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The current affairs articles are segregated from prelims and mains perspective, such separation is maintained in terms of structure of articles. Mains articles have more focus on analysis and prelims articles have more focus on facts.

However, this doesn't mean that Mains articles don't cover facts and PT articles can't have analysis. You are suggested to read all of them for all stages of examination.

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SECTION: A
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CURRENT AFFAIRS

MIGRANT POLICY INDEX

CONTEXT

The states of Kerala, Goa, Rajasthan and Andhra Pradesh have been most successful in integrating migrant workers, while crucial migrant receiving states, including Delhi, have done poorly, shows the Interstate Migrant Policy Index that seeks to measure integration of interstate migrants.

⦿ BACKGROUND

- ⦿ Inter- state migration is a key income generating strategy for low income households in India.

- ⦿ But despite the importance of migration for a large majority of Indians, migrants continue to face significant barriers in their destination states.

- ⦿ The impact of state borders is significant and large on migration levels within India.

- ⦿ Thus, there is an urgent need to understand the prevailing migration policy environment in an accessible and engaging manner.

- ⦿ An indexing exercise can achieve this while also providing a policy benchmark for governments to strive for.
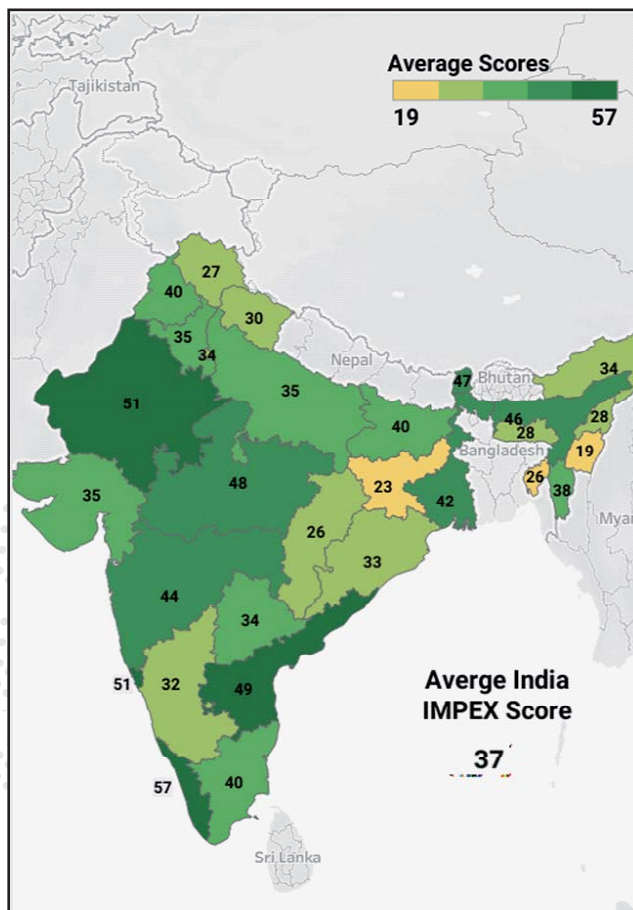
⦿ ANALYSIS

What is the Interstate Migrant Policy Index (IMPEX)?

- ⦿ The Interstate Migrant Policy Index (IMPEX) is developed by the Mumbai-based research non-profit India Migration Now (IMN). It sought to measure the integration of interstate migrants.

- ⦿ The states' performances have been assessed on eight policy areas spanning more than 60 policy indicators.

- ⦿ The index ranks and compares all the states of India based on their migrant integration policies.

- ⦿ The index addresses questions like which Indian states have the most migrant friendly policy regimes, how does India's migration related policies compare with the rest of the world and what are the benchmarks for integration policies of internal migrants in India?

- ⦿ The index could help bureaucrats and stakeholders in evolving policy for India's 455 million internal migrants who remain one of the most excluded groups in the country.

- ⦿ This figure is from Census 2011, and may have changed between 2011-20.

Key-findings of the Index

- ⦿ India's average Interstate Migrant Policy Index (IMPEX) score in 2019 for 28 states and the Union Territory of NCT Delhi is 37 out of 100.

Average Scores
19 — 57

Averge India IMPEX Score
37

- ⦿ It reflects the limited attention paid to integration efforts in the destination states. Kerala – at 57 – scored the highest, followed by Goa and Rajasthan at 51.

- ⦿ The states of Manipur, Jharkhand, and Tripura were at the bottom, with scores of 19, 23, and 26.

- ⦿ With a score of 34, the capital too ranked near the bottom.

How States have performed well?

- ⦿ **Kerala:** Kerala's performance can be attributed to two aspects.

  - ▶ **Recognition: The first is the state's recognition of migrants as a considerable force guiding the demograp**hics.

    - • This is reflected in the state's child education policy, Project Roshni, which recognises the special needs of migrant children in

terms of care, education, and protection, as IndiaSpend reported after the pandemic struck.

- **Targeted schemes:** The second is the existence of targeted schemes for migrant workers and extending to them social security, labour protection and welfare--for instance, the Aawaz health and accident insurance programme for migrant workers.

    ➤ Not only does Kerala include migrants within general policymaking (principle of equality), it also accounts for the special needs that migrant communities may have (principle of migrant vulnerability)--both of which form the underlying principles of the IMPEX evaluation.

- **Rajasthan:** Rajasthan scores well because it does not have restrictions based on domicile certificate--granted to those born or resident for 10 years in the state or women married to Rajasthani men--for state employment.

    ➤ India's largest state also has favourable educational policies for all children, irrespective of their migrant status.

    ➤ The Rajasthan Right to Education Rules 2011, which add state-level provisions to a central law, state that all children within Rajasthan (whether resident or migrant) have access to primary education.

    ➤ Additionally, local authorities have to maintain a record of every student irrespective of his/her residency status. It also requires the local authorities to record details of children requiring special/residential facilities on account of migration.

- **Goa:** Goa has favourable policies for migrant workers, as mentioned under the Interstate Migrant Workmen Rules, which specify that all information to migrants must be disseminated in their native language and that contractors for migrant workers must bear their healthcare costs.

- **Andhra Pradesh:** Andhra Pradesh, with a relatively good IMPEX score of 49, demonstrates how bilateral agreements between states can promote integration.

    ➤ In July 2012, the governments of Andhra Pradesh and Odisha signed an agreement to create a sustainable mechanism to integrate migrants from Odisha in Andhra Pradesh.

    ➤ This effort included child migrants, for whom education would be provided in their native language by roping in Odia teachers to teach using Odia language textbooks.

- The states of Bihar (64) and Assam (58) scored the most on the housing indicator.

- **Bihar:** In Bihar, migrants are covered under the state's Shelter for Urban Homeless scheme.

    ➤ The Indian government's Working Group on Migration, in their 2017 report, had pointed out how short-term migrants are pushed to informal settlements, and face threat of displacement and eviction.

    ➤ Bihar's scheme addresses these specific challenges faced by vulnerable groups, including migrant workers, by providing permanent settlement equipped with essential services.

- **Assam:** In Assam, the 2015 Urban Affordable Housing Policy covered migrant workers, too, but it is scores lower than Bihar because it requires domicile documents to provide long-term housing to interstate migrants--domicile or residency certificate in Assam requires 20 years of residence and 50 years of prior residence by the applicant's parents/forefathers.

Policies for Migrant Workers

- Central policies exist to foster integration of migrant workers, especially through statutes such as

    ➤ the Interstate Migrant Workmen (Regulation and Conditions of Service) Act 1979

    ➤ the Minimum Wages Act 1948

    ➤ the Contract Labour (Regulation and Abolition) Act 1970

    ➤ the Equal Remuneration Act 1976

    ➤ the Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act 1996

- However, state governments are responsible for a much wider range of policy areas touching upon migrant workers' everyday lives, for which central government policies do not suffice.

◉ CONCLUSION

The COVID-19 pandemic, while making these migrant workers visible, exacerbated the challenges they had to surmount. This is particularly true of migrants who cross state borders for work, as more than 54 million did as per Census 2011. Conversations around migrant integration--a multi-faceted process that involves migrants settling permanently or temporarily in destination states and interacting in many ways with receiving societies--rarely receive policymakers' attention. Interstate migrants have for long been left out of the ambit of policymaking, especially owing to "exclusionary urbanisation". But, now the time has come that government start focusing on the issue at the earliest.

AN ANALYSIS OF VICTIM COMPENSATION SCHEMES IN INDIA

CONTEXT

By and large, when it comes to the subject of criminal procedure, the spotlight tends to be focused on the rights and dignity of the accused. For good reason, various safeguards are accorded to the accused so as to protect them from any excesses. However, in recent years, there has been a global awakening regarding the rights of victims, who remain neglected by lawmakers.

⊙ BACKGROUND

- In 2003, the **Malimath Committee** report suggested various reforms to the CrPC, 1973.

- The report bluntly stated at the outset that the public at large was losing faith in the criminal justice system as it existed in the present state for the victims of crimes felt abandoned and ignored, with their cries for justice falling on the seemingly deaf ears of the state.

- A key suggestion of the committee was that **the victim should be granted the right to seek fair compensation.**

- The report recommended that a **victim compensation fund** be established and thus, by an amendment to the CrPC in 2008, Section 357-A was inserted.

- Therefore, presently, a victim of an offence may seek compensation under Sections 357 and 357-A of the CrPC, 1973.

- The difference between the two sections is significant.

  ▶ While under Section 357, it is the offender who is made to pay compensation, but under Section 357-A, it is the state that pays compensation to the victim in accordance with the state's victim compensation scheme.

  ▶ Under Section 357-A the state can provide interim compensation as listed under the state's victim compensation scheme, regardless of whether the case has resulted in a conviction.

- The philosophy behind the above concept is that it is the state's duty to protect the victim from crime, and its failure to do so would render it partially responsible for the victim's ordeal.

⊙ ANALYSIS

Analysis of Victim Compensation Scheme

- Under Section 357-A of the CrPC each state is required to set up a **victim compensation scheme.**

- Moreover, in 2015, the centre set up a **model compensation scheme**, which prescribed a minimum amount of compensation to be granted to victims of different offences (Press Information Bureau 2015).

- Each state was asked to notify new schemes in compliance with the same, and if it found itself facing any financial difficulties in adhering to the scheme, the centre would support the state from a ₹200-crore fund earmarked for this very purpose.

