Topics

- poxvirus
- Brazil’s biggest floating solar plant
- .Antihistamines
- Water stress in india
- Andaman and Nicobar
- Renewable energy
- Mains

By saurabh pandey sir

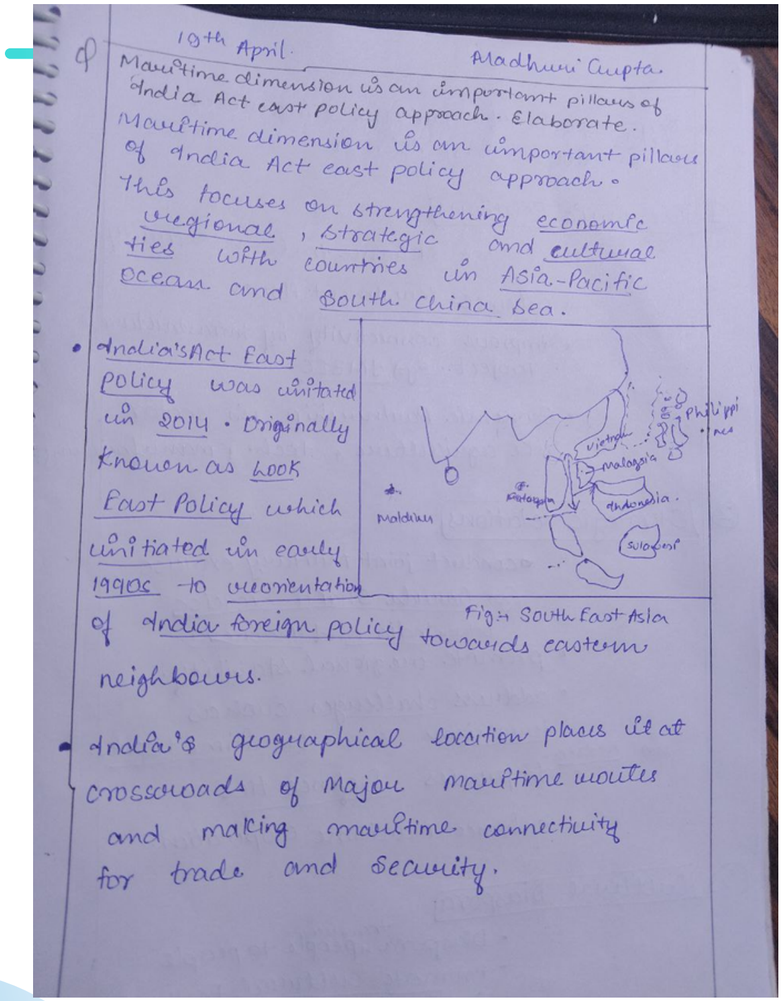
Target Mains 2024/25

Q“ Renewable energy expansion will impact food security and biodiversity “ Examine

प्रश्न" नवीकरणीय ऊर्जा विस्तार खाद्य सुरक्षा और जैव विविधता को प्रभावित करेगा" परीक्षण करें

send your answer - Saurabh pandey upsc telegram channel

Answer review



Q 19th April. Madhuri Gupta.

Maritime dimension is an important pillars of India Act east policy approach. Elaborate.

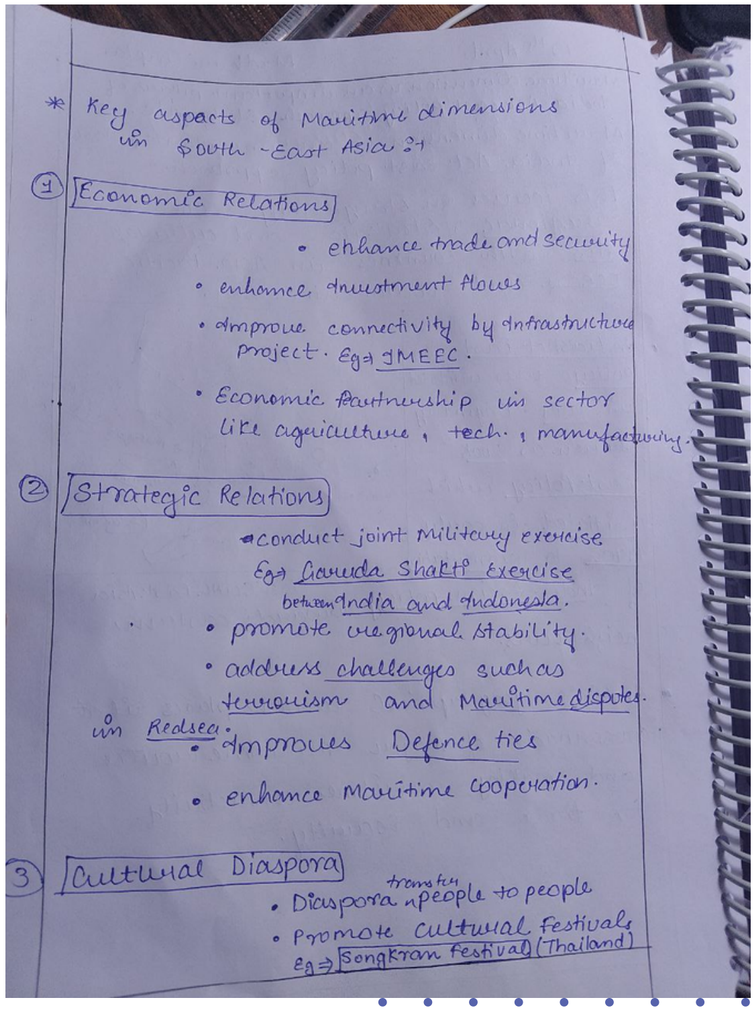
Maritime dimension is an important pillars of India Act east policy approach.

This focuses on strengthening economic, strategic and cultural regional ties with countries in Asia-Pacific Ocean and South china sea.

- India's Act East Policy was initiated in 2014. Originally known as Look East Policy which initiated in early 1990s to reorientation of India foreign policy towards eastern neighbours.

Fig:- South East Asia

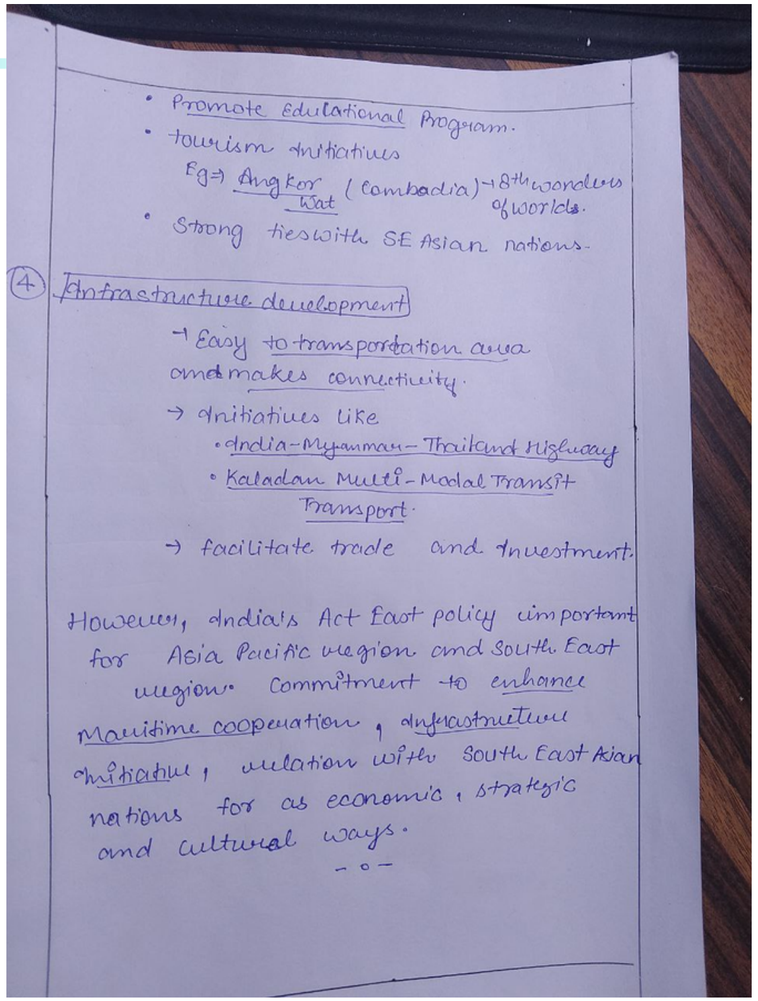
- India's geographical location places it at crossroads of major maritime routes and making maritime connectivity for trade and security.



