Idea and Tata Tele
---	--



Source: TOI

Read more: [Cabinet approves major Reforms in Telecom Sector](#)

What are the benefits of this decision?

Avoid duopoly in the Telecom Sector: India’s state-run duo of BSNL and MTNL are awaiting a merger, and have government-set social coverage goals to pursue. They can’t be considered competitors to private players. Without VI, India would have had a private duopoly (Jio and Airtel), which may have denied citizens the benefits of genuine competition.

Support for the economy: The move will provide short-term support to **insulate the economy from the cascading effect** of a drawn-out implosion of a large firm.

The economic recovery in India has been uneven. The financial sector hasn’t fully recovered from the bad loan problem, and the RBI estimates that it could rise to 9.5% of the advances by September 2022 in a severe stress scenario. A closure would have rippled out into the ecosystem and undermined a struggling financial sector.

Global Precedent: This kind of transient support has precedent in India and elsewhere. Following the global financial crisis in 2008, the US government supported General Motors (GM) and Chrysler and at one stage held 61% stake in GM.

What are the challenges faced by Indian telecom operators?

India’s telecom market has been described by analysts as the most difficult in the world. A decade ago, there were dozens of companies in India’s telecom pie. Today, the government has to take equity in one of the three remaining companies to prevent the sector from becoming a duopoly. The government is being forced to solve a problem that it itself created. The problems include,

Lack of fixed-line penetration: India has very little penetration of fixed-line in its network. On the other hand, most of the developed countries have a very high penetration of fixed lines. In developed nations, more than 70% of the towers are connected with fibre networks. But in India, it is only around 25%.

Note: Fixed line penetration is a telephone line that travelled through a metal wire or optical fibre as part of a nationwide telephone network

Limited Spectrum Availability: Available spectrum in India is less than 40% as compared to European nations and 50% as compared to China. This situation is worsening as ISRO and India's defence forces are demanding a major reservation.

Low Broadband Penetration: As per a white paper from International Telecommunication Union (ITU), broadband penetration in India is only 7%.

Issues with the AGR formula: The formula to compute levies had inconsistencies in its treatment of service providers' revenues from telecom services and other sources like rentals, investments etc. [TRAI \(Telecom Regulatory Authority of India\)](#) had disagreed with the formula for computing levies. So had Telecom Disputes Settlement and Appellate Tribunal (TDSAT) in the litigation before it.

DoT made little effort to resolve the anomalies, leading to endless litigation and the eventual shock to the very survival of a competitive telecom market.

Debt accumulation: The real trouble for the telecom operators began when the government decided to price the 3G spectrum at a very high rate. At that time, it helped the government to bridge the fiscal deficit, but it resulted in a massive debt accumulation by telcos in the coming years. The cumulative debt of the companies rose from Rs 82,726 crore in 2008-09 to Rs 2.5 lakh crore in 2012-13. Over the years, this high debt burden only worsened.

Pressure on Margins Due to Stiff Competition: With competition heating up post-entry of Reliance Jio, other telecom players are feeling the heat of a substantial drop in tariff rates both for voice and data.

Delayed rollout of innovative products and services due to the unfavourable environment caused by government policies and regulations.

Read more: [5G technology in India – importance, challenges and solutions](#)

What are the recent initiatives of the government to promote the telecom industry?

Read here:

[Telecom Sector Reforms – Explained, pointwise](#)

[YEAR END REVIEW-2021: DEPARTMENT OF TELECOMMUNICATIONS](#)

What should be done to revamp the telecom sector?

Revamping Vodafone Idea (VI)

The government should **1)** Maintain a hands-off approach, **2)** Provide operational freedom so that the VI should remain a privately-run enterprise, **3)** Should keep away from operations as it has a poor record in the telecom business – BSNL and MTNL in the last three years have cumulative losses of Rs 47,508 crore.

Revitalise the telecom sector

Three large competitors are enough to maintain competitive dynamics if regulation is properly conducted.