- Unfortunately, despite the Ministry of Home Affairs' directive asking states to modify the amount of compensation provided under Section 357A of the CrPC, some states are yet to amend their state victim compensation schemes.

- There exist large disparities among states, with regards to the amount of compensation they give to the victims of certain offences, in spite of the introduction of the central victim's compensation scheme (and a fund of ₹200 crore), which was brought to ensure that each state meets a specific minimum amount of compensation as prescribed by the centre for victims of specific offences (Press Information Bureau 2015).

> **Laws governing compensation of victims of crime**
>
> - The provisions relating to compensation to victims of crime are contained in sections 357, 357(1), 357 (2), 357 (3), 357A, 358, 359 and 250 of the Code of Criminal Procedure, 1973.
>
> - Constitution of India also provides for certain safeguards to the victim of crime.
>
>   ▶ Article 14 and 21 of the Constitution supports the argument.

Recent Amendments

- Amendments made to the **Code of Criminal Procedure (CrPC), 1973** in 2008 as well as through the **Criminal Law (Amendment) Act of 2013**, made a breakthrough in acknowledging the rights of the victim.

◉ Though one generally assumes compensation to be a remedy granted by civil courts and sentencing a function of criminal courts, **Section 357** clubbed the two remedies together, thereby ensuring that the victim would not have to approach two different courts, hence expediting the compensation process.

◉ Despite the existence of such provisions as well as the establishment of the **state and the central victim compensation funds** (Press Information Bureau 2015), the victims of crimes rarely receive any compensation (*Ankush Shivaji Gaikwad v State of Maharashtra* 2013).

◉ Furthermore, despite the Ministry of Home Affairs' directive asking states to modify the amount of compensation provided under Section 357A of the CrPC, some states are yet to amend their state victim compensation schemes.

◉ The result of this is that the amount of compensation a victim of an offence receives in one state varies greatly from the amount a victim of the same offence would receive in another state.

Loopholes in the Schemes

◉ The Supreme Court in ***Nipun Saxena v Union of India* (2019)** noting drawbacks of existing schemes, found it fit to direct the **National Legal Services Authority (NALSA)** to frame a scheme for victims of sexual offences, including the offences falling under the **Protection of Children against Sexual Offences Act.**

◉ **No entitlement for non-female victims:** This pan-India scheme significantly increases the amount of compensation that can be availed by a victim of a sexual offence, but does not entitle non-female victims of serious crimes to receive **greater compensation.**

◉ **Same body to assist victim and accused:** Lastly, a notable flaw in the victim compensation schemes is that the victim may file an application seeking compensation before the state or district legal services authority. This is, however, the very same authority that is meant to provide assistance to the accused in getting legal aid.

◉ **Conflicting role:** Thus, at present, the legal services authorities have a conflicting role, for they are expected to be neutral while dealing with the protection of the rights of the accused on the one hand, and supporting the victim in securing their right to compensation on the other.

Issues and challenges

◉ **Ineffective schemes:** While Sections 357 and 357-A of the CrPC are steps in the right direction, their effect has been nullified due to the ignorance of the judiciary, which has failed to invoke these sections time and again.

◉ **Non-uniform:** Furthermore, state victim compensation schemes are non-uniform, fail to comply with the centre's guidelines and continue to suffer from various other inadequacies, such as the usage of wide umbrella-like terms that cover several offences under one amount of compensation, resulting in a grave injustice to the victims of crimes differing in their nature and gravity.

◉ **Disbursed compensation:** Moreover, compensation under the schemes is sparingly disbursed.

◉ **Ignorance by courts:** Lastly, the courts too are at fault for their consistent ignorance of Sections 357 and 357-A of the CrPC.

➤ In *Ankush Shivaji Gaikwad v State of Maharashtra* (2013), the Supreme Court came down heavily on the rampant practice amongst courts of ignoring the victim's right to compensation under Section 357 of the CrPC.

● The court held that though the wording of Section 357 made it appear as though the provision was merely directory in nature, by looking at the intention of the legislature behind enacting it, it was evident that Section 357 was to be treated as mandatory.

● Thus, it was the duty of the courts to at least apply their mind and give reasons for refusing to grant any compensation.

What measures are required?

◉ **Separate body for victims:** To avoid the conflicting role, ideally, there should be a separate body to deal with victims and their grievances so as to prevent such a conflict of interest.

◉ **Victimology:** Victimology is the only way forward, which could reinstil confidence in the criminal justice system, for it is not the imposition of harsh prison sentences on the criminal that ultimately benefits the victim; rather it is the reparative actions that would lessen the victim's injuries and losses.

◉ **Focus on effective implementation:** While Sections 357 and 357A of the CrPC are steps in the right direction, their implementation requires much fine-tuning.

◉ **Amendment:** It is recommended that the legislature amend Sections 357 and 357-A of the CrPC, 1973.

◉ CONCLUSION

◉ The ancient Indian History is a witness to the fact that the victims of crimes have sufficient provisions of restitution by way of compensation

to injuries. Reparation or compensation as a form of punishment is found to be recognized from ancient time in India. In ancient Hindu law, during Sutra period, awarding of compensation was treated as a royal right.

⊚ In today's time, criminal cases are becoming a contest between the accused and the state. In the fight for hegemony between the State and the Accused, the victim's plight is often forgotten. The offender is apprehended, tried, punished or absolved, or even released on probation in certain situations, although found guilty in the Court. But the victims remain victims. Therefore, it needs of the moment for the criminal justice system to do something more than just punishing the criminal.

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RETIRED AT EIGHTEEN: POLITICAL ECONOMY OF CHILD LABOUR IN INDIA

CONTEXT

Child labourers continue to be employed in large numbers in the country.

Let's analyse the use of child labour in the textiles and allied industries in India, and the drivers that lead to its prevalence.

What is the current situation of child labour in India?

◉ India, home to one-fifth of the world's children, has the highest rates of child labour.

◉ An estimated 33 million children under the age of 18 are engaged in work in various sectors across the country, from domestic service and agriculture, to textiles and mining.

◉ The textiles and allied industries are the second largest employers in India after agriculture, with 40 million direct and 60 million indirect employees.

◉ As a traditionally labour-intensive industry—where flexible and low-cost labour has driven growth and pushed India's global competitiveness in the sector—the textiles sector is enabled by the massive use of child labour.

◉ The continuing practice of child labour has the potential to jeopardise India's push for incentivising foreign investments into the sector and integrating into global supply chains.

◉ Of the estimated 152 million children under the age of 18 engaged in labour across the world, 73 million are engaged in hazardous work. They can be found in a wide array of industries – from domestic service and agriculture, to more hazardous sectors such as mining.

◉ While the number of child labour has declined over the years, child labour in India remains in a massive scale and represents the insidious side of not only domestic, but global supply chains.

What is child labor?

● The International Labor Organization (ILO), a subsidiary of the United Nations, defines child labor as *"work that deprives children of their childhood, their potential, and their dignity, and that is harmful to physical and mental development."*

● Child labor extends into many different activities such as agriculture, manufacturing, mining and domestic service (i.e prostitution).

● Children are forced into child labor because of distinct factors; migration, emergencies, the lack of decent work available and poverty which is known as the most influencing factor.

Children between '14 to 18': A vicious cycle

◉ Current definitions of child labour leave children between 14 to 18 in a limbo.

◉ They are considered too young to be adults but old enough to be out of school and in low-paying, low-productivity jobs.

◉ These children will remain underemployed and unemployed in their adult life, until they are eventually replaced by younger, cheaper hands; by then, they would not have nurtured any skills to move to other gainful employment.

◉ A vicious cycle is perpetuated, whereby fragmented welfare schemes subsidise them for the rest of their lives.

◉ Child Labour in India's textiles and allied industries

Child labour in India is widely prevalent in the textiles and garments industry.

The industry

● India is one of the world's largest producers of textiles, with the industry generating two percent of India's GDP in 2014-2015.

● The textiles industry is diverse, ranging from small household enterprises to large garment plants, and has employees in both the organised and unorganised sector.

● In fact, it is the second largest employer in the country after agriculture, with 40 million direct employees and another 60 million indirect employees.

◉ It is a traditionally labour-intensive industry, where flexible and low-cost labour has remained a critical factor in maintaining India's global competitiveness and subsequent viability.

- The use of child labour is seen as a **method of lowering labour costs.**

- Children are employed in all stages of the process – from cotton-picking, to finishing the product by embellishment and embroidery.

- Indeed, children under 14 account for almost 25 percent of the total workforce in India's cottonseed farms.

- Furthermore, as a considerable proportion of child labour in textiles and allied industries are found to be in household-based enterprises—where regulation and social responsibility is not a major concern—minority and disadvantaged groups are disproportionately affected.

- Child labour is most prevalent in the rural parts of the country and is highest amongst girls, the Muslim community, Scheduled Caste/Scheduled Tribes and Other Backward Classes.

- However, the proportion is even more highly skewed in the textiles and allied industries, where eight of every 10 child labourers are Muslims.

Child labour and trafficking

- Much of child labour and trafficking is invisible, but the National Crime Records Bureau (NCRB) records cases filed across the country under the Child Labour (Prohibition & Regulation) Act, 1986.

- An analysis of child labour cases filed in India across the last five years for which data are available shows that the number of cases has gone up from 147 in 2014 to 464 in 2018.

- The number of cases for which trials got completed also improved over time—from just 10 in 2014 to 78 in 2018.

- Convictions were made in just three cases in 2014 but the number was 34 in 2018, showing an improvement.

- The conviction rate, which was 30 percent in 2014, increased to 43.6 percent in 2018.

How child labour becomes a 'roadblock' to India's Human Capital Accumulation?

- Child labour deprives the young of their rights and dignity, and robs them of the opportunity to fulfil their full potential.

- The practice of child labour has significant implications for human capital development and great opportunity costs for India's ability to develop its human resources.

- **Vicious cycle of poverty:** While in the short term it may seem that child labour increases household incomes, the practice perpetuates the cycle of poverty through reduced human capital accumulation.

- **Serious health issues:** Child labour has serious physical and psychological health impacts caused by long hours of work and unsafe working conditions.

  ➤ Children employed in the zari (embroidery) sector, for example, suffer from damaged eyesight and hands by the time they reach adolescence (14-18) from working long hours in rooms that do not have proper lighting.