* Key aspects of Maritime dimensions in South-East Asia :-

1. Economic Relations
   - enhance trade and security
   - enhance investment flows
   - improve connectivity by infrastructure project. Eg⇒ IMEEC.
   - Economic partnership in sector like agriculture, tech., manufacturing.
2. Strategic Relations
   - conduct joint Military exercise Eg⇒ Garuda Shakti Exercise between India and Indonesia.
   - promote regional stability.
   - address challenges such as terrorism and Maritime disputes in Redsea.
   - improves Defence ties
   - enhance Maritime cooperation.
3. Cultural Diaspora
   - Diaspora transfer people to people
   - Promote cultural Festivals eg⇒ Songkran festival (Thailand)

Answer review



- Promote Edutational Program.
- tourism initiatives
  Eg⇒ Angkor Wat (Cambodia) → 8th wonders of worlds.
- Strong ties with SE Asian nations.

④ Infrastructure development

→ Easy to transportation area and makes connectivity.

→ Initiatives like
- India-Myanmar-Thailand Highway
- Kaladan Multi-Modal Transit Transport.

→ facilitate trade and investment.

However, India's Act East policy important for Asia Pacific region and South East region. Commitment to enhance Maritime cooperation, infrastructure initiative, relation with South East Asian nations for as economic, strategic and cultural ways.

-o-

TOPERS FIRST FULL LENGTH TEST -2 (PRELIMS VIJAY SERIES)

1- Ankur
2- Puja yadav
3- Nikki Aggarwal

Prelims Vijay series TEST-2 (full length)

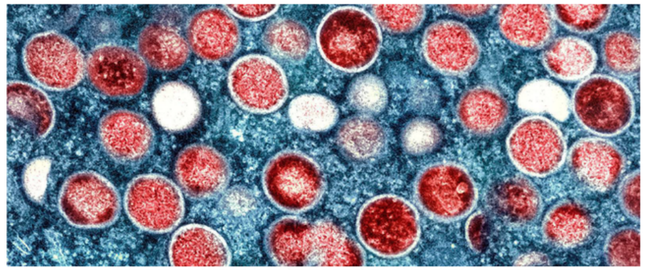
Student leaderboard

Student name	Marks	Grade	Rank
Ankur	137.93/200	B	1
Puja Yadav	118.6/200	B	2
Nikki Aggarwal	101.92/200	B	3
MAYANK AWASTHI	101.26/200	B	4th
Renu	93.23/200	C	5th
Asmita	89.94/200	C	6th

The mpox virus uses a 'genomic accordion' to evolve and infect humans

The mpox family of viruses is known to be able to evade selective evolutionary pressures by duplicating genes or accumulating mutations and expanding its genome or contracting it by deleting or inactivating genes. In an April 18 study, scientists reported the part of the mpox genome where these changes happen

Sridhar Sivasubbu
Vinod Scaria



A colourised transmission electron micrograph of mpox particles (red) found within an infected cell (blue), cultured in the laboratory, captured and colour-enhanced at the NIAID Integrated Research Facility in the U.S. NIAID/AP

THE GIST

Mpox was in the headlines after a rapidly expanding global outbreak in 2022-2023. The virus was previously called 'monkeypox' after a spillover event in a research facility involving monkeys in 1958

Researchers sequenced the genome of the mpox virus implicated in the 2022 outbreak. Mpox are DNA viruses. The mpox genome has about 197 kilobases: the core genes plus two sections about 6.4 kb long, one at each end of the genome

These sections of the virus genome were found to strongly influence human-to-human transmissibility. These were eventually found to be the virus's genomic accordions

Poxviruses have long been a cause of fear as well as curiosity for humankind. One particularly infamous poxvirus, smallpox, alone may have killed more than 500 million people in the last century.

Smallpox didn't discriminate between rich, poor, young, old, and killed a third of the individuals whom it infected. The turning point came with evidence of the efficacy of the smallpox vaccine. Thus followed a concerted effort worldwide to administer the vaccine and eventually eradicate the dread disease. This feat has stood as a testament to the power of sustained global public health initiatives.

Mpox's 15 minutes

Another poxvirus, mpox, was recently in the headlines after a rapidly expanding global outbreak in 2022-2023. The virus was previously called 'monkeypox' after a spillover event in a research facility involving monkeys in 1958; the name is considered both wrong and inappropriate today: since then, researchers have identified mpox in many sporadic outbreaks among humans. They have also found multiple mpox lineages have been circulating in humans, adapting by accumulating mutations modulated largely by the APOBEC proteins.

But it wasn't until 2022 that the disease became widely known, thanks to outbreaks in more than 118 countries and the World Health Organisation (WHO) quickly declaring it a public health emergency. To date, this outbreak has infected almost 100,000 people. Based on WHO data, infections have a mortality rate of 1-10%.

The outbreak was due to one clade (strains of the virus descended from a common ancestor) -- called IIb -- having developed very high human-to-human transmission through close contact and spread through the sexual route. While the rate of new infections has been dropping, mpox continues to circulate among unvaccinated individuals worldwide. This increases the chance that a more virulent and transmissible strain might emerge and become endemic somewhere.

Expanding, contracting as required

Mpox, like all poxviruses, are DNA viruses. The mpox genome has about 197 kilobases (kb). The core genes are those closely conserved (i.e. preserved during evolution) by various poxviruses plus two sections about 6.4 kb long, one at each end of the genome.

Researchers don't yet know what function these sections serve but suspect they influence how well the poxviruses can infect different hosts.

The mpox genome also has a sequence of bases repeating in a pattern, which researchers believe play a role in the virus's evolution.

The mpox family of viruses is also known to be able to evade selective evolutionary pressures. It does this by duplicating genes and/or accumulating mutations and expanding its genome significantly – or contracting its genome by deleting gene stretches or inactivating them. Such rhythmic expansions and contractions are called genomic accordions.

Find the accordion

In a study published on April 18 by *Nature Communications*, researchers at the Icahn School of Medicine in New York and multiple institutions in Spain extensively sequenced the genome of the mpox virus implicated in the 2022 outbreak. They used advanced genome sequencing technologies to piece together a comprehensive genome of the mpox virus from scratch.

They found that the 6.4-kb-long sections of the virus strongly influenced the virus's human-to-human transmissibility. They also reported that variations in three genes in particular could affect the virus's evolution. Importantly, 6.4-kb-long sections, which scientists had previously considered to be not so informative, were actually found to be the virus's genomic accordions.

> One particularly infamous poxvirus, smallpox, alone may have killed more than 500 million people in the last century

All mpox genomes can be divided into two distinct yet broad clades: I and II. Clade I is thought to have a higher mortality. Each clade has sub-clades, or lineages, defined by specific evolutionary processes.

Researchers have also found evidence of significantly different mpox virulence in animal models. The new study, like others like it, further the idea that the 2022 outbreak largely involved a new lineage of the virus, clade IIb, that was even better adapted to human-to-human transmission than clades I or IIa.

The outbreak in the DRC

Between September 2023 and February 2024, health workers detected a large mpox outbreak detected in the Democratic Republic of the Congo (DRC), centred on a mining village and quickly spreading to a number of regions within the country.

This outbreak was associated with a significantly larger spread as well as mortality. Researchers soon confirmed mpox clade I was responsible.

This outbreak differed from earlier ones, which were sporadic and self-contained spillover events, by spreading through human-to-human contact and affecting young adults rather than children. A preprint paper, uploaded by researchers from Belgium, Canada, the DRC, France, Ghana, Nigeria, South Africa, and the U.S., on April 14 describes the genomes of virus samples obtained from 241 individuals suspected to have been infected during the outbreak.

The genomic data suggests a distinct lineage of clade I being associated with human-to-human transmission.

The researchers also found evidence – in fragments of the genome that closely resembled viruses isolated and sequenced in recent years – of the hypothesis that this lineage emerged from a very recent zoonotic spillover.

One eye on the genome

As with any viral infection, without urgent intervention, the outbreak has the potential to spread rapidly across national, and even continental, boundaries and emerge as another global outbreak.

To prevent such an outcome, genome sequences from before and during mpox outbreaks have provided well-lit glimpses of the evolutionary dynamics the virus uses to invent new ways to move between and survive in different populations of animals and people.

Thus, through rigorous genomic investigations and coordinated public health efforts, we can mitigate the threat of emerging pathogens and the world's health security.