Prioritise the implement the National Digital Communication Policy (NDCP): The policy advocates

- 1) Establishing a **National Digital Grid** by creating a **National Fibre Authority**,
- 2) **Creating a collaborative institutional mechanism** between Centre, States and Local Bodies for Common Rights of Way, standardization of costs and timelines,
- 3) Removal of barriers to approvals, etc,

The state governments should set up adequate telecom infrastructure to realise the NDCP. The government should

- 1) **Increase the optical fibre and fixed-line penetration** across the rural areas,
- 2) Ensure a **favourable environment for the entry and exit** of new players,
- 3) **Investment will be needed for 5G networks and other enhancements**,
- 4) **Reduce licence fee** as India's licence fees are one of the highest in the world,
- 5) **Increase its spending on research and development** to make India capable of manufacturing and exporting hardware components like mobile handsets, touch screen monitors etc.

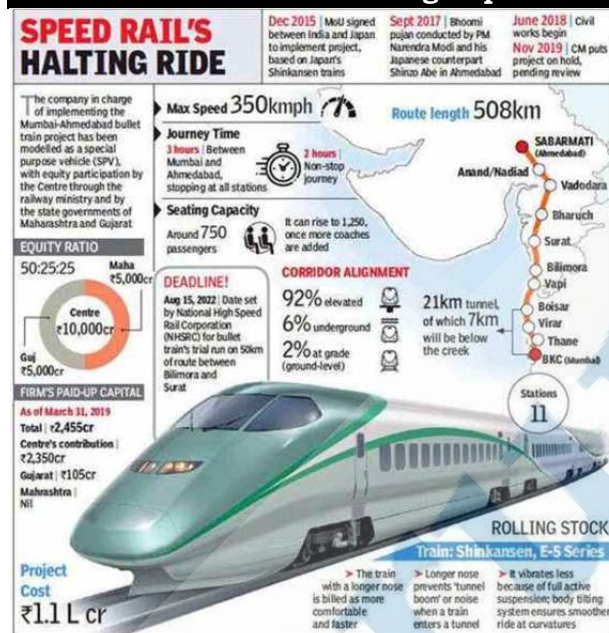
The Telecom sector is an essential service and not merely a revenue generator. It is estimated that the doubling of data use leads to an increase in the GDP per capita growth rate of 0.5 percentage points. In general, tariffs will have to rise from their unsustainably low levels in India. To realise India's dream of a \$5-trillion economy and digital Indian ambitions, the time has come for the government to prioritise stability, investment, and quality improvements in telecom.

High-Speed Rail Project and its challenges in India – Explained, pointwise

Introduction

In 2022, as India marks its 75th year of independence, Indians were expected to experience the thrill of a bullet train ride. But the railway minister recently said that the likely date for Ahmedabad-Mumbai high-speed rail project has been pushed back by several years—to 2026, perhaps. The project is entangled in land acquisition battles and construction delays. Crucially, by 2026, only a 50 km stretch between Surat and Bilimora in Gujarat—a mere 10% of the overall 508-km corridor—is expected to be up and running. Pilot runs would commence on this stretch, with the train clocking a speed of 300 km per hour; much faster than any train currently operational in India, but far slower than the global benchmark for high-speed trains. This raises a question, is India actually ready for a network of high-speed rail corridors?

About Mumbai-Ahmedabad High-Speed Rail (MAHSR)



Source: TOI

The plan for the MAHSR corridor was first set into motion in 2013 by then Prime Minister Manmohan Singh during his visit to Japan. In 2014, a study was commissioned, and the final report was submitted in July 2015 by the Japan International Cooperation Agency (JICA). The Japanese government also agreed to fund the project via loans offered at concessional rates. The Union cabinet approved the project in December 2015. An agreement was signed with Japan International Cooperation Agency (JICA). The project was inaugurated in 2017 and was scheduled for its first run in 2022.

It is the **first and only approved bullet train** till now. It will connect Gujarat's capital with India's financial capital, Mumbai. It will pass through three districts in Maharashtra, eight in Gujarat and will cut through Dadra and Nagar Haveli.

National High-Speed Rail Corporation (NHSRCL) is the implementing agency of the project. So far, the **NHSRCL** has completed the final location survey and geotechnical investigation and has obtained the statutory clearances.

Read more: [Railway Minister announces introduction of 'Bharat Gaurav Trains'](#)

Note: NCSRCL was incorporated in 2016 under the Companies Act, 2013. Its mandate is to finance, construct, maintain and manage the High-Speed Rail Corridor in India. The Company has been modelled as **Special Purpose Vehicle** in the joint sector with equity participation by Central Government through Ministry of Railways and two State Governments viz. Government of Gujarat and Government of Maharashtra.