- **Lack of education and skills:** The health issues are compounded by the lack of education and skills resulting from being out of school.

- Indeed, the use of children for their economic output in their most vulnerable stages have immense implications.

  ➤ **Micro level:** On a micro level, low levels of health and education will lead to poor-paying jobs in adulthood, which will further increase the chances of their children to be forced into child labour, thereby perpetuating the cycle of poverty.

  ➤ **Macro level:** On a macro level, the skills gap created by uneducated children will add to the already high rates of youth unemployment and leave them at the mercy of the welfare system, in turn slowing down India's long-term growth.

Eliminating Child Labour in India: Legal Challenges

- If India is to achieve the Sustainable Development Goal (SDG) 8, which calls for the promotion of "sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all", the country must prioritise the abolition of child labour.

Recent initiatives taken by Government

- To be sure, India has already made significant strides in the fight against child labour.

- **International treaties**

  ➤ It is signatory to a wide gamut of international conventions and treaties that aim to cease the practice of child labour.

  ➤ Most recently, in 2017, the country signed two **ILO conventions** concerning the '**Prohibition and Immediate Action for the Elimination of the Worst Forms of Child Labour' and the 'Minimum Age for Admission to Employment'.**

  ➤ With India's ratification, almost all of the world's children are covered by both these conventions, enhancing global efforts on abolishing child labour.

- **India's current legislative architecture**

  ➤ To its credit, India has passed several laws throughout the last century prohibiting child labour, the most notable of which is the **Child Labour (Prohibition and Regulation) Act, 1986.**

    - The law, albeit controversial, contained a particular set of occupations and processes where children under the age of 15 were prohibited from being employed.

  ➤ The **2016 amendment to the Act** expanded the ambit of the legislation to adolescents (15-18).

    - The amendment prohibits all forms of labour for children under the age of 15 except in the case of family businesses and home-based enterprises.

    - It further prohibits hazardous adolescent labour in only three sectors – mining, explosives, and those occupations mentioned in the **Factory Act.**

    - There are several caveats to this amendment – the first and most important is that the law ignores the realities of which it seeks to legislate upon.

Other interventions

India's intervention remains key in eradicating child labour.

- In the context of the garments industry, India has already granted sweeping incentives and investments and the textiles and garments industries currently have **100-percent FDI.**

- Furthermore, the **Make in India Programme** has several initiatives to

  ➤ develop state-of-the-art infrastructure and upgrade current machinery

  ➤ create environment-friendly processing units

  ➤ harness skill development of textile weavers

  ➤ assist textile exporters in exporting to specific markets

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Assessing the legislative inefficiencies

- India's legislative framework has focused predominantly on the nexus between education and child labour and has neglected to address the concomitant health issues.

- The **Ayushman Bharat Pradhan Mantri Jan Arogya Yojna (PMJAY)** scheme should bring about changes going forward and be incorporated within the child labour legal framework ensuring coverage and health protection to high-burden areas in particular.

- While the new **draft National Education Policy** has committed to free and compulsory quality secondary education to adolescents, the implementation strategy, yet again, fails to anchor on reality.

- **Access to capital** remains a key barrier to eradicating child labour and even within a supposedly 'free' education system, 'fixed private costs' such as transport and study materials cause many families to pull their children out of school.

- Furthermore, **direct cash transfers** to working families are more effective in eradicating child labour than incentives such as mid-day meals.

- A similar trend can be found in a study of the **Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)**, which found cases of adolescents working at worksites to supplement family income.

- The legislative inefficiencies highlighted in the preceding paragraphs have made it clear that it is necessary to visit child labour from an economic lens as opposed to viewing it simply as a human rights issue.

⊙ CONCLUDING THOUGHTS

- In India, the perverse nature in which child labour works is subsidising India's inefficiencies—from perpetuating the insidious inequities that run across the country, hindering human capital development, and underscoring its legal inadequacies.

- As a country, we need to realise that educated children do have an important role in establishing sustainable change. Education is the only effective tool to eradicate child labour in India.

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HARNESSING THE POWER OF INDIA'S FORESTS FOR CLIMATE CHANGE MITIGATION

CONTEXT

- **Forests help mitigate the impacts of climate change, provide economic benefits for the country, and meet specific facets of India's sustainable development goals.**

- **It is essential, therefore, to revisit India's forest governance and evaluate the country's efforts at forest restoration and conservation.**

◉ BACKGROUND

- India's first comprehensive climate analysis report, **'Assessment of Climate Change over the Indian region'**, highlights the role of forests as effective mechanisms to mitigate climate change impacts, provide economic benefits for the country, and meet several of India's sustainable development goals.

- It is essential, therefore, to revisit India's forest governance and evaluate efforts at forest restoration and conservation.

- Over the past two decades, India has witnessed an ever-increasing rate of deforestation and unsustainable exploitation of forest resources, leading to overall degradation at an alarming rate.

◉ ANALYSIS

What is the state of India's Forests?

- India is now ranked 3rd in the world for annual net gain in terms of forest area.

- The biennial **India State of Forest Report-2019**

released by the Union Ministry for Environment, Forest and Climate Change reports that India has achieved an increase of 24.56 percent in its total forest and tree cover.

- The government has claimed that India's green cover has increased by 15,000 km^2 in the last four years.

Definitions

- **Forest and tree cover:** The total area of tree patches in areas both less than and more than 1 ha is then known as "forest and tree cover".

- **Tree cover:** "Tree cover" is also separately defined as "all tree patches less than 1 ha outside the recorded forest area".

- **Trees outside forests:** Further, "trees outside forests" refers to trees outside recorded forest area, regardless of the area of the tree-patch.

- **Growing stock:** The other term, "growing stock", is the volume of trees in an area of forest above a certain thickness at breast height and measured in cubic meters. The 'growing stock' is the basis for calculating the amount of biomass and carbon stock in forests.
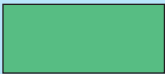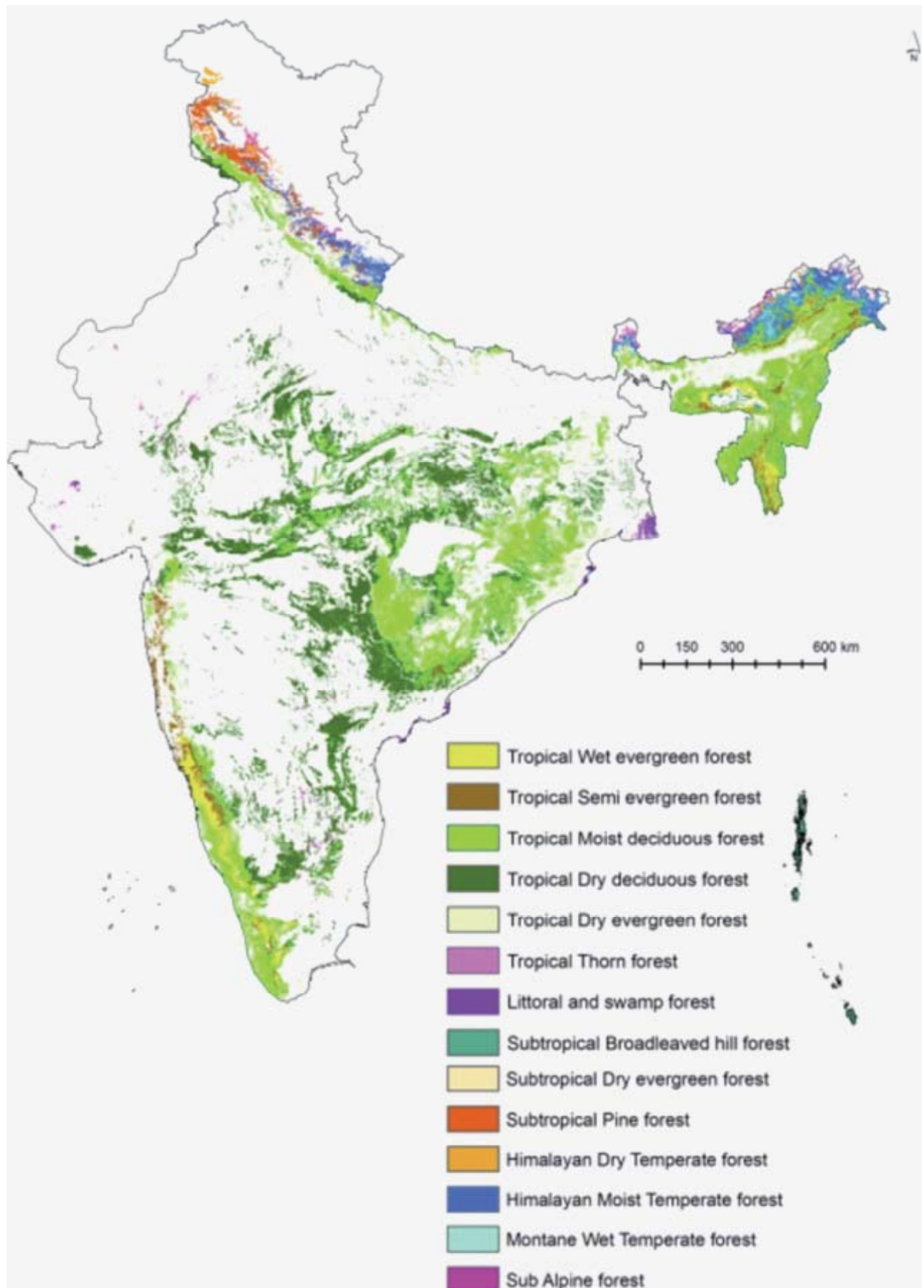
Classification Scheme

- The forest cover is broadly classified in 4 classes, namely very dense forest, moderately dense forest, open forest and mangrove. These classes are defined is below.

Very dense Fores	All Lands with tree cover (Including mangrove cover) of canopy density of 70% and above	
Mod Dense forest	All lands with tree cover (Including mangrove cover) of canopy density between 40% and 70% above	
Open forest	All lands with tree cover (Including mangrove cover) of canopy density between 10% and 40%	
Scurb	All forest lands with poor tree growth mainly of small or stunted trees having canopy density less than 10 percent	
Non Forest	Any area not included in the above classes	

Tropical Wet evergreen forest

Tropical Semi evergreen forest

Tropical Moist deciduous forest

Tropical Dry deciduous forest

Tropical Dry evergreen forest

Tropical Thorn forest

Littoral and swamp forest

Subtropical Broadleaved hill forest

Subtropical Dry evergreen forest

Subtropical Pine forest

Himalayan Dry Temperate forest

Himalayan Moist Temperate forest

Montane Wet Temperate forest

Sub Alpine forest

Assessing the power of Indian forests

- **Supporting economy and livelihood:** India's forest ecosystems support the economy and livelihood of approximately 300 million tribal and local people in forest villages.