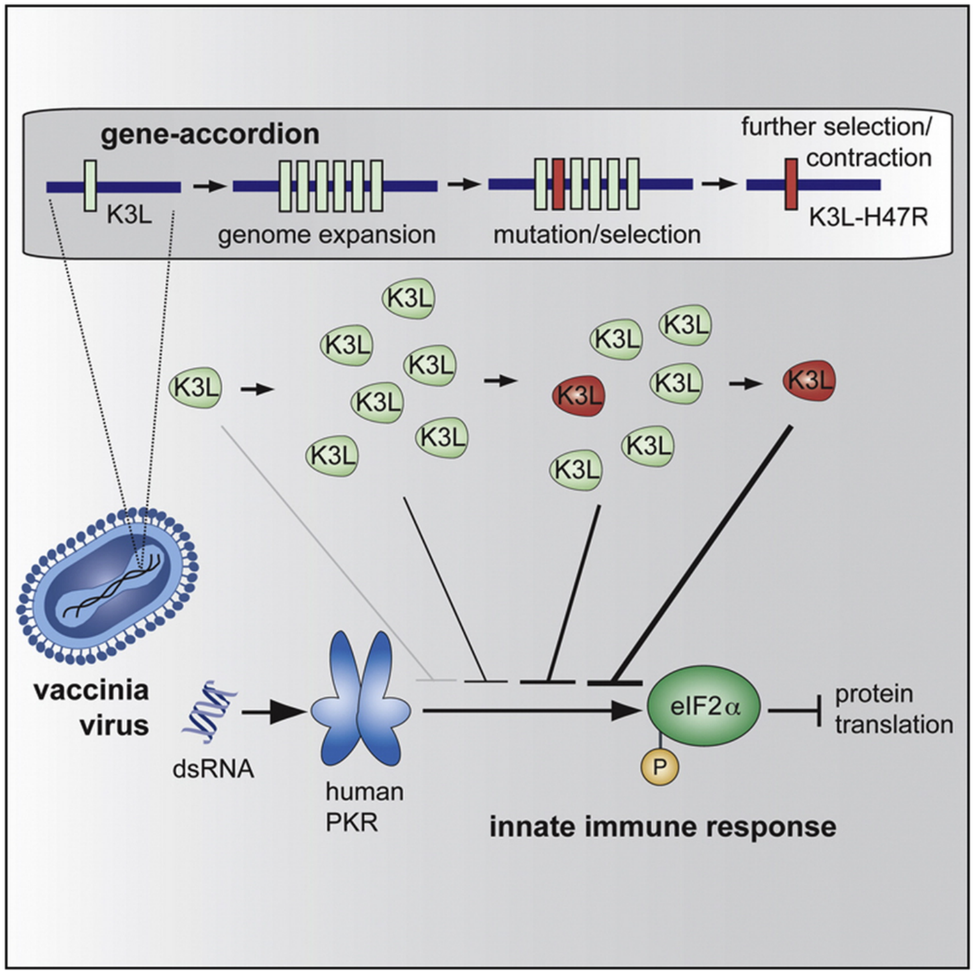
(The authors are senior consultants at the Vishwanath Cancer Care Foundation and Adjunct Professors at Indian Institute of Technology Kanpur. All opinions expressed are personal.)

poxvirus

- One particularly infamous poxvirus, smallpox, alone may have killed more than 500 million people in the last century. Smallpox didn’t discriminate between rich, poor, young, old, and killed a third of the individuals whom it infected.
- Expanding, contracting as required Mpox, like all poxviruses, are DNA viruses. The mpox genome has about 197 kilobases (kb).
- The core genes are those closely conserved (i.e. preserved during evolution) by various poxviruses plus two sections about 6.4 kb long, one at each end of the genome.

The Hindu analysis by saurabh pandey sir

- These sections of the virus genome were found to strongly influence human-to-human transmissibility.
- These were eventually found to be the virus's genomic accordions



BIG SHOT

Brazil's biggest floating solar plant, with 10,500 plates on the water's surface, as seen from a drone at the Billings dam developed by Empresa Metropolitana de Aguas e Energia in São Paulo. While the Latin American country has been working to increase the share of solar power in its national grid, heat waves – such as one that passed through in early March – have lowered panel efficiencies by up to 15%. REUTERS

Brazil’s biggest floating solar plant

- **Brazil’s biggest floating solar plant, with 10,500 plates on the water’s surface, at the Billings dam developed by Empresa Metropolitana de Aguas e Energia in São Paulo.**
- **While the Latin American country has been working to increase the share of solar power in its national grid, heat waves – such as one that passed through in early March – have lowered panel efficiencies by up to 15%**

The Hindu analysis by saurabh pandey sir

- The Billings Reservoir (locally known as Represa Billings) is the largest reservoir in São Paulo, Brazil, covering a total of 127 km2.
- It is named after Asa White Kenney Billings, the American hydroelectric engineer who was instrumental in building it.

The Hindu analysis by saurabh pandey sir

WHAT IS IT?

Antihistamine: a pill for your sneeze?

Vasudevan Mukunth

Chances are you've taken an antihistamine this week. Antihistamines are common drugs that can be purchased without a prescription and are used to treat short-lived allergic reactions, like a sneezing fit or an itch.

As the name suggests, an antihistamine drug acts against the activity of the histamine receptor — proteins that bind to a compound in the body called histamine. This compound consists of two attached to each other: ethylamine ($CH_3CH_2NH_2$) and imidazole ($C_2N_2H_4$), the latter being a ring.

Depending on its location, histamine performs broadly four types of functions, each involving different histamine receptors called H1, H2, H3, and H4. The H1 receptor is found mostly in the inner surface of blood and lymphatic vessels, neurons, and smooth muscle cells. H1 antihistamines are used to block the effects of minor allergies.

Certain cells in the gastric glands release histamine, which encourage nearby parietal cells with H2 receptors to release gastric acid for digestion.

H3 receptors are located in cells in the central nervous system, where they use histamine to regulate the release of other neurotransmitters, including dopamine and serotonin. Similarly, H4 receptors use histamine to regulate the body's inflammatory response, including allergic reactions as well.

An antihistamine drug acts against the activity of the histamine receptor. TOWFIQU BARBHUIYA/UNSPLASH

Currently, there is a lot of research ongoing on H3 and H4 receptors, in particular to alleviate the effects of neurological and immunological disorders, respectively, using specialised drugs.

For feedback and suggestions for 'Science', please write to **science@thehindu.co.in** with the subject 'Daily page'

.Antihistamines

- .Antihistamines are common drugs that can be purchased without a prescription and are used to treat short-lived allergic reactions, like a sneezing fit or an itch.
- As the name suggests, an antihistamine drug acts against the activity of the histamine receptor — proteins that bind to a compound in the body called histamine.
- This compound consists of two attached to each other: ethylamine (CH3CH2NH2) and imidazole (C2N2H4), the latter being a ring.

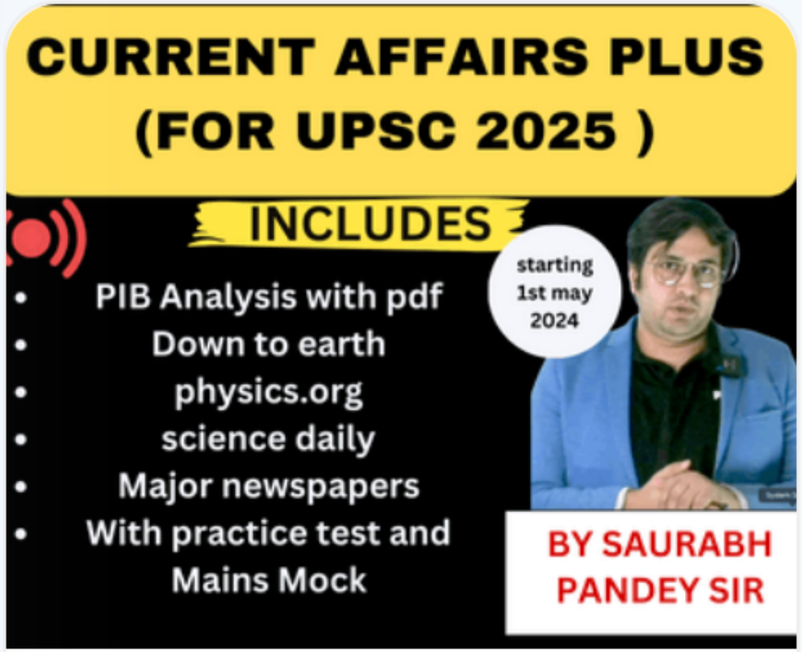
The Hindu analysis by saurabh pandey sir

- .Depending on its location, histamine performs broadly four types of functions, each involving different histamine receptors called H1, H2, H3, and H4.
- The H1 receptor is found mostly in the inner surface of blood and lymphatic vessels, neurons, and smooth muscle cells.
- H1 antihistamines are used to block the effects of minor allergies

