

ENVIRONMENT

❖ **What India could do now to make progress against climate change**

❖ **Context:** Climate change is one of the most important problems world face. It is also truly a global problem in the sense that no country alone can influence the outcome. It can only be solved if all countries mount a global response. The issue of climate change will come up for discussion soon at CoP-27 in Egypt and then at this November's G20 Summit in Indonesia.

• However, this will happen at a time when major developed countries are overwhelmed by other problems:

- The ongoing Ukraine crisis,
- A sharp rise in gas prices in Europe,
- The fear that anti-inflationary measures will induce a recession,
- Sustained geopolitical tension between the US and China

❖ **India's strategy for managing climate change:**

• The major targets in India's strategy for managing climate change were announced at CoP-26 in Glasgow in 2021. They include five nectar elements (Panchamrit) action:

- Reach 500GW non-fossil energy capacity by 2030.
- 50 per cent of its energy requirements from renewable energy by 2030.
- Reduction of total projected carbon emissions by one billion tonnes from now to 2030.
- Reduction of the carbon intensity of the economy by 45 per cent by 2030, over 2005 levels.
- Achieving the target of net zero emissions by 2070.

❖ **How to achieve the target of 500GW Non-fossil energy capacity by 2030?**

• Reaching the target of taking renewable electricity (RE) capacity to 450GW by 2030 is a critical supply-side element of India's strategy and many steps need to be taken to realize it. These must be accompanied by demand side-steps

- By reducing fossil fuel use in transport through electric vehicles and electrification of railways,
- To promote green hydrogen-based technologies for steelmaking, fertilizers and petrochemicals.
- India need to also increase the energy efficiency of buildings through better materials and designs, and efficient cooling and lighting, and expand the use public transport
- It requires the coordination across different levels of government (Centre, states and cities) and also with the private sector, which will play a major role.

❖ **Steps need to be taken to achieve the Net zero target by 2070.**

• As it is not possible to spell out all the policy interventions expected over the decades till 2070

• Therefore, a medium-term programme of 10 years can be framed based of sectors specific which will help in achieve the long-term targets effectively.

• The specific targets that could be set for the first 10 years are:

➤ **Specifying Interim target for peak coal use for power generation:**

• Since achieving net zero emissions implies elimination of unabated coal-based power plants well before 2070, India could specify an interim target for peak coal use for power generation, perhaps around 2030.

• All capacity expansion in electricity generation could be from other sources. The peak date should consider the commissioning of coal power plants currently being built and the possible phasing down of inefficient ones. Studies show that at least 50GW of coal capacity could be phased out

➤ **Setting a date for peak economy-wide CO2 emissions:**

• CO2 emissions are projected to remain the largest contributor to global GHG emissions, driven by economic growth based on fossil fuel use, from industries an transportation.

• So a date of CO2 emission peak need to be set up in better management of climate policy.

➤ **Mobilize financing from multilateral development banks to help restructure DISCOM:**

• Financially viable DISCOM is necessary for decarbonization strategy. As poor financial health of power distribution companies (discoms) is a serious impediment that discourages private investment in expanding RE capacity since it poses payment risks.

• Therefore, mobilize financing from multilateral development banks would offer a degree of independence in setting terms that might reassure states, which could be encouraged to set targets for privatizing parts of the distribution system

➤ **A roadmap for Renewable energy generation, transmission and its regulation**

• RE is an intermittent source of power and increasing its share in total electricity supply will require innovations in electricity generation. Transmission, regulation and grid management practices.

• Central regulators would have to collaborate closely with state regulators.

• So, Regulatory changes aimed at improving grid flexibility should be a top priority in the first 10 years, as they would lay the basis for continued expansion of RE later.