- **Habitat, food and energy supplier:** Covering 80.73 mha or 24.56 percent of the geographical area of the country, forests are home to 80 percent of the terrestrial biodiversity, provide 40 percent of energy needs, and 30 percent of the fodder supply.

- **Natural stabilising agent for climate:** Besides driving sustainable growth, forests act as a natural stabilising agent for the climate as they regulate carbon cycle significantly.

- **Carbon sequestration:** Carbon sequestration through photosynthesis is considered one of the most potent and inexpensive methods for climate change mitigation.

- Forests are the only unique, safe and inexpensive carbon capture and storage technology that is naturally available at scale with the potential to neutralise global CO_2 concentrations.

Role of forests in climate change

Forests have four major roles in climate change:

- they currently contribute about one-sixth of global carbon emissions when cleared, overused or degraded

- they react sensitively to a changing climate

- when managed sustainably, they produce woodfuels as a benign alternative to fossil fuels

- they have the potential to absorb about one-tenth of global carbon emissions projected for the first half of this century into their biomass, soils and products and store them - in principle in perpetuity.

Mapping deforestation

- Unfortunately, due to the over-dependence on forests of large populations and the unsustainable exploitation of their resources, India has witnessed rapid deforestation in the last decades, leading to the degradation of over 30 percent of its land and a loss of 1.6 mha of forest cover.

- According to government data, in the last 30 years, 14,000 km^2 of forests were cleared to accommodate 23,716 development and industrial projects across India.

- Besides rapid land conversion, the harvest of an estimated 850 Mt of fodder, 100 Mt of fuel wood, and 15 Mt of timber annually beyond the sustainable limits have led to the degeneration of India's forests.

- At the same time, however, India is seeing a massive deterioration in the health of its forests, with the growing stock (GS) decreasing significantly by 586.387 million cubic meters (M cum) or 12.26 percent.

- The reduction in GS, despite increasing forest cover, is an indicator of forest degradation.

- Within the forests recorded officially by government authorities, 94.96 percent are prone to crop injuries, 39.94 percent has inadequate regeneration, and 5.05 percent has no regeneration.

  ➤ Forest degradation undermines the ability of forests to act as carbon sinks.

Impact of deforestation

- **Reducing productivity of ecosystem**: Deforestation and loss of tree density of forests decreases the carbon assimilation capacity and reduces the forest soil's organic carbon, thereby affecting the productivity of the ecosystem to act as a carbon storage.

  ➤ Therefore, the larger the green cover of the forest and the older and healthier the trees are, the better is its capacity to sequester carbon.

  ➤ The capacity of a very dense forest is naturally highest, followed by the moderately dense, and the open forests.

  ➤ Dense tropical forests that are rich in biodiversity have the greatest potential to absorb the highest amount of carbon dioxide (CO_2) from the atmosphere.

- **Increase in carbon emissions:** Continuous, unchecked deforestation and forest degradation has resulted in significant reduction (12.6 percent) in the growing forest stocks and caused nearly 172 tonnes of carbon emissions as per World Resources Institute (WRI) over the last two decades.

- **Economic loss:** Furthermore, for a highly resource-dependent country such as India, any severe degradation of forests would have far-reaching ramifications for the economy, food and water security, and climate solutions.

  ➤ According to a study by **TERI (The Energy and Resource Institute)**, the degradation of India's forests is depriving the country of 1.4 percent of its GDP annually.

- What initiatives are taken by India?

- At the UN Framework Convention on Climate Change (UNFCCC) Conference of Parties (COP, 2015), India, under the **Bonn Challenge** committed to the goal of restoring 13 million hectares (mha)

of degraded and deforested land by 2020 and an additional 8 mha by 2030.

- Moreover, in its pledge to reduce the emission intensity of its GDP by 33-35 percent by 2030 (from 2005 levels) through mitigation efforts across various sectors, India envisions to create an additional carbon sink of 2.5-3.0 billion tonnes (Bt) of CO2eq through additional forest and tree cover by 2030.

- The Indian government is pursuing afforestation and reforestation through policies and programmes such as

  ➤ the **National Mission on Green India**
  ➤ the **National Afforestation Programme**
  ➤ compensatory afforestation
  ➤ plantation drives across States

International treaties to protect forests

- United Nations Forum on Forests (UNFF): UNFF was established in 2000. In May 2006 it adopted four objectives:

  ➤ Reverse the loss of forest cover worldwide through sustainable forest management;
  ➤ Enhance forest-based economic, social and environmental benefits;
  ➤ Increase significantly the area of sustainably managed forests; and
  ➤ Reverse the decline in official development assistance for sustainable forest management and mobilise significantly increased new and additional financial resources from all sources for the implementation of sustainable forest management.

- Convention on Biological Diversity: Since deforestation is one of the main causes of species loss, in 1998 the Conference of the Parties to the Convention on Biological Diversity endorsed a work programme for forest biological diversity. 2002 saw the adoption of an expanded programme of work on forest biological diversity.

- UNCCD: The United Nations Convention to Combat Desertification (UNCCD), entered into force in 1996. It has helped bring about a situation in which most countries have now established clear rules for combating desertification.

- REDD+: REDD (Reducing Emissions from Deforestation and Forest Degradation) is based on the idea of financially rewarding a country's government and its population when they can demonstrate that they have avoided deforestation. REDD+ marked a further extension of this approach.

  ➤ As well as forest protection, this approach now also includes other measures that support the role of the forest as a carbon sink, such as

improved forest management and targeted reforestation.

- **Bonn Challenge:** In 2011, the world's largest forest and landscape restoration initiative was launched in Bonn. The "Bonn Challenge" aims to restore 150 million hectares of degraded and deforested land by 2020, and 350 million hectares by 2030. It is estimated that by reforesting this land it will be possible to absorb around one gigaton of carbon dioxide.

- **2030 Agenda for Sustainable Development:** In 2015, the international community adopted the 2030 Agenda for Sustainable Development.

  ➤ **Goal 15** includes forest protection. Specifically, it aims to halt deforestation worldwide by 2020 and ensure that all forests are managed sustainably.

  ➤ **Goal 6** also underlines the importance of forests for water supply.

  ➤ **Goal 13:** Although forests are not mentioned explicitly in this context they also play a major role in Goal 13, which deals with climate change.

What about funding for the forests?

- In the **Union Budget 2020-21**, the overall allocation for the Union Ministry of Environment, Forest and Climate Change (MoEFCC) has increased to ₹ 31000 million for 2020-21 from ₹ 2,6579.4 million in the revised estimate of 2019-20, a significant portion of which is expected to be channelled to the integrated development of forest ecology.

- Furthermore, in October 2019, the MoEFCC transferred ₹ 47,436 crore under the Compensatory Afforestation Fund Management and Planning Authority (CAMPA) to 27 States for their afforestation efforts.

A Roadmap for Forest Regeneration

- **Redefining 'forests':** An important element of a sound roadmap for forest regeneration is a redefinition of what is considered a 'forest'. The focus should shift to the measurement of the relative density of a 'thriving forest' or an 'ecosystem'

- **Updating forestry policies:** The National Forest Policy of 1952 and 1988, as well as existing forest regulations, have become ineffective in protecting and conserving forest resources. A new forest policy, therefore, is vital in order to provide an overarching framework and direction for the management and regulation of forests; such new policy would consider current changes in forests due to pressing issues such as climate change and pollution.

CROSSROADS OF ARTIFICIAL INTELLIGENCE: HIGHER EDUCATION AND RESEARCH IN INDIA AND CHINA

CONTEXT

Given the increasing importance of Artificial Intelligence in education sector, it is important to have a comparative analysis of China and India's higher education reforms for AI preparedness and research.

⊙ BACKGROUND

- India, an emerging economy, is striving to build itself into a knowledge economy so it can compete in the global market and pursue sustainable socio-economic growth and development.

- In July 2015, the government launched the **Skill India Mission** in line with Prime Minister Narendra Modi's vision of India as "**the world's human resource capital.**"

- AI has assumed a pivotal role on this front, with the government think tank, NITI Aayog underlining India's emergence as an **"AI Garage"** (or "solutions provider") as a strategy for leadership in AI.

- AI and data could contribute about US$500 billion to India's GDP by 2025, with AI poised to add a further US$957 billion to the country's GDP by 2035.

- Similarly, China unveiled its 'New Generation of Artificial Intelligence Development Plan' in 2017, which outlines the country's pathway to becoming the world's leading power in artificial intelligence (AI) by 2030.

- Broadly, AI entails human-like capabilities of machines or programmes in "perception, cognition, decision making and implementation."

- Machine learning is a subset of AI, with examples of AI technologies including natural language processing and computer vision.

⊙ ANALYSIS

Why the comparison?

China and India lend themselves for comparison due to several reasons.

- First, China and India have the world's largest and second-largest higher education systems, respectively.

- Second, both are among the largest developing countries in the world, with China the second largest (US$14.1 trillion) and India the fifth (US$2.9 trillion).

- Third, mainland China has the second-largest number of AI companies in the world (1,011 as of June 2018), specialising in voice, vision and natural language processing, and India is swiftly catching up, with the fifth-most number of companies and AI jobs globally.

Comparing AI Development Plans and Higher Education Strategies

- **The case of India**
  - ➤ **NITI Aayog's discussion paper:** In June 2018, NITI Aayog released a discussion paper on the **'National Strategy for Artificial Intelligence,'** which incorporates education (including higher education) among sectors of focus such as agriculture and healthcare.
    - It underlined the "incremental value" of AI in reforming India's education sector in terms of quality and access.
    - Further, it identified preparing a new generation to harness the global AI revolution as a focus area for NITI Aayog.
  - ➤ **AI in NEP:** India's National Education Policy (NEP) 2020, released in July 2020, provides that all universities offer doctorate and masters programmes in core areas such as machine learning and in multidisciplinary fields **("AI" + "X")**.
    - The NEP also includes provisions for setting up a National Educational Alliance for Technology "to enhance learning, assessment, planning, [and] administration" at schools and higher education institutions.