For upsc 2025/26 Aspirants

Download saurabh pandey cse app

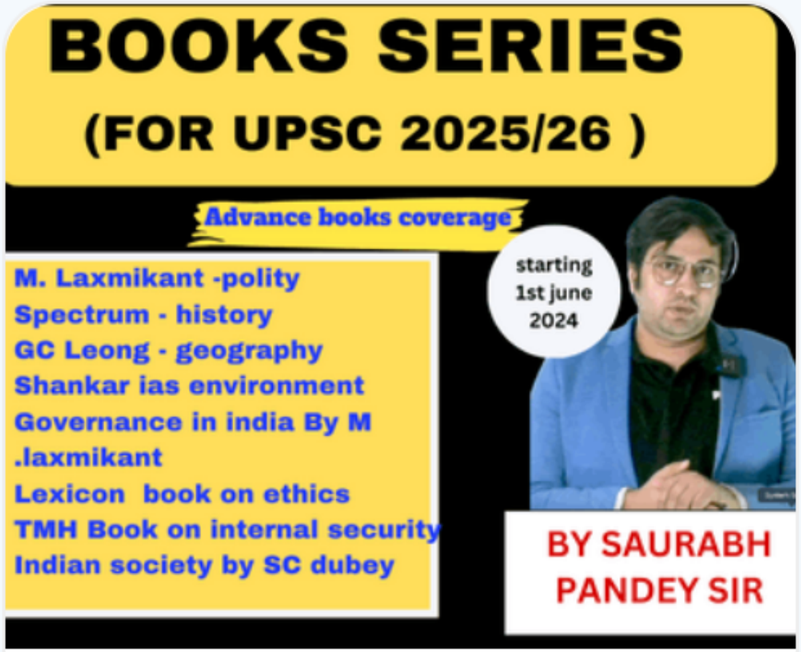
visit saurabhpandeyupsc.com and click on All courses



Current affairs Plus For UPS C 2025 (PIB, Down to eart...

Created by: You(Owner)

1 year



Books series for UPSC 202 5/26

Created by: You(Owner)

1 year

9057921649

Preparing India for water stress, climate resilience

Arunabha Ghosh

is the CEO, Council on Energy, Environment and Water (CEEW) and Commissioner, Global Commission on the Economics of Water

Nitin Bassi

is the Senior Programme Lead at the Council on Energy, Environment and Water (CEEW)

As the India Meteorological Department (IMD) predicts a hotter summer and longer heat waves from April to June, India must also prepare for water stress. The challenge is that we are programmed to consider acute stresses (heat, water, or extreme weather) as temporary, to be handled often as disaster relief. We must move from panic reactions when disaster strikes (like the water crisis in Bengaluru), to understand and respond to the chronic nature of risks we face. Moreover, climate action cannot be left to a few sectors or businesses. Nor can environmental sustainability be reduced to sapling plantation drives over a few days.

This Earth Day (April 22) should be a wake-up call. The climate is the economy now, and the economic production frontier will expand or shrink depending on how we understand the intersections between land, food, energy and water.

India houses 18% of the world's population on 2.4% of the earth's surface area and has just 4% of global freshwater resources. Nearly half its rivers are polluted, and 150 of its primary reservoirs are currently at just 38% of their total live storage capacity. Further, it is the largest user of groundwater in the world. And three-quarters of India's districts are hotspots for extreme climate events.

Against this backdrop, India has invested heavily in disaster preparedness, but the nature of climatic shocks will continue to change. There will be sudden shocks (heavy rainfall, rapid declines in water availability) as well as slow onset but periodic stresses (reduced water retention in soils, changes in trend lines for rainfall). Seasonal disaster preparedness and responses are no longer sufficient to tackle climate risks.

Water flows through the economy

For long, we have not taken cognisance of the many ways by which water flows through our economy and, instead, addressed water (and other natural resources) in silos. Water connects our hydrological, food, and energy systems, impacting millions of people.

How does this connection work? Precipitation is the primary source of soil moisture and water stored in vegetation (green water) and the water available in rivers and aquifers (blue water). Both blue and green water impact the food we grow – irrigating crops, influencing harvests, and being critical to the economy. But this sector that employs the most is increasingly climate vulnerable. The India Employment Report 2024 shows that agriculture still employs around 45% of the population and absorbs most of the country's labour force. At the same time, a Council on Energy, Environment and Water (CEEW) study showed that monsoon rainfall is changing patterns in India, with 55% of '*tehsils*' or sub-districts seeing a significant increase of more than 10% in southwest monsoon rainfall in the last decade, compared to the previous three. But this increased rainfall is frequently coming from short-duration, heavy rain, affecting crop sowing, irrigation and harvesting. Making the agricultural sector more resilient to climatic and water stresses matters for jobs, growth and sustainability.

> The climate is the economy now, and understanding the crucial intersections between land, food, energy and water will influence how the economy functions

Water is also a key component of the world's clean energy transition. Green hydrogen, seen as a crucial pillar for decarbonising industry and long-distance transport sectors, is produced using water and electricity sourced from renewables. Pumped storage hydropower – which acts as a natural battery and is essential to balance the power grid load – is an important component of a clean but reliable power system.

Then there is the climate crisis and its impact on hydrometeorological disasters. According to the UN World Water Development Report 2020, almost 75% of natural disasters in the last two decades were related to water. According to CEEW analysis, between 1970 and 2019, the number of flood associated events (such as landslides, thunderstorms and cloud bursts) increased by up to 20 times in India. Freshwater, one of the nine planetary boundaries, has been transgressed (2023 study).

The ingredients of water security

What India does to ensure water for domestic supply, food security, and the clean energy transition will matter to its economy. But its experiences will hold lessons for other water-stressed developing countries and emerging economies. Attaining this water security will need a mix of the right policies, judicious use of water, including reuse of urban wastewater, and finance for adapting to a changing world.

First, effective water governance needs policies that recognise its interactions with food and energy systems. However, CEEW and International Water Management Institute (IWMI) analysis shows that although India has adopted several policies, most do not recognise this nexus while planning or at the implementation stage. For instance, while the scaling up of green hydrogen is desirable, the link with water availability is not always considered. Similarly, the impact of scaling up solar irrigation pumps on groundwater levels must be analysed to deploy the technology where there is an optimal mix of solar resource and higher groundwater levels. Policies should incorporate the food-land-water nexus through localised evidence and community engagement.

Second, India needs to focus on the judicious use of blue and green water through water accounting and efficient reuse. The National Water Mission targets increasing water use efficiency by 20% by 2025. Similarly, the Atal Mission on Rejuvenation and Urban Transformation (AMRUT) 2.0 calls for reducing non-revenue water, which is lost before it reaches the end user, to less than 20% in urban local bodies. However, these are not backed by any baseline set using water accounting principles that will help quantify the, say, "20 per cent" change in freshwater use. For instance, in the absence of water use data for the reference year, it is difficult to quantify the potential water saving in one sector, such as agriculture, that can then be diverted to other sectors, such as industries or domestic purposes, which will drive India's water demand. Water accounting is essential for promoting water use efficiency and creating incentives for investments in treated wastewater reuse.

Third, leverage financial tools to raise money for climate adaptation in the water sector. Following global trends, India's climate action has been largely focused on mitigation in the industrial, energy, and transport sectors. Financial commitments for climate change adaptation in the water and agriculture sectors are still relatively small. In 2019-20, for which aggregate estimates are available, the per capita annual spending on climate change mitigation was about ₹2,200, whereas for adaptation, it was only ₹260. More funding is needed for adaptation-specific interventions such as strengthening wastewater management, providing incentives to promote climate-resilient agricultural practices (micro irrigation and crop diversification), and scaling up desalination plants as an alternative water source for thermal plants and green hydrogen production. Market innovations such as India's Green Credit Programme have the potential to partially bridge the adaptation funding gap by encouraging investment in wastewater treatment, desalination plants, and agricultural extension services. Considering the investments in India under Corporate Social Responsibility (between 2014-15 and 2020-21), there is a potential to leverage about ₹12,000 crore worth of investments every year.

Expectations that systemic change will occur overnight are unrealistic. But it is possible to make a start by pursuing more coherence in water, energy and climate policies, creating data-driven baselines to increase water savings, and enabling new financial instruments and markets for adaptation investments. A water-secure economy is the first step towards a climate-resilient one.

The views expressed are personal

Water stress in india

- India houses 18% of the world’s population on 2.4% of the earth’s surface area and has just 4% of global freshwater resources. Nearly half its rivers are polluted, and 150 of its primary reservoirs are currently at just 38% of their total live storage capacity.
- Further, it is the largest user of groundwater in the world.
- And three-quarters of India’s districts are hotspots for extreme climate events.
- Against this backdrop, India has invested heavily in disaster preparedness, but the nature of climatic shocks will continue to change.
- There will be sudden shocks (heavy rainfall, rapid declines in water availability) as well as slow onset but periodic stresses (reduced water retention in soils, changes in trend lines for rainfall).

The Hindu analysis by saurabh pandey sir

Importance of water

- Water connects our hydrological, food, and energy systems, impacting millions of people.
- Precipitation is the primary source of soil moisture and water stored in vegetation (green water) and the water available in rivers and aquifers (blue water).
- Both blue and green water impact the food we grow — irrigating crops, influencing harvests, and being critical to the economy.
- But this sector that employs the most is increasingly climate vulnerable.
- The India Employment Report 2024 shows that agriculture still employs around 45% of the population and absorbs most of the country’s labour force.