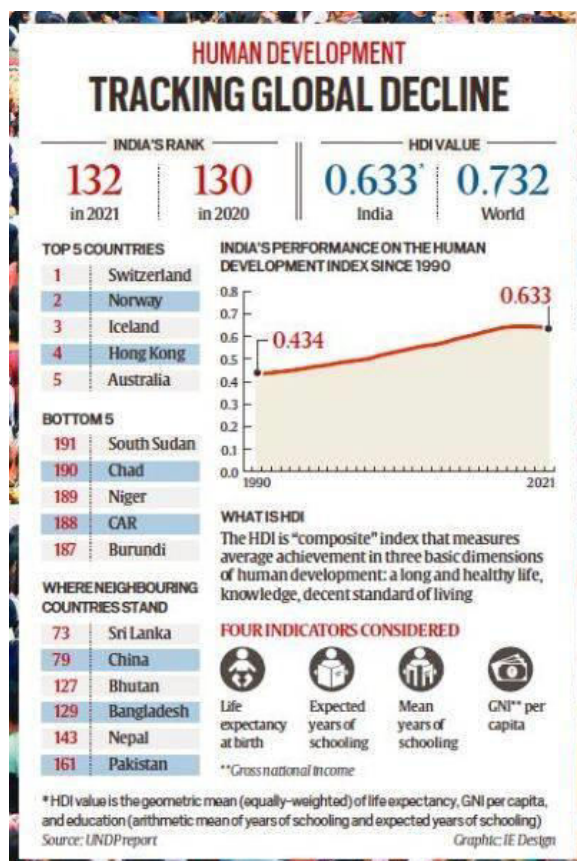
- Growth of green hydrogen production could be supported by setting offtake targets for major industries that can shift to it
- **Decarbonizing policy by Railway:**
 - The Indian Railways has announced that it will reach net zero by 2030. This would require the network's entire traction to be electric (from RE/carbon neutral sources),
 - And this implies phasing out diesel locomotives or converting them to electric. The timeline for this should be built into the target
- **Promoting decarbonization in transportation sector:** A separate target/s should be set for increasing the share of EVs in new auto sales of 2-, 3- and 4-wheelers, and also for expanding EV-charging networks
- **Promoting the energy efficient products:** minimum energy efficiency standards for popular household appliances, especially fans, refrigerators and air-conditioners, should be reviewed and higher standards set periodically
- **Role of state government to achieve the central goal to combat climate change:** State governments should be encouraged to prepare climate action plans for cities and rural areas. These must have targets for expanding public transport networks, water harvesting facilities, etc
- **Following polluter pay principle:** Any strategy for decarbonization would be helped by the introduction of a carbon tax. Cap and-trade systems are a substitute for carbon taxation it will send the right price signals to switch to renewable and will also raise revenues
- India should ensure progress towards our Paris target of afforestation, and perhaps even plan to ratchet it up. Investment in afforestation helps not only in mitigating climate change by sequestering carbon, it also helps in adaptation by supporting water conservation.
- Therefore, A 10-year plan along these lines would help increase public consciousness and generate a public debate on aspects of the strategy that may seem contentious. It would show Indian leadership too
- ❖ **How to Finance the transition:** to a carbon-neutral economy is a major unresolved problem facing the global community.
- Climate change negotiations under the UNFCCC were conducted on the understanding that developing countries will get financial assistance from advanced countries to help make the transition
- The 2015 Paris Agreement promised assistance of \$100 billion per year by 2020, (Out of the Green Climate Fund) yet to be realized
- The Glasgow Pact recognized the failure on this count and urged that the promised amount be delivered at the earliest and continued up to 2025, and increased substantially thereafter.
- Financing is a major issue because decarbonization commitments made at CoP-26 involve massive investments in the energy and related sectors.
- Estimates of the amount needed above the business-as usual (BAU) projection of investment for developing countries excluding China comes close to 4% of GDP, or almost \$1 trillion per year by 2025.
- Developing countries will have to accept that a large portion of this amount, say 45%, would have to be mobilized domestically
- This would reduce the international contribution to \$550 billion. Since this is meant to be a combination of public and private flows, could break it up into \$220 billion public flows (bilateral and multilateral) and \$330 billion of private flows
- Other multilateral platform such as G7, G20 and World bank can be utilized for the financial viability of climate resilient projects.

❖ **Conclusion**

Therefore, by following the targeted medium-term policy while maintaining collaborative effort with the help of sustainable finance and technology, will help in achieving target of Net Zero by 2070 even before the timeframe.

PRELIMS

1. **India slips two places on HDI as Covid-19 reverses global gains**
- ❖ **CONTEXT:** India's rank on the Human Development Index has slipped from 130 in 2020 to 132 in 2021, in line with a global fall in HDI scores in the wake of the Covid-19 pandemic, shows the Human Development Report 2021-22 released recently.
- According to the report, released by the United Nations Development Programme (UNDP), India's HDI value stood at 0.633 during 2021, which was lower than the world average of 0.732.
- In 2020, too, India recorded a decline in its HDI value (0.642) in comparison to the pre-Covid level of 2019 (0.645).