- **China's plans**
  - ➤ **2017 AI Development plan:** China's 2017 AI development plan, which predates India's own discussion paper, also highlights 'intelligent education' as a segment of AI application to provide a learner-centric environment.
    - However, it is distinct in its emphasis on a connection between AI talent and the country's education system.

- This shows that China is taking proactive action by moving from a generic AI plan to a detailed action plan focused on post-secondary education.

➤ **Artificial Intelligence Innovation Action Plan for Institutions of Higher Education**: In 2018, China launched the Artificial Intelligence Innovation Action Plan for Institutions of Higher Education, which stipulates that by 2030, "colleges and universities will become the main force behind building the world's main AI innovation centres and will lead the development of a new generation AI talent pool to provide China with the scientific and technological support and guaranteed talent to put it at the forefront of innovation-oriented countries."

The difference

The difference is evident in India's and China's core purposes as articulated in their policy documents.

India	China
India's AI plan focuses on "social and inclusive growth," and its NEP 2020 has a perfunctory reference to the country's potential leadership role in the emerging fields employing AI and machine learning.	In contrast, China's AI development plan is fiercely competitive, imbued with a fervour in building the country's "first-mover advantage." While China has an official blueprint dedicated to AI for post-secondary institutions, India does not have an exclusive action plan to revamp higher education institutions for AI readiness.
Also, the Indian policy document (2018) provides a broad-brush direction for course upgrades and training in AI.	Whereas China's 2018 action plan carries AI training-specific targets for 2020.
India's new education policy is inward-oriented, prioritising "institutional restructuring and consolidation" and a "more holistic education" that is mindful of multi-faceted human capacities.	Clearly, higher education institutions have been accorded top priority in China's blueprint to win the race to global leadership.

AI as an Academic Discipline

- **India**

➤ Various Indian universities have begun offering undergraduate degrees in AI or computer science and engineering with a specialisation in AI and machine learning.

➤ The Indian Institute of Technology (IIT) in Hyderabad was India's first educational institution to offer a "full-fledged" four-year degree in AI in the 2019-20 academic year.

➤ IIT Delhi has also set up a School of Artificial Intelligence to offer PhD courses starting January 2021, with postgraduate degree courses in the pipeline.

➤ Further, the IITs have also partnered with Massive Open Online Courses (MOOC) platforms to offer courses on AI.

➤ For instance, IIT Roorkee and Coursera offer six-month certificate programmes in AI, machine learning and data science through diverse instructional methods such as video lectures, hands-on learning opportunities, and team projects.

- **China**

➤ Meanwhile, in March 2019, China's Ministry of Education approved the introduction of an AI major in 35 universities, including the Beijing University of Aeronautics and Astronautics, Shanghai Jiao Tong University, and Zhejiang University.

➤ As of May 2019, 479 universities in China, accounting for nearly 40 percent of the country's universities, were offering big data-related majors.

It is premature, however, to compare the size of AI degrees programmes in both countries since it is not yet clear whether application approval has resulted in student intake in Chinese institutions.

Automation Readiness Index

- The Economist Intelligence Unit's Automation Readiness Index ranks 25 countries for their preparedness for "intelligent automation" based on their innovation environment and labour market and education policies.

- **India:** India is placed at 18, with its policy environment readiness for intelligent automation rated as 'emerging'.

➤ It ranks marginally better in the labour market and innovation environment categories, at 16th and 17th place, respectively.

➤ However, in the education policy category, India ranks 22nd of 25 countries.

- **China:** At the same time, China is the 12th most automation-ready country on the index.
  - ▶ In the education policy category, it ranks higher than India at 14th place. This difference is attributable to the "21st century skills [such as critical thinking and creativity] and knowledge" component of the education category, where India ranks 22nd and China ranks 11th.
  - ▶ Further, China's position is better in compulsory education and early childhood policies, while India's score is better than that of China in post-compulsory education (for instance, in science, technology, engineering and mathematics, or STEM fields).
- South Korea is at the top spot in the education category due to measures such as soft skills advancement, fostering science and technology talent, and promoting lifelong education.

Talent Retention

- Of the international AI talent pool, the US ranks first with 28,536 AI talents, followed by **China with 18,232**, and **India with 17,384** AI talents; the numbers are based on researchers' issued patents and/or published English papers.
- However, when it comes to the top AI talent based on H-index, the developed world has the highest share.
- Globally, universities account for 72 percent of international AI talents,] and China is home to several universities that have a high proportion of international AI talents, with "Tsinghua University having the greatest number of international AI talents" (822) and "Shanghai Jiao Tong University in second place with 590."
- India's Vellore Institute of Technology is in third place.
- However, no Chinese or Indian university made it to the top ten list "by the number of top international AI talent."

Issues and Challenges (Indian Context)

While AI has great potential in the education space, India is a vast county, and the challenges that are thrown are unique and cannot be compared with other nations

- **Lack of reliable high data:** While the government has taken steps and initiative to collect data across higher education institutions, there is still a huge gap that exists between the 'actual' data and the data that is pulled by information systems.
- **Lack of data at the district state and regional level:** Many India educational still don't have internal data that is available to the grassroots level. This is another challenge for implementing AI and ML, which can bring great insights and can help the teaching learning process.
- **The digital divide:** In-spite of mobile penetration at one end of the spectrum, there are schools that still lack basic facilities. This is again a challenge to implement AI and ML across all educational institutions in India.

Wrapping up

Higher-education reforms are underway in India to foster AI talent, for example, by widening the incorporation of AI as an academic discipline. Meanwhile, China has been assailed by foreign observers for blunting its citizens' intellect through political indoctrination and "ideational regimentation. Any comparison of India and China in AI boils down to China's lead in quantitative metrics. India has many milestones to achieve if it is to catch up with China. A clear action plan for talent formation (especially given India's so-called demographic dividend potential) and research output must be outlined. Future research may investigate faculty growth, enrolment in MOOCs, and AI startups to understand and compare trends in both countries.

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A RETURN TO ETHICS

CONTEXT

In the 21st century, Ethics have become an organizational priority, it is neither a luxury nor an option. There is a growing impatience within society with selfish and irresponsible actions that impoverish some, while enriching the crafty.

Ethics, the acceptable conduct in society

- Ethics refers to a set of rules that describes acceptable conduct in society. Ethics serve as a guide to moral daily living and helps us judge whether our behavior can be justified.

- Ethics refers to society's sense of the right way of living our daily lives. It does this by establishing rules, principles, and values on which we can base our conduct. The concepts most directly associated with ethics are truth, honesty, fairness, and equity.

- While ethics is a societal concern, it is of critical importance to the professions that serve society. Because professionals such as physicians, attorneys, engineers, and property and facility managers provide services that affect our welfare, they develop professional codes of ethics that establish professional standards for behavior.

- **Examples** of the types of standards found in professional codes of ethics include:
  - ➤ An attorney or physician maintaining client-patient confidentiality
  - ➤ An accountant not using client information for personal gain

The 'lost' focus

- One of the issues often missing in ordinary conversation and public discourse is a concern for ethics.

- The focus is given to management, ecology, politics, or the economy, but the ethical aspect in a substantial sense rarely enters the discourse.

- Even if it does, it emerges as a pomposity, as a term of piety or even a fundamentalist intolerance.

- The missingness of ethics in everyday language that is replete with pragmatism and utilitarianism is worrying.

- Even professional ethics, which sociologist Émile Durkheim (1957) once thought of as an antidote to capitalism as a form of amorality, has become trite.

Why do we need ethics?

Primarily it is the individual, the consumer, the employee or the human social unit of the society who benefits from ethics. In addition ethics is important because of the following:

- **Satisfying Basic Human Needs:** Being fair, honest and ethical is one the basic human needs.

- **Creating Credibility:** An organization that is believed to be driven by moral values is respected in the society even by those who may have no information about the working and the businesses or an organization.

- **Uniting People and Leadership:** An organization driven by values is revered by its employees also. They are the common thread that brings the employees and the decision makers on a common platform. This goes a long way in aligning behaviors within the organization towards achievement of one common goal or mission.

- **Long Term Gains:** Ethics and values lead to gains in the long run, though in the short run they may seem to lose money.
  - ➤ **For example-** Tata group, one of the largest business conglomerates in India was seen on the verge of decline at the beginning of 1990's, which soon turned out to be otherwise. The same company's Tata NANO car was predicted as a failure, and failed to do well but the same is picking up fast now.

- **Securing the Society:** Often ethics succeeds law in safeguarding the society. The law machinery is often found acting as a mute spectator, unable to save the society and the environment.

How to reinvent Ethics?

- To recapture ethics, one has to reinvent it, bring it to the range of philosophical ideals and storytelling it lacks.

- **Treating ethics as a performative act:** To reinvent ethics, one has to begin with agency and the exemplar, treat ethics as a performative act which then ritualises and institutionalises itself.

- **Making ethics a pedagogic act:** Memory, and the power of memory, is the first creative part ethics has to enact. Storytelling becomes central, as children are told and retold the ethical acts of exemplars, as they become heroic models in the imagination. In fact, one would like to suggest that one begins with exemplars, rather than the code, that ethics becomes a pedagogic act which is not only more comprehensible but easier to enact.

- **Restoration:** Reading or hearing about a Gandhi,

a Dalai Lama, a Mother Teresa, a Vaclav Havel, a Jan Palach, or the Mothers of Argentina, restores both drama, poetry, and the power of philosophy back to ethics. The parable, in fact, captures the textures of the ethical judgment.

- **More focus on interpretation:** The hermeneutics, the interpretation of codes, is the second step in the rite of passage we call ethics. As a heuristic reworking, we need to create a Weberian ideal type of the exemplars one needs to imitate today.

- **Playfulness to ethics:** Ethics begins as an alchemy, where vulnerability acquires strength and agency, an unexpected power and conviction which makes the dominant system rethink itself. There is a sense of faith, but also music of playfulness to ethics. The distinction between play and game is fundamental.

  - **Game** is rule-bound in an instrumental sense, which is why we create war-gaming as a monstrosity.

  - **Play** refuses to be instrumental. It is performative, pedagogic, but still operates as an imaginary.

- **Experimentation:** Third, ethics enters as a wager beyond certainties. It is experimental, but the act of experimentation is inaugurated with one's own self, particularly with one's body. One does not experiment on the other as one does in a scientific vivisectional experiment.