What other high-speed rail projects are in the pipeline?

According to a report by Mint, the Union budget 2022-23 may announce a **New Delhi to Varanasi high-speed rail corridor**. A **Mumbai-Nagpur corridor** is also likely, depending on the clarity with regard to funding.

The **NCSRCL** is in the process of preparing detailed project reports for at least five more proposed corridors: **Delhi-Ahmedabad**, **Delhi-Amritsar**, **Mumbai-Hyderabad**, **Chennai-Mysore**, and **Varanasi-Howrah**.

Read more: [Firm signal on bullet train project](#)

Why high-speed rail projects (HSR) are important for India?

livemint

BITE THE BULLET

Once operational, the bullet train is expected to compete with low-cost airlines.

	Railway (Shatabdi Express)	Bullet train	Flight (Air India)
Time (hours)	6:40	1:58	1:15
Speed (kmph)	131	320	700
Fare (in ₹)	2,070	3,000-4,000*	4,223

Note: Between Ahmedabad and Mumbai
*Estimated price Source: IRCTC, Air India

Currently, India's fastest train lags behind other nations in the global speed chart.

Country (train model)	Speed (kmph)
Japan (Maglev)	601
France (TGV)	574
China (CRH380A Hexie)	486
Italy (Frecciarossa 1000)	394
India (Vande Bharat Express)	180

Source: Industry

DADAR JAIN/MINT

Source: Livemint

After the Metro train projects, the bullet train project is considered as a second transport revolution. This is because,

Global Experience: The HSR has an **economic multiplier effect**. Since the introduction of the first Shinkansen (literally meaning 'new main line') in Japan in 1964, high-speed trains have proven to be an undeniable technological, commercial and popular success. Many countries like the UK, France, Germany, Spain, China and, most recently, the US have adopted the technology.

Role of the trains in India's development: In India, trains have played a significant role in shaping the growth of the domestic economy since the late-1800s. Currently, Indian Railways operates one of the largest rail networks in the world—transporting more than 22 million passengers a day and moving more than 1.2 billion tonnes of goods every year.

The high-speed rail network, once in place, is expected to further **catyalse India's economic growth** and act as a **stimulus for the development of satellite towns**.

Improve India's GDP: According to a study conducted by the **London School of Economics and Political Science** and the **University of Hamburg** in 2008, cities that are connected to HSR systems tend to witness a **rise in their gross domestic product (GDP) by at least 2.7 percentage points** compared to their neighbours that do not have an HSR station. The reason for the differential was **improved market access**.

Read more: [102 Vande Bharat trains to be operational by 2024](#)

Technological revolution: The HSR corridor will pass via Thane creek in Mumbai, which is a protected sanctuary housing mangroves and a population of flamingos. In order to avoid disturbing this habitat, the rail corridor will have to traverse through a 21 km tunnel, of which 7 km will be under the sea. Several new technologies are expected to be used for the first time in India to surmount this construction challenge.

Similarly, Light detection and ranging (LiDAR) technology will also be deployed for the first time in a railway project in India.

Cleaner Transport Mode: According to the International Association of Railways (UIC), high-speed rail is eight times more energy efficient than airplanes and four times more efficient than automobile use. It will also decrease greenhouse gas emissions and improve air quality.

The project is expected to create a lots of employment opportunities, increase economic activity, boost productivity and improve mobility.

Must read: [Why India needs a bullet train?](#)

What are the challenges faced by the MAHSR?

Challenges in Land acquisition: Land acquisition has been completed in most stretches that fall within Gujarat and Dadra Nagar Haveli, especially after the [Gujarat High Court dismissed a string of petitions](#) filed by farmers. But the rail corporation is facing significant challenges in acquiring land in Maharashtra, especially in Palghar and Thane districts.

In Palghar, the entire area is scheduled and tribal land. The **Panchayats (Extension to Scheduled Areas) Act, 1996** protects the Adivasi community's access to land and resources. Land acquisition, whether for a public or a private purpose, often requires prior community consent via the Gram Sabha.

The **villagers fear displacement and financial insecurity**. An estimated 14,884 households stand to lose their land and over 37,000 trees are slated to be cut down.