- India ranks 132 out of 191 countries and territories on the 2021/22 Human Development Index, tracking the global decline in human development.
- Ninety percent of countries have registered a reduction in their Human Development Index value in 2020 or 2021, reversing much of the progress toward the Sustainable Development Goals.
- A large contributor to the Human Development Index's recent decline is a global drop in life expectancy, down from 72.8 years in 2019 to 71.4 years in 2021. The last two years have had a devastating impact on billions of people worldwide when crises like Covid-19 and the war in Ukraine hit back-to-back and interacted with sweeping social and economic shifts and dangerous planetary changes.
- HDI is composite index that measures average achievement in human development taking into account four indicators:
 - Life expectancy at birth (Sustainable Development Goal 3)
 - Expected years of schooling (SDG 4.3)
 - Mean years of schooling (SDG 4.4)
 - Gross national income (GNI) per capita (2017 PPP\$) (SDG 8.5).

- In 2021, India's life expectancy at birth was recorded at 67.2 years; expected years of schooling at 11.9 years; mean years of schooling at 6.7 years; and gross national income per capita (2017 PPP) at \$6,590. On all these four parameters, India was behind the world averages in 2021: life expectancy at 71.4 years, expected years of schooling at 12.8 years, mean years of schooling at 8.6 years and gross national income per capita (2017 PPP\$) at \$16,752.
- Like global trends, in India's case, the drop in HDI from 0.645 in 2019 to 0.633 in 2021 can be attributed to falling life expectancy — 69.7 to 67.2 years. India's expected years of schooling stand at 11.9 years, and the mean years of schooling are at 6.7 years. The GNI per capita level is \$6,590. India has also been ranked 122 on the Gender Inequality Index.

2. **Food baskets for patients, job training for kin in bid for 'TB mukt Bharat'**

- ❖ **CONTEXT:** Working towards the goal of eliminating tuberculosis (TB) by 2025, the Union Health Ministry is launching the Pradhan Mantri TB Mukta Bharat Abhiyan recently, which will include community support for patients – nutritional and additional diagnostic support for them, and vocational training for their families.
- ❖ **'Ni-kshay Mitra'**
- While the initiative is already underway in some states like Uttar Pradesh and Maharashtra, President Droupadi Murmu formally launched it recently.

- Under the scheme, individuals, NGOs and corporates can “adopt” TB patients by committing support for 1-3 years.
- To join the initiative, they will have to register on the site, <https://communitysupport.nikshay.in>, which has an anonymous list of TB patients, categorised according to the primary health centres, blocks, districts and states. The sponsors can select the number of patients as per their capacity.
- A mail will be sent from the central TB division to the sponsor with details of their district’s TB officer, while the TB officer will be notified about the sponsor. The details of the patients will be provided to the sponsors by the officer, on condition that they maintain anonymity.
- The health ministry, in collaboration with ICMR’s National Institute of Nutrition, has developed two options for monthly food baskets. The vegetarian food basket for adults has to contain 3 kg cereals or millets, 1.5 kg pulses, 250 g vegetable cooking oil, and 1 kg milk powder or 6 litres of milk or 1 kg groundnut. The non-vegetarian option will have an additional 30 eggs.
- For children, the basket has to contain 2 kg cereals or millets, 1 kg pulses, 150 g vegetable cooking oil, and 750 g milk powder or 3.5 litres of milk or 0.7 kg groundnut. The sponsors are also asked to encourage patients to consume fresh vegetables, beans and fruits.

MONTHLY FOOD BASKETS FOR TB PATIENTS

	FOR ADULTS	FOR CHILDREN
Cereals/millets	3kg	2kg
Pulses	1.5 kg	1kg
Vegetable cooking oil	250g	150g
Milk powder/ Milk/ Groundnut	1kg/6litres/ 1kg	750g/ 3.5litres /0.7kg
Eggs(optional)	30 nos	30 nos

- Each nutrition basket is likely to cost about Rs 1,000. The food baskets will be modified by the district officials as per the locally acceptable food. As nutrition is a key factor when it comes to TB. Most of the people have the TB bacteria in their body but it gets activated if nutrition is poor and the immune system is impaired.
- Adherence to TB medication for several months is a challenge, but, if not done, can lead to drug resistant forms of the disease. When the sponsors are connected to the patients, must remain in contact with them, check whether they are receiving their monthly supplies and if they are taking their medicines regularly.
- In addition, the sponsors may also offer vocational training to family members of the TB patient as most of the TB patients are breadwinners, and this puts financial strain on their families. If a family member is trained in a vocation, they will be able to continue earning.
- So far, 5,900 people have identified themselves as Nikshay Mitra
- According to the TB Report 2022 India experienced a 19% increase in tuberculosis cases in 2021 compared to the previous year. India detects 20-25 lakh TB cases every year, and nearly 4 lakh die of it. At present, 13.5 lakh are undergoing TB treatment, of whom 9.26 lakh have already consented to being “adopted” under the initiative.