The Hindu analysis by saurabh pandey sir

- Water is also a key component of the world’s clean energy transition.
- Green hydrogen, seen as a crucial pillar for decarbonising industry and long-distance transport sectors, is produced using water and electricity sourced from renewables.
- Pumped storage hydropower — which acts as a natural battery and is essential to balance the power grid load — is an important component of a clean but reliable power system

Water security

- What India does to ensure water for domestic supply, food security, and the clean energy transition will matter to its economy.
- First, effective water governance needs policies that recognise its interactions with food and energy systems.
- Second, India needs to focus on the judicious use of blue and green water through water accounting and efficient reuse.
- The National Water Mission targets increasing water use effciency by 20% by 2025.
- Similarly, the Atal Mission on Rejuvenation and Urban Transformation (AMRUT) 2.0 calls for reducing non-revenue water, which is lost before it reaches the end user, to less than 20% in urban local bodies

The Hindu analysis by saurabh pandey sir

- What India does to ensure water for domestic supply, food security, and the clean energy transition will matter to its economy.
- First, effective water governance needs policies that recognise its interactions with food and energy systems.
- Second, India needs to focus on the judicious use of blue and green water through water accounting and efficient reuse.
- The National Water Mission targets increasing water use effciency by 20% by 2025.
- Similarly, the Atal Mission on Rejuvenation and Urban Transformation (AMRUT) 2.0 calls for reducing non-revenue water, which is lost before it reaches the end user, to less than 20% in urban local bodies

The Hindu analysis by saurabh pandey sir

- Third, leverage financial tools to raise money for climate adaptation in the water sector.
- Following global trends, India’s climate action has been largely focused on mitigation in the industrial, energy, and transport sectors.
- Financial commitments for climate change adaptation in the water and agriculture sectors are still relatively small.
- India’s climate action has been largely focused on mitigation in the industrial, energy, and transport sectors.
- Financial commitments for climate change adaptation in the water and agriculture sectors are still relatively small.

Empower the guardians of the earth, do not rob them

Ajay Saini

teaches at the Indian Institute of Technology Delhi

Manish Chandi

is with the Wildlife Conservation Society (WCS)-India

In the southern expanse of the Andaman and Nicobar archipelago, off the shores of Little Nicobar, lie seven tiny islands. Classified as "uninhabited" in the government's records, these islets are nonetheless integral to the indigenous communities of the region. Two, officially called Meroë and Menchal, are known as Piruii and Pingaeyak, respectively, to the Payuh, the indigenous southern Nicobarese peoples, who hold traditional rights over these and other islets.

For millennia, these historically isolated indigenes have relied on these islands as resource reservoirs for sustenance and protected them. Menchal is revered, used, and protected under the spiritual realm called Pingaeyak (a spirit that is believed to reside on the island), prohibiting the overexploitation of resources or any undue harm to its ecosystem. Similarly, Meroë is believed to be the abode of a legendary islander community. Here, too, spiritual belief systems influence how the islanders use and protect natural resources.

Meroë and Menchal are managed by community elders as guardians and specific individual caretakers. They ensure the protection of the island's resources and sustainability. In today's world, this phenomenon goes by the name of "conservation" and "sustainable use", among other terms and phrases.

Conservation colonialism

In May 2022, in complete disregard of the indigenous land ownership and management systems, the Andaman and Nicobar (A&N) administration issued three public notices, announcing its intention to create three wildlife sanctuaries: a coral sanctuary at Meroë Island, a megapode sanctuary at Menchal Island, and a leatherback turtle sanctuary on Little Nicobar Island.

In mid-July, the A&N administration issued an order asserting that it did not receive any claims or objections from any individual regarding the land and marine areas within the three proposed sanctuaries; that no individual enjoys any rights within the boundaries of the proposed sanctuaries. And, that there will be "restriction on the people of neighbouring area to enter into these islands... in the national interest."

Approximately 1,200 southern Nicobarese inhabit Patai Takaru (Great Nicobar Island), and Patai t-bhi (Little Nicobar Island), holding traditional rights over both inhabited and ostensibly "uninhabited" islands. Yet, the A&N administration neither consulted nor informed the southern Nicobarese of its plans.

Despite verbal supplications and a letter in August 2022 from the Little & Great Nicobar Tribal Council that expressed the community's concerns to the A&N administration and the Ministry of Environment, Forest and Climate Change, the A&N administration proceeded to issue official notifications in October 2022, designating the whole of Meroë (2.73 square kilometres) and Menchal (1.29 sq. km), along with a 13.75 sq. km area on Little Nicobar (140 sq. km), as wildlife sanctuaries.

A unilateral decision to establish three wildlife sanctuaries in the southern Nicobar will deprive the indigenous peoples of their ancestral territories and lifeways

Masking an ecological disaster

The selection of Meroë and Menchal Islands as conservation reserves for coral reefs and Megapode birds is arbitrary. Menchal does not have more than a pair or two of the endemic Megapode birds. Similarly, questions arise regarding the actual diversity and abundance of corals on Meroë Island.

Notably, the announcement of wildlife sanctuaries coincided with growing scrutiny and criticism from experts over the denotification of the Galathea Bay Wildlife Sanctuary for a ₹72,000-crore mega project on Great Nicobar, a UNESCO Biosphere Reserve.

Establishing exclusionary conservation areas in a region, which is already a paradise for biodiversity, stems from the fact that the champions of the mega project are aware of the extensive environmental and social damage that the project will entail. It will devastate about eight to 10 lakh evergreen forest trees, smother and gouge out scores of coral reefs found along Galathea Bay, destroy the nesting site for the globally endangered Leatherback sea turtle species, devastate hundreds of nesting mounds of Nicobar Megapodes, and kill as many crocodiles.

Furthermore, it will prevent the indigenous Great Nicobar islanders from returning to their pre-tsunami homeland where they husbanded pigs and chicken, cultivated coconut and betel nut trees, and lived simple and gregarious lives. Most importantly, it will uproot three or more settlements of the Shompen (a 'Particularly Vulnerable Tribal Group') and permanently destroy their foraging and hunting grounds.

The unilateral decision to establish wildlife sanctuaries disregards the islands' profound significance to the indigenous population. Their ancestral lands are unjustly perceived as "no-man's-land" to appease conservationists, investors, public opinion, and more.

Support earth's guardians

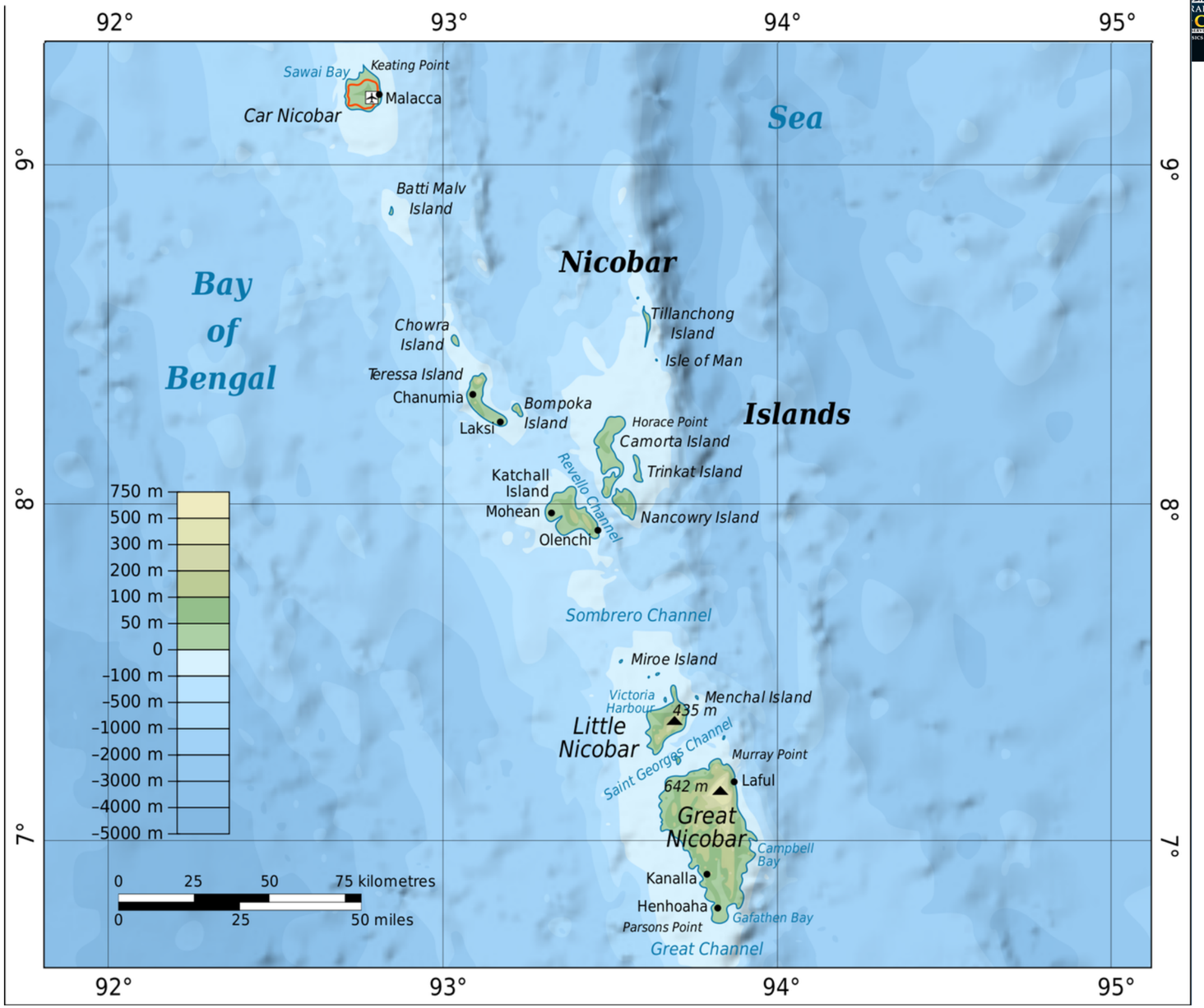
Globally, governments blatantly violate indigenous people's rights by evicting them from their ancestral lands, often under the guise of development, national interest, conservation projects, among others. Approximately 476 million indigenous peoples, constitute about 6% of the global population. Indigenous territories cover roughly 22% of the planet and harbour 80% of its biodiversity.