Significant engineering challenges: NHRCL also has to tackle significant engineering challenges, particularly in the final leg of the corridor, which will enter Mumbai from under the sea.

Read more: [What makes India- Japan Bi-lateral ties strong?](#)

Other challenges: **1)** With the advent of new technologies like [Hyperloop Transportation Technologies](#) which propose to make travel as fast as 760 miles per hour, investing a humongous capital on bullet trains seems like an **outdated investment**. **2)** The Indian Railways is in a worrying state. There is a need to strengthen the present infrastructure of the railways. At this time, the operation and maintenance of HSR will pose many challenges even if it is privatized, **3)** A project report by the Indian Institute of Management, Ahmedabad estimates that at least 1 lakh passengers at fares approximately Rs. 1,500 per 300 km would be required daily for the project to make investments even. Considering the low airfares in India, it is challenging, **4)** The estimated cost of MAHSR is ₹1.1 lakh crore (US\$17 billion) which is **massively expensive**. Though India receives funding from Japan (81%), the power demand and up-gradation of existing infrastructure will be more costly. Hence, India cannot afford such enormous public expenditure now, especially when India is facing the Omicron threat.

Read more: [205 railway projects report cost overrun of Rs 2.21 lakh cr](#)

What should be done to implement the HSR projects in India?

1. The government has to understand that the water-forest-land is an asset for the Adivasi community, it is their identity and culture. Hence, the Policymakers and administration should **give priority to systematic sustainable development work**. **2.** State governments should actively involve in the land acquisition process to get clearances faster. **3.** The Central government should complete, at least, the impediments of the MAHSR first, before announcing any other bullet train projects. As this will divert attention and resources and slow things down. **4.** The government has to push for technology transfer of HSR. This is because there is no mention of the transfer of technology anywhere in the agreement.

The HSR projects will revitalize India's smaller towns and cities by opening up avenues for mixed land use, tourism and business opportunities. Though India is ready for bullet trains, land acquisition policies and others are not ready to welcome the development. Hence, India needs to reform those policies that hinder the HSR projects.

India State of Forest Report 2021 – Explained, pointwise

Introduction

The **India State of Forest Report (ISFR) 2021** has been released by the Ministry of Environment, Forests and Climate Change (MoEFCC).

Findings of the report show a continuing increase in forest cover across the country, but experts have flagged some other aspects as causes for concern, such as a decline in forest cover in the Northeast, and a degradation of natural forests.

Read on for a detailed discussion.

What is the India State of Forest Report 2021?

It is an assessment of India's forest and tree cover, published **every two years** by the **Forest Survey of India (FSI)** under the Ministry of Environment, Forests and Climate Change.

The first survey was published in 1987, and ISFR 2021 is the 17th report.

With the data computed through wall-to-wall mapping of India's forest cover through remote sensing techniques, the ISFR is used in **planning and formulation of policies** in forest management as well as forestry and agroforestry sectors.

Satellite data used in the assessment is based on interpretation of Linear Imaging Self-Scanning Sensor (LISS)-III data from Indian Remote Sensing satellite data (Resourcesat-II)

The India State of Forest Report (ISFR) 2021 provides information on forest cover, tree cover, carbon stock in India's forests, etc. This information **provides inputs for various global level inventories, reports** such as GHG Inventory, international reporting to UNFCCC targets for planning and scientific management of forests.

In the present ISFR 2021, for the **first time**, FSI has assessed forest cover in tiger reserves, tiger corridors and the Gir forest which houses the Asiatic lion.

What are the key findings of the report?

1) The total forest and tree cover of the country is 80.9 million hectare, which is 24.62% of the geographical area of the country.

– India has set a target of bringing 33% of its geographical area under forest cover, as envisaged in the **National Forest Policy, 1988**.

– This was also one of the key targets enlisted in the **Strategy for New India @ 75** document, released in December 2018 by the NITI Aayog.

2) Increase in forest and tree cover: As compared to the assessment of 2019, there is an increase of 0.28% in the total forest and tree cover of the country.

– Three types of forests have been surveyed: **Very dense (pristine), moderately dense (natural forests close to human habitation) and open forests**. Scrubs have also been surveyed, but they are not categorised as forests.