- **Memory, a deeply ethical act**: Memory is not a rote ritual, but a sacramental summon to the human. Memory, in that sense, is a deeply ethical act. To remember the other is to recollect and retrace one's shared humanity.

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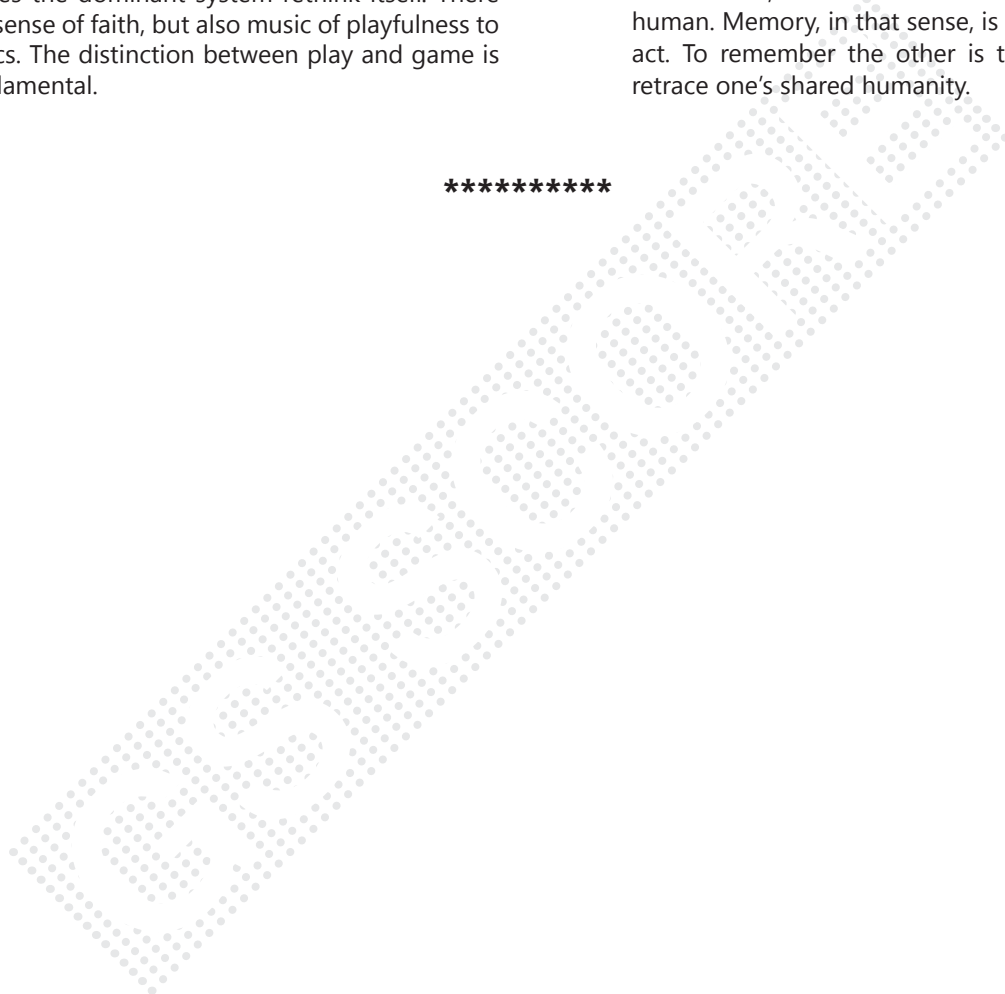
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SECTION: B
(PRELIMS)

CURRENT AFFAIRS

WHY DID 'CYCLONES' GIVE OCTOBER A MISS?

⊙ **CONTEXT:** **October to December period is among the favourable months for the development of cyclones in the Bay of Bengal and the Arabian Sea. This year, however, October passed without witnessing a cyclonic storm.**

When do cyclones form and hit Indian coasts?

- About 80 cyclones are formed around the world annually, out of which five are formed in the Bay of Bengal and the Arabian Sea, together known as the **North Indian Ocean.**

- India's east and west coasts are prone to cyclones with the maximum associated hazards—rain, heavy winds and storm surge— faced by coastal districts of **West Bengal, Odisha and Andhra Pradesh.**

- Cyclones in the North Indian Ocean are bi-modal in nature, that is, they occur during two seasons— April to June (pre-monsoon) and October to December (post-monsoon).

- Of these, May and November remain the most conducive for the development of cyclones.

> ### The common phenomenon
>
> - Cyclonic disturbances— either in the form of a well-marked low pressure, depression or a deep depression (weather systems with varying wind intensities ranging from 31 – 61 km/hr formed either over sea or land) are common in October.
>
> - Data on the frequency of cyclone development between 1891-2020 shows no cyclone formation in the month of October on 42 occasions.
>
> - During the last 130 years, cyclones remained absent for the longest during October of 1950-1954.

Reason behind 'no cyclone' developments this year

- **Weak La Nina:** The weak La Nina conditions along the equatorial Pacific Ocean can be the reason behind the no cyclone development.
    - Cooler than normal sea surface temperatures over this region—termed as La Nina— has been prevailing since August this year.

- Because Madden Julian Oscillation (MJO) was positioned in a favourable phase, the low-pressure systems intensified maximum up to a deep depression.
    - MJO is kind of an eastward-moving cyclic weather event along the tropics that influences rainfall, winds, sea surface temperatures and cloud cover.
    - They have a 30 to 60-day cycle.

- Most importantly, there was the high wind shear noted between the different atmospheric levels, last month.

- The vertical wind shear— created due to significant wind speed difference observed between higher and lower atmospheric levels— prevented the low-pressure systems and depression from strengthening into a cyclone.

HOW ETHIOPIA REACHED THE BRINK OF CIVIL WAR

⊙ **CONTEXT:** **Ethiopia is on the brink of civil war, threatening the stability of one of the world's most strategic regions, the Horn of Africa, and the fracturing of one of the continent's most powerful and populous countries.**

⊙ **ABOUT:**

- Ethiopia is Africa's oldest independent country and its second largest in terms of population.

- Apart from a five-year occupation by Mussolini's Italy, it has never been colonised.

- It has a unique cultural heritage, being the home of the Ethiopian Orthodox Church - one of the oldest Christian denominations - and a monarchy that ended only in the coup of 1974.

> **Some key dates in Ethiopia's history:**
>
> - **4th century** - Christianity becomes the state religion.
> - **1855-1868 -** Reign of Emperor Tewodros II, who lays the foundation for the modern Ethiopian state.
> - **1896** - Invading Italian forces are defeated by Ethiopians at Adwa.
> - **1935-1941** - Italy deposes Emperor Haile Selassie and annexes Ethiopia, before being driven out by British, Commonwealth and Ethiopian forces.
> - **1962 -** Haile Selassie annexes Eritrea, which becomes an Ethiopian province.
> - **1974** - Haile Selassie overthrown in military coup after government fails to deal with famine.
> - **1977-79 -** Thousands are killed in "Red Terror" orchestrated by Marxist dictator Mengistu Haile Mariam.
> - **1984-85** - Another serious famine devastates much of the country.
> - **1991** - Ethiopian People's Revolutionary Democratic Front deposes Mengistu. Meles Zenawi establishes stability and achieves considerable economic progress in his 19-year authoritarian rule.
> - **1993 -** Eritrea becomes independent.
> - **1999-2000 -** Ethiopian-Eritrean border war.
> - **2018 -** Abiy Ahmed becomes prime minister and launches reform programme at home. Ends state of war with Eritrea.

How has the conflict started in Tigray?

- The leaders of Tigray dominated Ethiopia for many years until Mr Abiy came to power in 2018 on the back of anti-government protests and curbed their influence.

- The conflict escalated in September, when Tigray held local elections in insubordination of the Ethiopian federal government.

- These elections were considered "illegal" by the federal government, further leading to conflict with Tigray authorities.

- Conflict between Tigray authorities and the federal government can be traced to when Abiy Ahmed came to power in 2018.

- The Tigray region is wealthier than other parts of the country, and more importantly, has a well-trained army.

- The authority of the Tigray officials has considerably reduced since Abiy took office, making their waning influence a point of contention.

- The structure of Ethiopia's federal system allows the country's ten regions significant autonomy.

- These regions also have their own parliaments, their own security forces, and the right to a referendum for independent rule.

What consequences for the rest of Africa?

- Few regions are more vulnerable than the Horn of Africa.

- Ethiopia's neighbours include Somalia- Ethiopian forces have reportedly begun withdrawing from that country to return home and Sudan, facing its own huge political transition.

- Neighbouring Eritrea has shown little sign of opening up after making peace with Ethiopia in 2018, and its government and the Tigray one don't get along.

- A conflict could suck in these countries and others not far from the most strategic military outpost in Africa, tiny Djibouti, where several global powers including the US and China have their only military bases on the continent.

- The **Horn of Africa** is also a short water crossing away from Yemen and the rest of the Arabian Peninsula.

- Ethiopia already was drawing concern over a dispute with Egypt over a huge dam Ethiopia is completing on the **Blue Nile.**

What is at stake?

- For Africa's second-most populous country and Ethiopia's more than 100 million citizens, particularly for those living in Tigray, the latest events may deepen the sense of distrust for the federal government and the prime minister.

- **A stable Ethiopia is crucial to the restive Horn of Africa region.**

- Ethiopia has received hundreds of millions of dollars in US aid and military assistance and has been a key ally of the US in combating extremist groups in neighboring **Somalia.**

- For now, the US, one of Abiy's key foreign allies, appears to back the prime minister's stance on the alleged TPLF attacks.

- But Abiy's real problem since coming to power hasn't been losing friends abroad -- it's been making enemies at home.

PEACE DEAL BETWEEN ARMENIA & AZERBAIJAN

⊙ **CONTEXT:** In a latest development, Russia brokered a new peace deal between Armenia and Azerbaijan, the two countries that have been in a military conflict for over six weeks over the disputed region of Nagorno-Karabakh in the South Caucasus.

⊙ **ABOUT:** **What is the deal?**

- The deal, which is meant to end the conflict between the two nations, was signed by Russian President Vladimir Putin, Azerbaijani president Ilham Aliyev and Armenian prime minister Nikol Pashinyan.