3. Dancing, drums, and cultural displays: Kartavya Path’s inauguration

❖ **CONTEXT:** With Prime Minister’s inauguration of Delhi’s Central Vista Avenue when a revamped Rajpath will be inaugurated as the Kartavya Path, a range of cultural events marking the occasion. A mix of tribal dances, classical music, and celebratory art forms in which 500 dancers from across the country have been roped in, here is a look at the significance of the performances lined up for the unveiling.

❖ **Panch Vadayam**

- The Prime Minister’s arrival at the canopy for the unveiling of the statue of Netaji will be accompanied by traditional Manipuri Shankh Vadayam (conch) and Kerala’s traditional Chanda (a long drum instrument) and Panch Vadayam.
- Kerala’s Panch Vadayam is a temple orchestra consisting of five types of instruments, namely kombu (wind instrument), edakka (drum), thimila (drum), ilathalam (an instrument similar to cymbals) and maddalam (drum). Panchavadyam is played during temple festivals and is believed to have originated in today’s Eranakulam. Usually, one performer stands in the centre.
- In terms of sound, “It has a pyramid-like rhythm structure with a constantly increasing tempo coupled with a proportional decrease in the number of beats in cycles.
- Around 30 artistes will perform tribal folk art forms such as Sambalpuri, Panthi, Kalbelia, Kargam and dummy horses with live music by Nashik dhol pathik tasha and the drums. Each of these has a unique significance and tradition.

❖ **Sambhalpuri**

- Western Odisha's Sambhalpur district is known for its cultural offerings, including a variety of tribal dances that relate to deity worship. Among Sambhalpuri dances is the Dalkhai Dance involving the Binjhal, Soura and Mirdha tribes performed during Dussehra, the Koisabadi Dance in the Gond and the Bhuyan communities that is performed with two feet-long sticks, and the Humo & Bauli dance.

❖ **Panthi**

- The Panthi dance is native to Chhattisgarh and includes creative formations in which a few dancers stand atop the shoulders of another row of dancers. Wearing white dhotis, these men play instruments as well and often dance to honour Guru Ghasidas, an 18th-century saint in Chhattisgarh who preached messages of equality.

❖ **Dhol tasha and pathaks**

- Dhol and Tasha are drums from Maharashtra, and pathaks are the performers who beat the drums, who practice round the year for high-energy performances during the ten days of revelry witnessed at the time of Ganesh Chaturthi. Each troupe can have 70 to 80 performers too, at times. Lately, some women troupes have also been seen participating in the festivities.
- Pt. Shri Krishna Ratanjankarji, a 19th-century classical musician who was felicitated with the Padma Bhushan and the Sangeet Natak Akademi for his contributions, will have his song 'Mangalgaan' presented by a group of singers.

❖ **Kalbeliya**

- Traditionally a tribal community of snake charmers, while performing dances Rajasthan's kalbeliyas wear heavily-embroidered black dresses and often dance to jubilant songs.
- In 2010, their songs and dances were included in the list of UNESCO's intangible cultural heritage that recognises the art forms as "marker of their identity at a time when their traditional travelling lifestyle and role in rural society are diminishing.
- They demonstrate their community's attempt to revitalize its cultural heritage and adapt it to changing socioeconomic conditions.

❖ **Karagam and dummy horse**

- Karagam is a dance from Tamil Nadu that is performed while balancing a pot of water on the head. Traditionally, this dance was performed by the villagers in praise of the rain goddess Mari Amman and river goddess, Gangai Amma. The dummy horse dance is from the same state and has a space carved into a horse doll so that it can be put on by a performer.

ANSWER WRITING

Q. The Nobel Prize in Physics of 2014 was jointly awarded to Akasaki, Amano and Nakamura for the invention of Blue LEDs in 1990s. How has this invention impacted the everyday life of human beings?

LEDs are basically semiconductors that have been built so they emit light when they are activated. White light, which we generally use, is made by a combination of red, green and blue light. Scientists say that while it was easier to make red and green LEDs, making Blue LED was the ultimate challenge. The Nobel Prize in Physics 2014 was awarded jointly to Isamu Akasaki, Hiroshi Amano and Shuji Nakamura for the invention of efficient blue light-emitting diodes which has enabled bright and energy-saving white light sources.