The Survey defines forests as all lands of more than 1 hectare in an area with a tree canopy density of more than 10%, including trees, orchards, bamboo, palms etc., occurring over government and private lands.

This covers all land, irrespective of legal ownership and land use. While “recorded forest area” includes only those areas recorded as forests in government records, as well as the pristine forests.

– Increase in forest cover has been observed in **open forest** followed by very dense forest, while **moderately dense forests (natural forests) have declined**.

– The gain in forest cover may be attributed to better conservation measures, afforestation activities, tree plantation drives and agro-forestry.

3) States in the North East have recorded the **highest loss in forest cover**. This is due to numerous natural calamities, particularly landslides and heavy rains, and anthropogenic activities such as shifting agriculture, pressure of developmental activities and felling of trees. Further, unlike other states, where forests are managed by the forest department and state governments, the Northeastern states follow a **system based on community ownership** and protected tribal land. This makes conservation activities challenging. The northeastern states have been losing forest cover consistently, as the last report published in 2019 also indicated.

*Area-wise **Madhya Pradesh** has the largest forest cover in the country followed by Arunachal Pradesh, Chhattisgarh, Odisha and Maharashtra.*

4) Increase in mangrove cover: An increase of 17 sq Km in mangrove cover has been observed as compared to the previous assessment of 2019.

5) Increase in carbon stock: There has been an increase of 79.4 million tonnes in the carbon stock of the country, as compared to the last assessment of 2019.

***Carbon stock** refers to the amount of carbon stored in forests in the form of biomass, soil, deadwood and litter. More carbon stock indicates a higher forest capacity to absorb and sequester carbon dioxide (CO₂), through photosynthesis.*

6) Growing stock has also increased as compared to 2019. Growing stock quantifies forest resources and is an indicator of forest productivity.

7) The forest cover in tiger corridors has increased between 2011-2021, but decreased by 0.04% in tiger reserves. **Pakke Tiger Reserve** in Arunachal Pradesh has the highest forest cover, at nearly 97%.

8) The India State of Forest Report, estimates that by 2030, **45-64% of forests in India will experience the effects of climate change** and rising temperatures, and forests in all states (*except Assam, Meghalaya, Tripura and Nagaland*) will be highly vulnerable climate hot spots. **Ladakh** is likely to be the most affected.

It predicted that Himalayan states and UTs like Ladakh, Jammu and Kashmir, Himachal Pradesh and Uttarakhand will record the **maximum increase in temperature** and also possibly experience **decrease in rainfall**.

9) The survey has found that 35.46 % of the forest cover is prone to forest fires.

What are the concerns as highlighted by the findings of the report?

– The growth rate in forest cover has been marginal. This marginal growth in India's forest cover is primarily due to an **increase in the area under open forests** (canopy density 10-40%). The increase in open forests is led by commercial plantations. This is a cause of concern. Despite overall increase in mangrove cover, very dense mangrove cover has decreased in **Sunderbans**. This is also a cause of concern because very dense mangrove cover acts a barrier against cyclones, protecting West Bengal from directly bearing the brunt of storms that originate in the Bay of Bengal. The mangrove also acts as a **source of livelihood** for locals by acting as a spawning ground for several fish and other aquatic animals such as crabs and prawns.

– **Degradation of forests:** The decline, in natural forests in conjunction with an increase in open forest areas – shows a degradation of forests in the country. This means that natural

forests are degrading to less dense open forests. Also, **increase in scrub area**, indicates the complete degradation of forests in these areas.

Since 2003, more than 19,000 sq. km of dense forests have become non-forests in the country. The decadal rate of this destruction of natural forests has doubled from ~7,000 sq. km in 2003-13 to 12,700 sq. km since 2013.

– **Loss of forest cover in NE region:** This loss is of great concern, as the Northeastern states are repositories of great biodiversity. Loss of forest cover will increase the impact of landslides. It will also impact water catchment in the region, which is already seeing degradation of its water resources.

What are some issues with the survey?

As per experts, **survey results could be misleading** as it includes plantations – such as coffee, coconuts or mango and other orchards – under forest cover.

These plantations are distinctly different from natural forests where one hectare would be home to hundreds of species of trees, plants and fauna, whereas commercial plantations house only one species of tree.

What is the way forward?