- As per the new peace deal, both sides will now maintain positions in the areas that they currently hold, which will mean a significant gain for Azerbaijan as it has reclaimed over 15-20 per cent of its lost territory during the recent conflict.

- Further, under this agreement, all military operations are suspended, Russian peacekeepers will be deployed along the line of contact in Nagorno-Karabakh and along the Lachin corridor that connects the region to Armenia.

- These Russian peacekeepers with a force of roughly 2,000 will be deployed in the area for a period of five years.

- Refugees and internally displaced persons will return to the region and the adjacent territories and the two sides will also exchange prisoners of wars and bodies.

- Significantly, a new corridor will be opened from Nakhchivan to Azerbaijan, which will be under Russian control.

Nagorno-Karabakh

- Straddling western Asia and Eastern Europe, Nagorno-Karabakh is internationally recognised as part of Azerbaijan, but most of the region is controlled by Armenian separatists.

- Nagorno-Karabakh has been part of Azerbaijan territory since the Soviet era.

- When the Soviet Union began to collapse in the late 1980s, Armenia's regional parliament voted for the region's transfer to Armenia; the Soviet authorities turned down the demand.

- Years of clashes followed between Azerbaijan forces and Armenian separatists.

- The violence lasted into the 1990s, leaving tens and thousands dead and displacing hundreds of thousands.

- In 1994, Russia brokered a ceasefire, by which time ethnic Armenians had taken control of the region.

- While the area remains in Azerbaijan, it is today governed by separatist Armenians who have declared it a republic called the "Nagorno-Karabakh Autonomous Oblast".

- While the Armenian government does not recognise Nagorno-Karabakh as independent, it supports the region politically and militarily.

The conflict

- The recent conflict began in September, since when each country has claimed to have inflicted serious loss on its opponent.

- It was the first time that both countries have proclaimed martial law.

- During the course of the conflict, considered one of the most serious in recent years, over 1200 have lost their lives as per the Nagorno-Karabakh authorities, while thousands have been displaced.

What is Russia's role in the conflict?

- Russia's role in the conflict has been somewhat opaque since it supplies arms to both countries.

- Also, it is in a military alliance with Armenia called the Collective Security Treaty Organisation.

FOOD COALITION: FAO

⊙ **CONTEXT:**   **Taking cognisance of the catastrophic food crisis and the urgency to tackle it, Food and Agriculture Organization (FAO) of the United Nations launched a Food Coalition.**

⊙ **ABOUT:**   - Food Coalition is a voluntary multi-stakeholder and multi-sectoral alliance.

- Proposed by Italy and led by **FAO**, the global alliance aims to help countries get back on track to achieve the UN-mandated Sustainable Development Goals by 2030, especially the ones on ending hunger and poverty.

- More than 30 countries have already expressed interest in joining the coalition.

How would the coalition work?

- The alliance would work as a network of networks and a multi-stakeholder coalition for a unified global action to support measures to ensure food access and increase the resilience of agricultural food systems in response to COVID-19.

- The Food Coalition would work towards:

- Mobilising resources, expertise and innovation

- Advocating for a joint and coordinated COVID-19 response

- Promoting dialogue and exchange of knowledge and expertise among countries

- Working towards solution-oriented plans and programmes

- Expanding international cooperation and partnership for a longer term impact

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Key-highlights of the State of Food Security and Nutrition in the World report, 2020

- The novel coronavirus disease (COVID-19) pandemic has pulled food systems apart, threatening food security and nutrition.

- At least 690 million people went hungry in 2019.

- Now, the pandemic could tip over 130 million more people into chronic hunger by the end of 2020.

FORTIFICATION OF EDIBLE OIL WITH VITAMINS 'A' & 'D'

◉ **CONTEXT:**
FSSAI is considering to make it mandatory to fortify edible oil with vitamins A and D so that people of India can enjoy better immunity with good health.

What is Oil fortification?

- Oil fortification, i.e. the process of adding micronutrients to edible oil to increase its nutritional value, is expected to achieve almost 99% penetration of the Indian population due to the widespread use of cooking oil.

- All kinds of edible oils (soybean, palmolein, groundnut, cotton seed, mustard, etc.) can be fortified.

The need

- Multiple micronutrient deficiencies are rampant in India, and continue to be significant public health problems, which adversely impact the health and productivity of all the population groups.

- More than 57% of children suffer from vitamin A deficiency, which may be symptomatic or present at the sub-clinical level.

- In addition, a high proportion of pregnant women and their new-borns suffer from Vitamin D deficiency.

- Since vitamin A and D are fat-soluble vitamins, fortification of edible oils and fats with vitamin A and D is a good strategy to address micronutrient malnutrition and fortified oil is known to provide 25%-30% of the recommended dietary allowances for vitamins

A&D.

Health benefits

- **Vitamin A**
  - Good for healthy vision, bones, skin and tissues
  - Fights cell damage
  - Works as antioxidant
  - Helps skin growth and repair
  - Formation and maintenance of teeth

- **Vitamin D**
  - Regulates the amount of phosphate and calcium in the body
  - Keeps bones, teeth and muscles healthy
  - Facilitates normal immune system function
  - Regulates mood and prevents depression

About FSSAI

- Food Safety and Standards Authority of India (FSSAI) is an autonomous body established under the Ministry of Health & Family Welfare, Government of India.
- The FSSAI has been established under the Food Safety and Standards Act, 2006, which is a consolidating statute related to food safety and regulation in India.
- FSSAI is responsible for protecting and promoting public health through the regulation and supervision of food safety.

LESSONS FROM THE BANGLADESH AND VIETNAM'S GROWTH STORY

⊙ **CONTEXT:** **Vietnam and Bangladesh are on a roll. While Bangladesh has become the second largest apparel exporter after China, Vietnam's exports have grown by about 240% in the past eight years.**

A Booming economy of Bangladesh

- Just a little more than 20 years ago in 1997, Bangladesh's GDP was $146.8 billion and GDP per capita was $1,175, with a 5.3% GDP growth. But it isn't all just economic growth.
- Aided by a fast-growing manufacturing sector—its garment industry is second only to China's—Bangladesh's economy has averaged above 6% annual growth for nearly a decade; reaching 7.86% in June 2018.
- Bangladesh's economic performance has even exceeded government targets on many fronts.

Four years younger to Bangladesh, what made Vietnam grow so fast?

- An open trade policy, a less inexpensive workforce, and generous incentives to foreign firms contributed to Vietnam's success.
- Vietnam pursues an open trade policy mainly through Free Trade Agreements (FTAs) which ensure that its important trading partners like the U.S., the EU, China, Japan,

South Korea and India do not charge import duties on products made in Vietnam.

- Vietnam's domestic market is open to the partners' products. For example, 99% of EU products will soon enter Vietnam duty-free.

- Production of high-end apparels is traditionally embedded in the economy and culture of Vietnam.

- Bangladesh depends on five items such as men's and women's t-shirt, trouser, shirt, jacket and sweater for export while Vietnam has diversified its product line.

- Only in a single market - the US - Vietnam exports 10 types of products – women's knit shirts and blouses (MMF), women's trousers (cotton), women's knit shirts and blouses (cotton), women's trousers (MMF), men's knit shirts (cotton), dresses (MMF), men's trousers (MMF), men's knit shirts (MMF), men's trousers (cotton), and women's coats (MMF).

- The apparel sector played a significant role in making Vietnam a rising star by generating employment, earning foreign currencies and thus contributing to the economy.

GROWTH '20 & COVID-19, Asian Economies, 18 Oct 2020.
Source: IMF and Worldometer

Country	GDP growth 2020 (constant price)	COVID deaths per million population
Bangladesh	3.8%	34
China	1.9%	3
Vietnam	1.6%	0.4
Nepal	0.0%	25
Pakistan	-0.4%	30
Indonesia	-1.5%	46
Sri Lanka	-4.6%	0.6
Afghanistan	-5.0%	38
Malaysia	-6.0	6
Thailand	-7.1%	0.8
India	-10.3%	83

Introduction of Doi Moi policy and export trend

- In 1986, Vietnam launched a policy named Doi Moi (economic rejuvenation) to reform its economy through entering the free market trade.

- The policy spurred rapid economic growth in the country.

- The country has free trade agreements with the European Union, the Association of Southeast Asian Nations, Hong Kong, Singapore, South Korea and China.

- The major markets for Vietnamese apparels are the United States, Europe, Japan and South Korea.

- The US has been the biggest export market for Vietnamese apparels and the country benefitted the most from the US-China trade war.

- The squeezing market in China has opened a space for Vietnam.

What India needs to do?

- **Focus on skilled production:** The recent economic performance of Bangladesh should be a wake-up call for India to focus on low-skill production.

- **Mass employment:** The need of the hour is to enable the creation of industries that provide mass employment.

- **Sectoral industrial zones:** India, unlike Vietnam, has a developed domestic and capital market. To further promote manufacturing and investment, India could set up sectoral industrial zones with pre-approved factory spaces.

- **Support to large firms:** The key learning from Bangladesh is the need to support large firms for a quick turnover. Large firms are better positioned to invest in brand building, meeting quality requirements, and marketing.

- Which areas need attention?

- **Agriculture:** Its performance has been worst in these six years than the previous six years. The country needs to have policies that increase agricultural production and productivity.

- **Banking:** Second is banking reform. The country needs to implement banking reforms that will encourage the banks to get back to the job of extending credit Private investment has to be the driver of economic growth.

- **Private investment:** Private investment has to be the driver of economic growth.

NEED ACTION TO AVERT MEASLES AND POLIO EPIDEMICS

⊙ **CONTEXT:**   **The UNICEF and World Health Organization (WHO) called for action to avert measles and polio epidemics as the novel coronavirus disease (COVID-19) continued to disrupt immunisation services across the world.**

⊙ **ABOUT :**

- **Measles**

  ⊙ Measles is caused by a virus in the **paramyxovirus family.** It is serious for small children.

  ⊙ The disease spreads through the air by respiratory droplets produced from coughing or sneezing.

  ⊙ **Symptoms:** Measles symptoms do not appear until 10 to 14 days after exposure. They include cough, runny nose, inflamed eyes, sore throat, fever and a red, blotchy skin rash.

  ⊙ **Prevention:** It is easily preventable by a vaccine.

  ⊙ **Treatment:** There is no treatment to get rid of an established measles infection, but over-the-counter fever reducers or vitamin A may help with symptoms.