Indigenous peoples are the original guardians of our earth. The world must learn from their wisdom. Reason and justice dictate that in southern Nicobar, we should support and empower the islanders to continue to steward their ancestral territories, rather than robbing them of their lands, resources, lifeways, and worldviews.

Andaman and Nicobar

- the Andaman and Nicobar (A&N) administration issued three public notices, announcing its intention to create three wildlife sanctuaries: a coral sanctuary at Meroë Island, a megapode sanctuary at Menchal Island, and a leatherback turtle sanctuary on Little Nicobar Island.
- The selection of Meroë and Menchal Islands as conservation reserves for coral reefs and Megapode birds is arbitrary.
- Menchal does not have more than a pair or two of the endemic Megapode birds.

Meroe Island is an island of India.



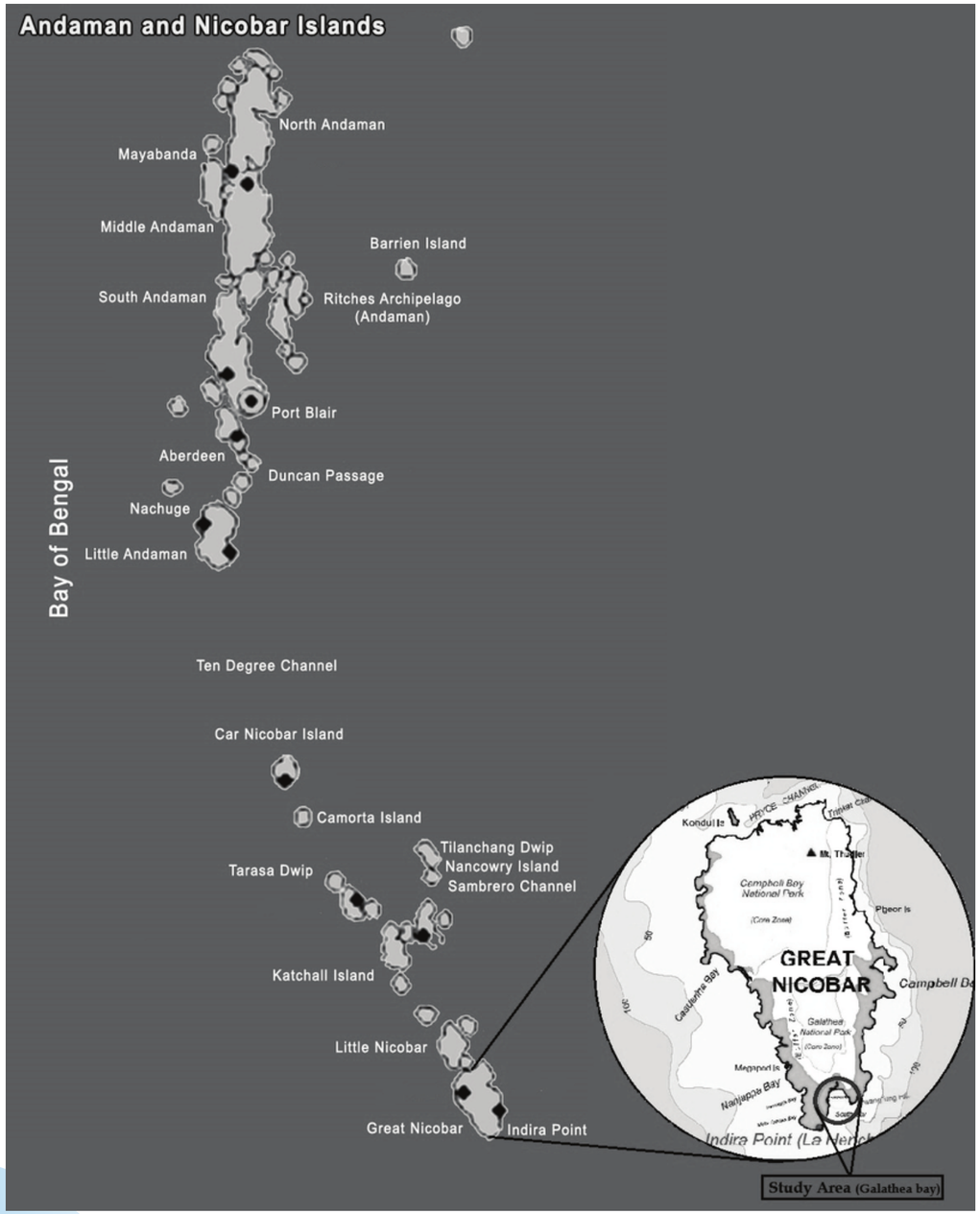
The Hindu analysis by saurabh pandey sir

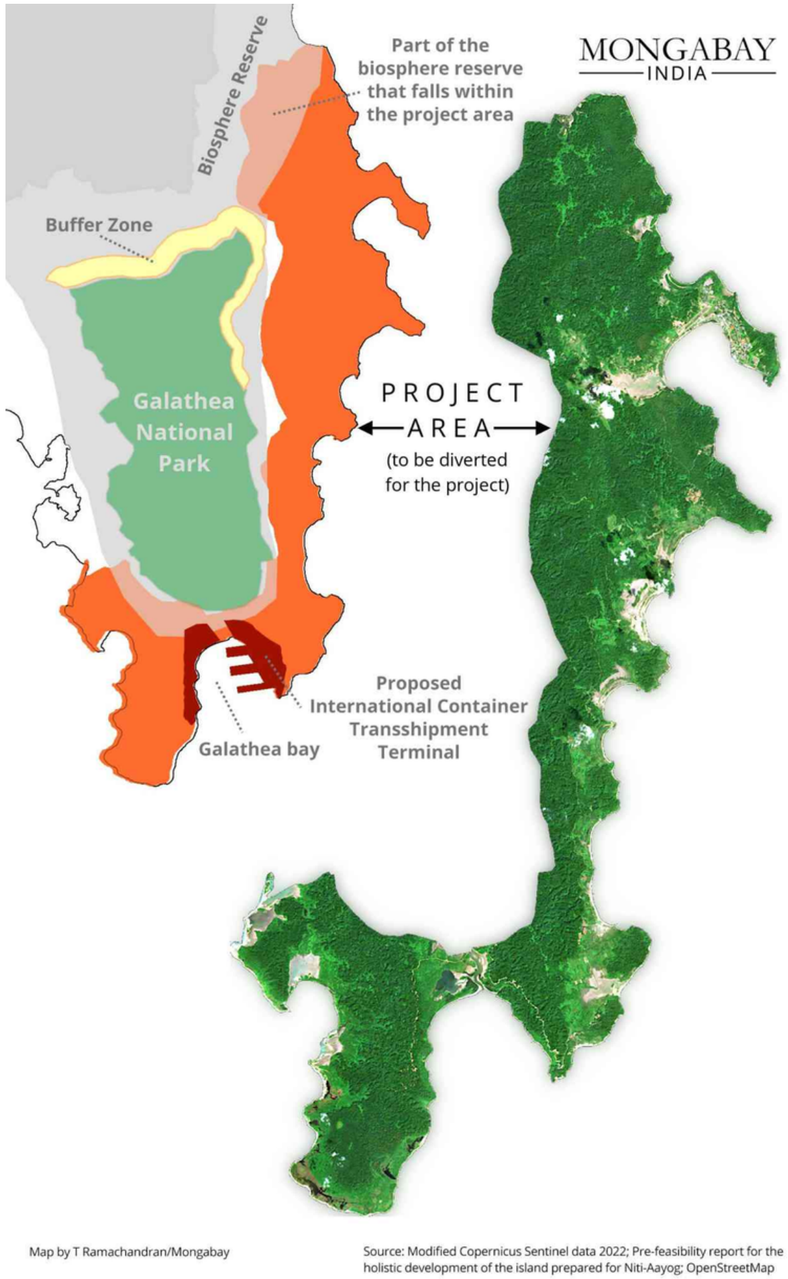
The Nicobar megapode or Nicobar scrubfowl (Megapodius nicobariensis) is a megapode found in some of the Nicobar Islands (India)