– In India, the **extent of natural forests is unknown**. It's very important to segregate the extent of natural forests and commercial plantations like mango or coconut. The qualitative forest cover can't be improved unless the extent of natural forest is known.

– The **decline in natural forests (moderately dense forests) merits attention** since certain amendments to the Forest Act, 1980 are likely to further make easier the diversion of forest land for non-forest use.

[Yojana January Summary] India as a Space Power – Explained, pointwise**Introduction**

Recently, S. Somanath has been appointed as the chairperson of the Indian Space Research Organisation (ISRO). ISRO aims to continue to achieve new milestones and further development of India's space programmes under his tenure. The beginnings of the Indian Space Programme resonated strongly with its founding father Dr Vikram Sarabhai's vision, that India must be 'second to none in the application of advanced technologies for the benefit of society.

About India's space programme

The space programme formally took off with the formation of the **Indian National Committee for Space Research (INCOSPAR)** in 1962, followed by the first sounding rocket launch from **Thumba Equatorial Rocket Launching Station (TERLS)** in 1963.

The **Indian Space Research Organization (ISRO)** was formed in 1969, superseding **INCOSPAR**. Today, with a total workforce of over 18,000, ISRO's establishments are functioning in many parts of the country with each concentrating on a specific specialised domain.

With the establishment of the **Space Commission** and the **Department of Space (DOS)** in 1972, ISRO was brought under DOS.

What are the salient achievements of India's space programme?**Evolution of Space Research in India**

Read here: [Space research evolution in India](#)

Launch vehicles for India's space programme

The space transportation domain, with the **successful advent of the Polar Satellite Launch Vehicle (PSLV)** in 1994, witnessed a quantum jump in the indigenous launch capabilities. The PSLV has proven to be a workhorse of ISRO, logging over 50 successful missions, launching national as well as foreign satellites.

In the 1990s, the commissioning of the **Geosynchronous Satellite Launch Vehicle (GSLV)** was the next step in India's space program. The launch vehicle was designed with three stages (including the cryogenic upper stage), with four liquid strap-ons.

The next-generation launch vehicle of ISRO, with a capability for putting a 4 Ton payload in geostationary transfer orbit(GTO), came in the form of **GSLV-Mk III**.

Recent missions and achievements of India's space programme

Chandrayaan-1 mission – The mission made India the fourth country to send a probe to the lunar surface after the United States, the Soviet Union, and Japan. The mission conclusively **discovered water molecules on the lunar surface**, it was widely hailed as a path-breaking discovery.

Mars Orbiter Mission – With this, ISRO has become the fourth space agency to successfully send a spacecraft to Mars orbit.

AstroSat – It is the **first dedicated Indian astronomy mission** aimed at studying celestial sources in X-ray, optical, and UV spectral bands simultaneously. AstroSat recently made a major breakthrough by discovering one of the earliest galaxies in extreme-Ultraviolet light.

Chandrayaan-2 Mission – It is India's second mission to the moon with the objective to map and study the variations in lunar surface composition. The instruments onboard the Orbiter is continuously providing useful science data which will enrich India's understanding of the moon's evolution and mapping of the minerals and water molecules in the Polar regions.

Operationalisation of Navic – It provides highly accurate Position, Navigation, and Time information to users in India and its surroundings. The **Global Standards body- 3rd Generation Partnership Project (3GPP)**, which develops protocols for mobile telephony, has approved NavIC. Major mobile chipset manufacturers have incorporated NavIC in their releases.

Other recent reforms in the space sector

1. Towards capacity building in human resources and to meet the growing demands of the Indian Space Programme, the **Indian Institute of Space Science and Technology (IIST)**, a deemed university, was established at **Thiruvananthapuram** in 2007. 2. The creation of the **Indian National Space Promotion and Authorization Center (IN-SPACe)** to promote, handhold, and authorise Non-Government Private Entities (NGPEs) to undertake space activities shall unleash the next wave of advancements in the sector. 3. **Launching of Indian Space Association**: It is the premier industry association of space and satellite companies, which aspires to be the collective voice of the Indian Space industry.

Read more: [Explained: Why launch of Indian Space Association is significant](#)

What are the upcoming missions of India's space programme?