Impact of this invention on our everyday life:

- **Electricity Conservation:** A modern white LED light bulb converts more than 50% of the electricity it uses into light. This is opposed to the 4% conversion rate for incandescent bulbs.
- **Increasing Access to Electricity:** White LEDs' efficiency makes them appealing for getting lighting to folks living in regions without electricity supply. A solar installation can charge an LED lamp to last a long time.
- **Smart Energy Efficient Homes:** In addition to generating light, LEDs can incorporate sensors that detect when people are in a room, and switch off the lights when no one is there – a requirement for any smart home.
- **Enables other Technological Advancements:** In the electronics industry, LEDs provide backlighting for the liquid crystal displays (LCDs) in many smartphones, laptops and televisions. The LEDs are more energy-efficient than the fluorescent lights that are sometimes used for backlighting, and allow for very thin displays.
- **Increased Ability to Store Data:** Blu-ray players, the successor to DVD players, use blue LED lasers to read data off a digital optical disc. When these systems switched from using an infrared laser (like that used in DVD players) to a blue LED laser, it became possible to store five to 10 times as much data.

Researchers are exploring other applications of LEDs as well like in transmitting data from the Internet and water purification. These advancements show that LEDs will continue to impact everyday life of humans for years to come.

MCQs

1. Consider the following statements:
 1. HDI is a composite index of health, education and standard of living.
 2. The standard of living is measured by GDP per capita.
 Which of the above statement/s is /are correct?
 a) **1 only** b) 2 only c) Both 1 and 2 d) Neither 1 nor 2
2. Which of the following reports is not released by the UNDP?
 - a) Human development Index b) Gender inequality index
 - c) **World Development Report** d) Multidimensional Poverty Index
3. Consider the following statements with respect to Tuberculosis (TB) :
 1. Tuberculosis is caused by the bacteria Mycobacterium tuberculosis that most often affect the lungs.
 2. People infected with TB bacteria have a very high risk of falling ill with TB.
 3. Multidrug-resistant TB (MDR-TB) is TB that does not respond to at least isoniazid and rifampicin, the 2 most powerful anti-TB drugs.
 Which of the statements given above are correct?
 a) 1 and 2 only b) 2 and 3 only c) **1 and 3 only** d) 1, 2 and 3
4. "Nikshay is a digital platform" often mentioned in news is related to which of the following?
 - a) **Elimination of TB**
 - b) Anti Retrieval therapy of AIDS
 - c) Elimination of Polio
 - d) Holistic development of girl child
5. Consider the following Pairs

Traditional dance	State
1. Panch Vadayam	Tamil Nadu
2. Dalkhai Dance	Odisha
3. Panthi dance	Chhattisgarh
4. Kalbeliyas	Rajasthan
5. Karagam	Kerala

 How many above pair/s is/are correctly matched?
 a) Only one pair b) Only two pairs c) **Only three pairs** d) Only four pairs
6. With reference to Glasgow climate pact consider the following statements
 1. It is an agreement of all countries that were parties to the Paris Agreement of 2015 on how to take forward the agenda set in the Paris Agreement.
 2. For the first time, the Glasgow pact mentions 'coal' by name and asks for its phase-down.
 Which of the above statement is/are correct?
 a) 1 only b) 2 only c) **Both 1 and 2** d) Neither 1 nor 2
7. 10% reservation to Economically Weaker Sections (EWS) was permitted through which Indian constitutional amendment Act (CAA)
 - a) 42 CAA 1976 b) 69 CAA 1971 c) 61 CAA 1981 d) **103 CAA 2019**
8. World PT Day celebrated on which of the following date?
 - a) 7th September b) **8th September** c) 9th September d) 10th September
9. Recently, it has been observed that the presence of invasive and non-native south red-eared slider turtles would lead to the extinction of native species of their own kind in Indian waters. With reference to this consider the following statements:
 1. In India, keeping indigenous turtles as pets is prohibited under the wildlife protection act. But the foreign breeds are not restricted
 2. Like olive ridley turtle, the red-eared slider are native to south-eastern USA and Mexico, but have found their way across the globe.
 Choose the correct statement/s using the codes given below
 a) **1 only** b) 2 only c) Both 1 and 2 d) Neither 1 nor 2
10. Which of the following is the first state to identify a deceased person through National Automated Fingerprint identification system (NAFIS)?
 - a) Uttar Pradesh b) Rajasthan c) Odisha d) **Madhya Pradesh**