The Hindu analysis by saurabh pandey sir

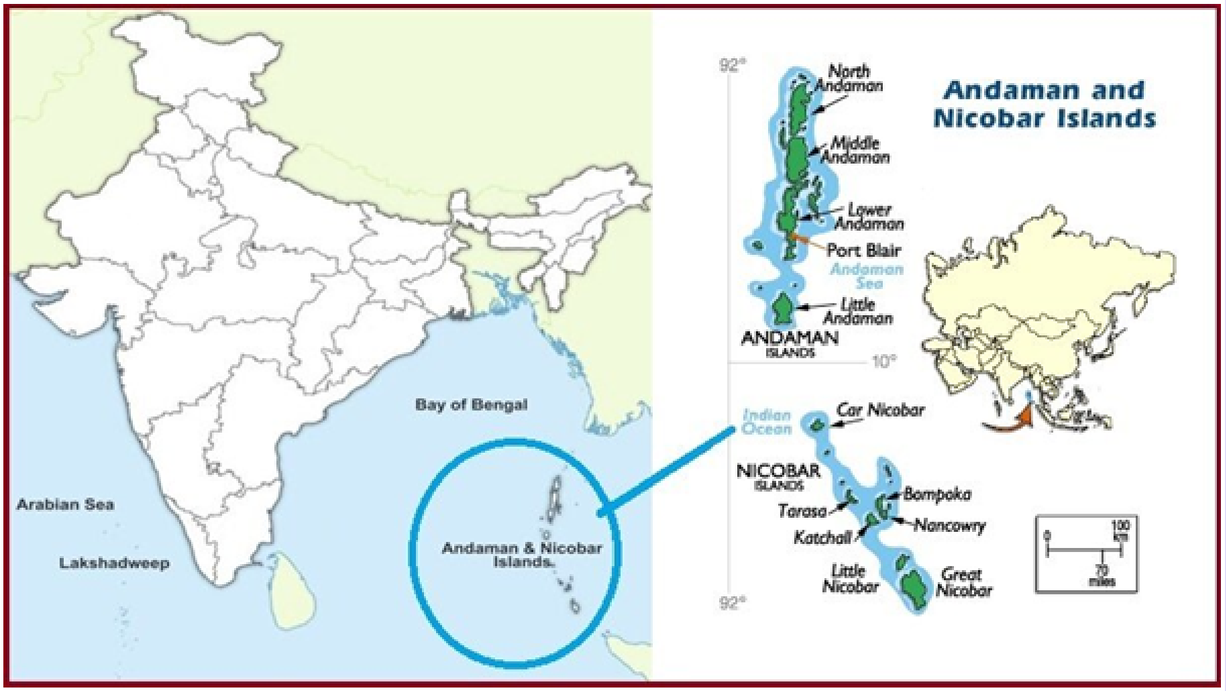
Galathea National Park

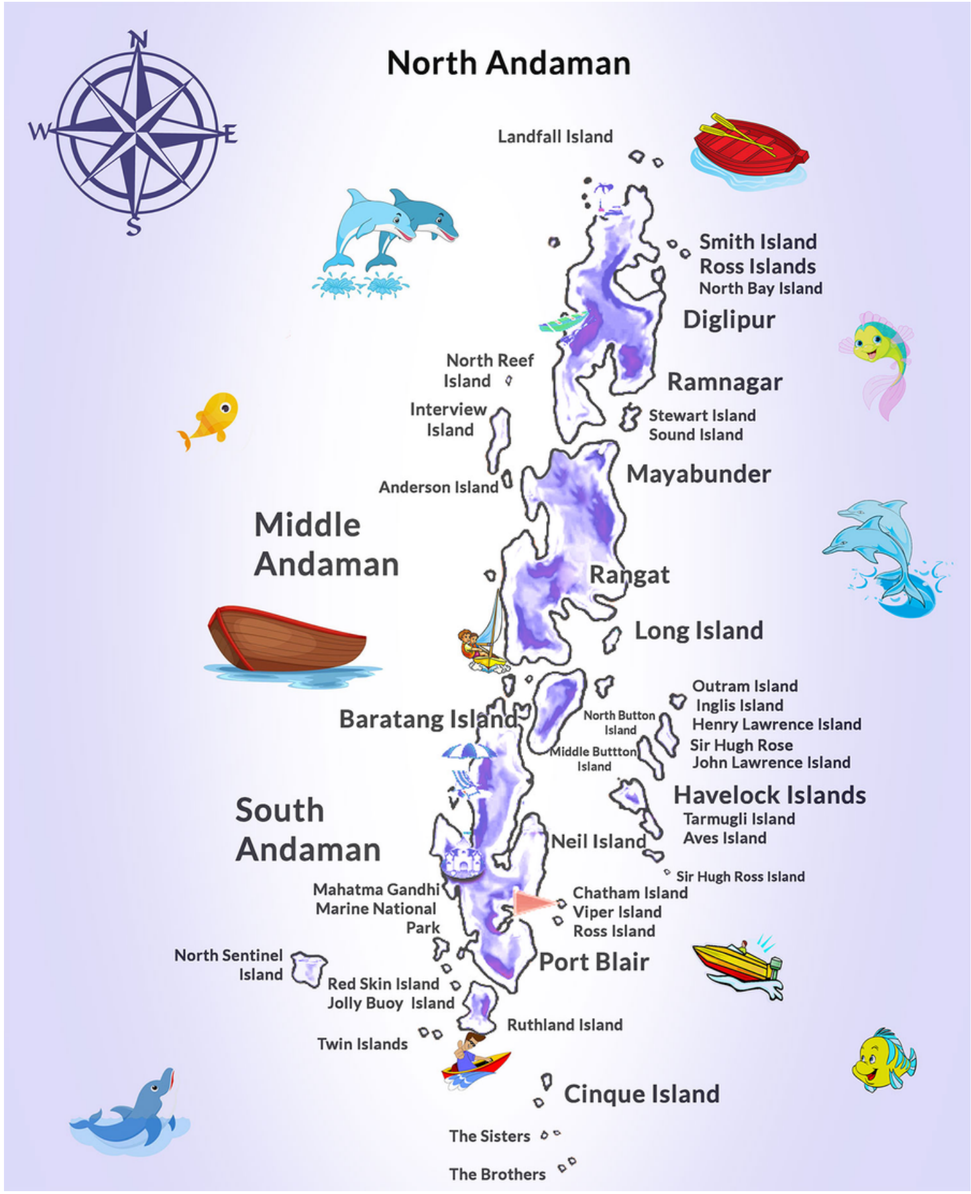
- Galathea National Park is a national park located in the Union Territory of Andaman and Nicobar Islands, India.
- It is located on the island of Great Nicobar in the Nicobar Islands, which lie in the eastern Indian Ocean (Bay of Bengal).
- The total area of this park is some 110 square kilometres, and it was gazetted as a National Park of India in 1992.
- Galathea forms part of what has been designated as the Great Nicobar Biosphere Reserve, which also includes the larger Campbell Bay National Park, separated from Galathea by a 12-km forest buffer zone.
-





The Hindu analysis by saurabh pandey sir





The Hindu analysis by saurabh pandey sir

Leatherback turtle

Leatherback turtles are named for their shell, which is leather-like rather than hard, like other turtles.

They are the largest sea turtle species and also one of the most migratory, crossing both the Atlantic and Pacific Oceans. Pacific leatherbacks migrate from nesting beaches in the Coral Triangle all the way to the California coast to feed on the abundant jellyfish every summer and fall.

Although their distribution is wide, numbers of leatherback turtles have seriously declined during the last century as a result of intense egg collection and fisheries bycatch. Globally, leatherback status according to IUCN is listed as Vulnerable, but many subpopulations (such as in the Pacific and Southwest Atlantic) are Critically Endangered.