Gaganyaan Programme – The stated objective of the mission is to demonstrate human space flight capability to **Low-Earth Orbit (LEO)** for a defined duration and safe recovery after the mission. The **Human Space Flight Centre (HSFC)** was constituted in ISRO in January 2019, for implementing the vision on human space flight. Recently, ISRO has successfully demonstrated the **Pad Abort Test (PAT)**, which is the first in the series of tests to qualify the **Crew Escape System (CES)**.

Disha: It is a twin-satellite system that will study Earth's aeronomy, the uppermost layer of Earth's atmosphere.

EOS-4 and EOS-6: These are Earth Observation Satellites. They will be launched onboard the Polar Satellite Launch Vehicle (PSLV).

X-ray Polarimeter Satellite (XPoSat): It is an space observatory to study the polarization of cosmic X-rays; planned to be launched in the second quarter of 2022. The telescope is being developed with the help of Raman Research Institute.

Space exploration missions of India's space programme

Aditya L1: The aim is to take a space observatory to the Lagrangian point one (L-1) to study the Sun. The objective of the mission is to study the dynamic nature of the sun's outermost layers, the corona and the chromosphere.

Read more: [Objectives and importance of ISRO'S Aditya-L1 mission.](#)

Shukrayaan Mission: It is expected to be launched in 2024 by ISRO. It will study Venus for four years.

Chandrayaan-3: It is a third lunar mission of ISRO. It is planned to demonstrate India's capability of soft landing on a celestial body, with the rover then communicating with Earth via

the existing orbiter from Chandrayaan-2. It is planned to be launched in the third quarter of 2022.

Upcoming collaborative missions of India's space programme

Trishna: It stands for Thermal Infrared Imaging Satellite for High-resolution Natural resource Assessment. It is a joint mission of ISRO and CNES, the French space agency. It is meant for accurate mapping of land surface temperature. It is scheduled for a 2024 launch.

NISAR [NASA-ISRO SAR] mission: It is scheduled for launch in 2023. It is optimised for studying hazards and global environmental change and can help manage natural resources better and provide information to scientists to better understand the effects and pace of climate change.

Read more: [Functions of "NSIL | New Space India Limited"](#)

What are the challenges faced by India's space programmes?

Less share of ISRO in the global arena: The value of the global space industry is estimated to be \$350 billion and is likely to exceed \$550 billion by 2025. India's share is estimated at \$7 billion (just 2% of the global market).

Lower Spending: The funds allocated to the space sector are very less in comparison to other countries. The US spent 10 times and China 6 times more than India in the space sector in 2019-20.

Brain Drain: India produces the best brains in the world but is unable to retain them. People emigrate from the country for better opportunities and careers that might hamper the development of the space sector.

Managing big constellations of satellites: Although India has a good potential to launch satellites, managing a huge number of satellites in space could be a challenging task in the future. This should be done keeping in mind the **possibilities of a future space war**.

Technological issues and challenges: Despite various progress, ISRO is still a long way away in some critical technologies. For instance, On the Gaganyaan mission, ISRO is **still building its capabilities and developing critical technologies** required to send astronauts being into space.

Too much dependence on PSLV: India is dependent mainly on a single type of launch vehicle such as that of PSLV, which hampers the capacity expansion of the programme.

Lack of robust Dispute Settlement Mechanism: This discourages private investment in the space sector. The void was seen in Antrix – Devas cancelled the satellite deal. The Government of India owes nearly \$1.2 billion to Devas Multimedia as per an order of a tribunal of the International Chamber of Commerce.

What steps can be taken to improve India's space programme?

1. The plan to set up an **independent tribunal** to adjudicate disputes among private space entities should be implemented promptly.
2. The **passage of the Space Activities Bill** should also be done in order to give private players greater clarity and protection. This should involve proper consultation and discussions with the concerned stakeholders.
3. The focus should be on **aiding space start-ups to penetrate rural India** and **encourage youth** to build careers in space applications and sciences.
4. **NSIL should function more than a marketer of ISRO's technologies**. It should find newer business opportunities and expand the sector itself.
5. The

government should also **enhance spending** towards the sector considering the huge future potential and robust returns on investment.

Indian Space sector possesses huge untapped potential which can be realized with adequate policy measures by the government. This would boost the confidence of the private sector and deliver optimum results, thereby cementing India's position as a 21st-century space power.

ForumIAS