- **Polio**

- Polio, or poliomyelitis, is a disabling and life-threatening disease caused by the poliovirus.

- The virus spreads from person to person and can infect a person's spinal cord, causing paralysis (can't move parts of the body).

- Most people who get infected with poliovirus (about 72 out of 100) will not have any visible symptoms.

  ⊙ About 1 out of 4 people with poliovirus infection will have flu-like symptoms that may include: Sore throat, Fever, Tiredness, Nausea, Headache and Stomach pain

  ⊙ These symptoms usually last 2 to 5 days, then go away on their own.

- A smaller proportion of people with poliovirus infection will develop other, more serious symptoms that affect the brain and spinal cord:

  ⊙ **Paresthesia** (feeling of pins and needles in the legs)

  ⊙ **Meningitis** (infection of the covering of the spinal cord and/or brain) occurs in about 1 out of 25 people with poliovirus infection

  ⊙ **Paralysis** (can't move parts of the body) or weakness in the arms, legs, or both, occurs in about 1 out of 200 people with poliovirus infection.

The current situation of the disease

- In 2019, measles climbed to the highest number of new infections in more than two decades.

- At the same time, poliovirus transmission is expected to increase in Pakistan and Afghanistan and in many under-immunised areas of Africa.

- Pakistan and Afghanistan are among the two countries where polio is still endemic.

The situation

- The United Nations' bodies had warned of an alarming decline in the number of children receiving life-saving vaccines around the world due to disruptions in the delivery and uptake of immunisation services.

- The disruptions could threaten to reverse hard-won progress to immunise more children and adolescents.

- The **Global Polio Eradication Initiative (GPEI)**, of which WHO and UNICEF are the implementing agencies, had estimated budget for outbreak response.

- However, the current budget and funding could not cover the extraordinary costs caused by the COVID-19 pandemic and the resulting outbreaks of polio and other vaccine preventable diseases.

- A total of $655 million ($400 million for polio; $255 million for measles) would be needed to address the immunity gaps in non-Gavi eligible countries and target age groups.

What about Gavi's support?

- **Gavi,** an international organisation that improves access to new and underused vaccines for children in the world's poorest countries, bases eligibility on national income.

- Countries become eligible for its support if their average gross national income per capita has been less than or equal to $1,630 over the past three years.

REGIONAL CLUSTER CONCEPT OF ECONOMIC DEVELOPMENT

⊙ **CONTEXT:**   Regional Cluster concept of economic development playing important role in Indian success story, as per UNIDO Representative.

⊙ **ABOUT:**
- United Nations Industrial Development Organisations (UNIDO) has been closely working with India to implement UN's activities in harmony with national policy priorities and development strategies.

- The UNIDO Regional Office in New Delhi acts as a focal point to promote UNIDO's mandate of inclusive and sustainable industrial development in India.

What are regional clusters and their economic importance?

- Interest in regional clusters and their role in economic development has grown substantially over the last several years among academics, economic development professionals, and firm managers.

- The main reasons have been:
  - the increased intensity of interregional and international competition in the world economy
  - the apparent shortcomings of traditional regional development models and policies
  - the emergence of successful clusters of firms and industries in many nations around the world

> ### What is a cluster?
> - Clusters are geographic concentrations of interconnected companies and institutions in a particular field.
> - Clusters encompass an array of linked industries and other entities important to competition.
> - They include, for example, suppliers of specialized inputs such as components, machinery, and services, and providers of specialized infrastructure.

EOS-01, INDIA'S LATEST EARTH OBSERVATION SATELLITE

⊙ **CONTEXT:** **India sent its first space mission in almost a year with a launch of EOS-01, an earth observation satellite. EOS-01, along with nine satellites from foreign countries, was launched by a PSLV rocket.**

Key-highlights

- This is ISRO's first mission since the launch of **RISAT-2BR1,** another earth observation satellite similar to EOS-01, on December 11 last year.
- After that, ISRO had also sent **communication satellite GSAT-30** in space in January this year, but that was done using an Ariane rocket launched from French Guiana.
- What is EOS-01?
- EOS-01 is nothing but another **Radar Imaging Satellite (RISAT)** that will work together with **RISAT-2B** and **RISAT-2BR1.**
- EOS-01 was initially named **RISAT-2BR2**, and was supposed to be the third of the three-spacecraft constellation aimed at providing all-weather round-the-clock service for high-resolution images.
- With EOS-01, ISRO is moving to a **new naming system** for its earth observation satellites which till now have been named thematically, according to the purpose they are meant for.
- For example, the Cartosat series of satellites were meant to provide data for land topography and mapping, while the Oceansat satellites were meant for observations over sea.
- Some INSAT-series, Resourcesat series, GISAT, Scatsat, and some more are all earth observation satellites, named differently for the specific jobs they are assigned to do, or the different instruments that they use to do their jobs.

Radar imaging

- EOS-01, like its cousins RISAT-2B and RISAT-2BR1, uses **synthetic aperture radars** to produce high-resolution images of the land.
- radar imaging has over optical instruments is that it is unaffected by weather, cloud or fog, or the lack of sunlight.
- It can produce high-quality images in all conditions and at all times.
- Depending on the wavelength of the electromagnetic radiation used by the radar, different properties on land can be captured in the image.
- EOS-01, and its sister RISATs, use **X-band radars** that operate at low wavelengths and are considered best for monitoring of urban landscape, and imaging of agricultural or forest land.
- EOS-01 is intended for applications in agriculture, forestry and disaster management support.
- The radar images are also considered to be immensely useful for military requirements.

> **What is an Earth Observation Satellite?**
> - An Earth observation satellite is a satellite used or designed for Earth observation (EO) from orbit, including spy satellites and similar ones intended for non-military uses such as environmental monitoring, meteorology, cartography and others.

- Land and forest mapping and monitoring, mapping of resources like water or minerals or fishes, weather and climate observations, soil assessment, geospatial contour mapping are all done through earth-observation satellites.

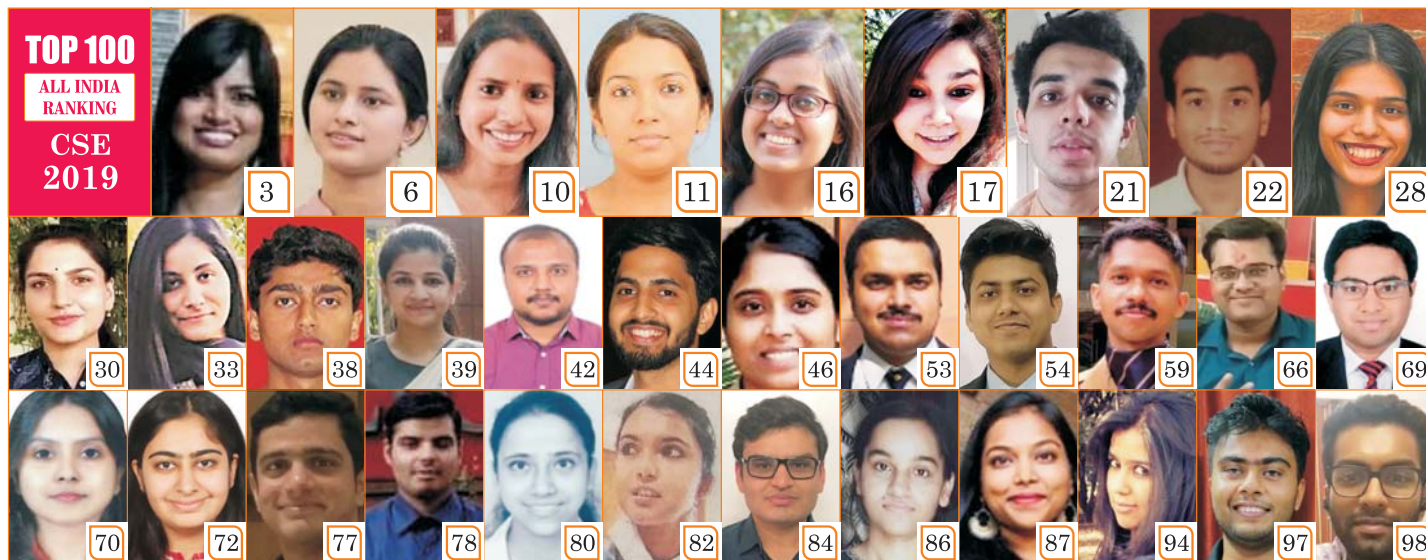# INDIAN ASTRONOMERS COLLABORATED WITH NOBEL LAUREATE ON THIRTY METER TELESCOPE PROJECT

⊙ **CONTEXT:** Indian astronomers had worked closely with Nobel Laureate Andrea Ghez on the design of back-end instruments and possible science prospects of the Thirty Meter Telescope (TMT) project being installed at Mauna Kea in Hawaii.

⊙ **ABOUT:**

What is TMT?

- The saga of the TMT began in 2003, when a nonprofit partnership formed between two universities in California and counterparts in Japan, China, India and Canada.

- The Thirty Meter Telescope is a new class of extremely large telescopes that will allow to see deeper into space and observe cosmic objects with unprecedented sensitivity.

- With its 30 m prime mirror diameter, TMT will be three times as wide, with nine times more area, than the largest currently existing visible-light telescope in the world.

- This will provide unparalleled resolution with TMT images more than 12 times sharper than those from the **Hubble Space Telescope.**

- When operational, TMT will provide new observational opportunities in essentially every field of astronomy and astrophysics.

- Observing in wavelengths ranging from the ultraviolet to the mid-infrared, this unique instrument will allow astronomers to address fundamental questions in astronomy ranging from understanding star and planet formation to unraveling the history of galaxies and the development of large-scale structure in the universe.

Who is building TMT?

- The Thirty Meter Telescope is being designed and developed by the TMT International Observatory LLC (TIO).

- The TIO is a non-profit international partnership between:

  ⊙ the California Institute of Technology

  ⊙ the University of California

  ⊙ the National Institutes of Natural Sciences of Japan

  ⊙ the National Astronomical Observatories of the Chinese Academy of Sciences

  ⊙ the Department of Science and Technology of India

  ⊙ the National Research Council (Canada)

- The Association of Universities for Research in Astronomy (AURA) is a TIO Associate and major funding for TMT has been provided by the Gordon & Betty Moore Foundation.

- The TIO will also run the TMT operations once the telescope is completed.

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