VU

STATUS
Vulnerable

Aa

SCIENTIFIC NAME
Dermochelys coriacea

Kg

WEIGHT
600-1500 pounds

LENGTH
55-63 inches

HABITATS
Oceans

The Hindu analysis by saurabh pandey sir

The challenges of renewable energy

Sukanya Khar

is researcher at the School of Public Policy at IIT Delhi

Kaveri Iychettira

is researcher at the School of Public Policy at IIT Delhi

At a recent speech, the United Nations Climate Change Executive Secretary Simon Stiell said the "next two years are essential in saving our planet." Record-breaking heat, shortage of water, and other environmental issues are regular headlines in the context of the need to achieve development, increase employment, and reduce poverty and inequality, among others. Yet, the linkages between the pathways of development, sustainability, and climate change mitigation are far from well-understood. Our current models of development drive greenhouse gas (GHG) emissions, are unsustainable, and inequitable. Although India aims to achieve Net Zero GHG emissions by 2070, mainly led by a massive transition to large-scale renewable energy, the implications of such a transition on developmental or sustainability outcomes are unclear at the local and national levels.

Examining solar parks

Let us take the example of large-scale solar parks – a key pillar of India's mitigation strategy. We have 214 sq. km of land under solar parks, but some studies estimate that we may need 50,000-75,000 sq. km, which is about half the size of Tamil Nadu, to achieve our Net Zero targets.

At the local level, farmers in villages near India's two largest solar parks - in Bhadla in Rajasthan and Pavagada in Karnataka - report different experiences. In Bhadla, farmers have lost sacred common lands called Orans and pastoralists are faced with shrinking grazing lands, forcing some to sell their livestock at throwaway prices. Such losses have led to protests demanding recognition of common land under the Forest Rights Act (FRA), 2006. On the other hand, many farmers in Pavagada were content with the steady annual income they received by leasing out land for solar parks. This land was drought-stricken and did not yield significant agricultural income. All the same, water security issues and economic disparity between large and small landowners are challenges for the region.

At a more regional or national scale, solar parks may compete for essential natural resources. Solar panels require large amounts of water for their regular cleaning. Yet, our current national-level estimates for the land available for solar parks do not account for the availability of nearby water sources. Similarly, the land needed for solar parks may compete with other productive activities – agriculture and related livelihoods, with the potential for impacts on food security. Impacts on biodiversity loss with the construction of large-scale solar parks are also location-specific, and under-researched. For instance, open natural systems such as deserts provide essential ecosystem services that, if disturbed, would cause ecological damage and even contribute to climate change. Crucially, all of these resource requirements and impacts on livelihoods and biodiversity are subject to uncertainty regarding feasibility and economic viability of other emerging low carbon technologies and the changing climate itself.

Different approaches

Large-scale renewable energy development can avoid reproducing the injustices of past large-scale infrastructure projects, while being sensitive to developmental objectives. Experimenting with ownership models is one approach. The parks need not necessarily be owned by the state or private companies. Community initiatives could help generate revenues for the communities, further promoting small businesses and upskilling, improving incomes, stimulating local economies, and improving energy access.

Solar and wind park development is exempted from Environmental and Social Impact Assessment. The legal and regulatory architecture must be revised and strengthened to limit adverse social and environmental consequences. In terms of impacts on small and medium landowners where private land is being used, there is no mechanism to monitor if a fair price is paid to those leasing their land. Involving local governance units in the planning and siting processes can provide an opportunity to align local developmental objectives with solar park development.

Wasteland classification needs a significant overhaul. Recognition of commons under the FRA would help improve environmental and equity outcomes by granting land ownership to communities dependent on commons. If such land is to be leased or acquired for solar parks, solar park development corporations will have to engage with local governance units such as the Gram Sabha to initiate the project.

Encouraging research and experimenting with 'agrivoltaics' is another way to think about sustainably developing renewable energy. Agrivoltaics pair solar with agriculture, creating energy and providing space for crops, grazing, and native habitats under and between panels. Thus, farmers can grow crops while also being 'prosumers' – producers and consumers – of energy.

Many of these challenges and opportunities relate to solar in particular, but similar issues abound with other mitigation technologies. Wind energy, for instance, has adverse consequences on bird ecosystems. Large-scale renewable energy projects could have positive employment outcomes at the district level, but they lead to massive employment shifts between sectors at the national level. Adequate skilling and training programmes targeting the unskilled and poorer populations are essential to protect them.

Seize the opportunity

We are at the cusp of a second green revolution, this time involving energy. We have an opportunity to anticipate the unintended consequences of this revolution, and align our technological, economic, and institutional structures to maximise synergies between sustainability, climate change mitigation, and development related outcomes.

Large-scale renewable energy development can avoid reproducing the injustices of past large-scale infrastructure projects, while being sensitive to developmental objectives

Renewable energy

- India aims to achieve Net Zero GHG emissions by 2070, mainly led by a massive transition to large-scale renewable energy, the implications of such a transition on developmental or sustainability outcomes are unclear at the local and national levels.
-

- example of large-scale solar parks — a key pillar of India’s mitigation strategy.
- We have 214 sq. km of land under solar parks, but some studies estimate that we may need 50,000-75,000 sq. km, which is about half the size of Tamil Nadu, to achieve our Net Zero targets.
- At the local level, farmers in villages near India’s two largest solar parks – in Bhadla in Rajasthan and Pavagada in Karnataka – report different experiences.
-

- In Bhadla, farmers have lost sacred common lands called Orans and pastoralists are faced with shrinking grazing lands, forcing some to sell their livestock at throwaway prices.
- Such losses have led to protests demanding recognition of common land under the Forest Rights Act (FRA), 2006. On the other hand, many farmers in Pavagada were content with the steady annual income they received by leasing out land for solar parks
-

- solar parks may compete for essential natural resources. Solar panels require large amounts of water for their regular cleaning
- the land needed for solar parks may compete with other productive activities — agriculture and related livelihoods, with the potential for impacts on food security.
-

- Impacts on biodiversity loss with the construction of large-scale solar parks are also location-speci□c, and under-researched.
- For instance, open natural systems such as deserts provide essential ecosystem services that, if disturbed, would cause ecological damage and even contribute to climate change.
-

Solar and wind park development

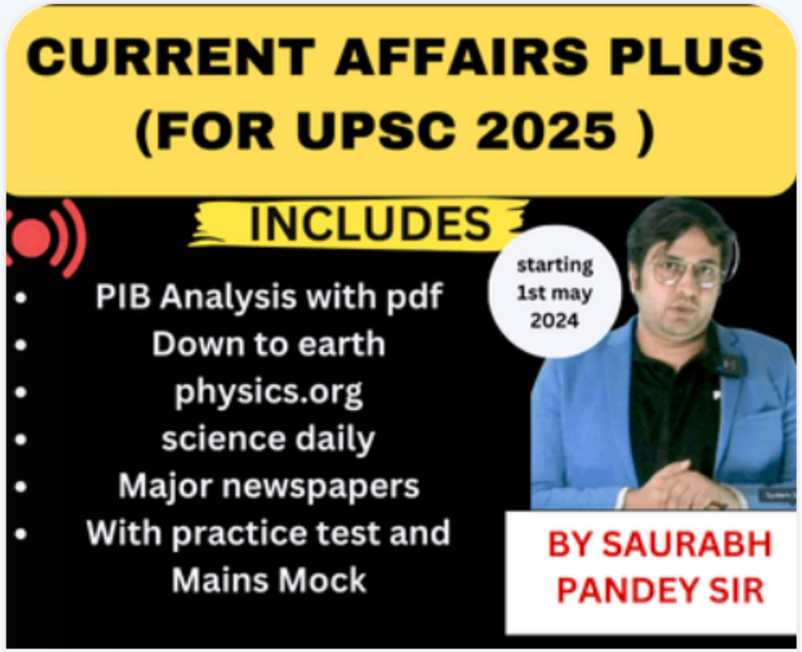
- Solar and wind park development is exempted from Environmental and Social Impact Assessment.
- The legal and regulatory architecture must be revised and strengthened to limit adverse social and environmental consequences.
- Involving local governance units in the planning and siting processes can provide an opportunity to align local developmental objectives with solar park development.
  Wasteland classi□cation needs a significant overhaul

- Encouraging research and experimenting with ‘agrivoltaics’ is another way to think about sustainably developing renewable energy.
- Agrivoltaics pair solar with agriculture, creating energy and providing space for crops, grazing, and native habitats under and between panels.
- Thus, farmers can grow crops while also being ‘prosumers’ — producers and consumers — of energy.
- Wind energy, for instance, has adverse consequences on bird ecosystems.
- Large-scale renewable energy projects could have positive employment outcomes at the district level, but they lead to massive employment shifts between sectors at the national level.

For upsc 2025/26 Aspirants

Download saurabh pandey cse app

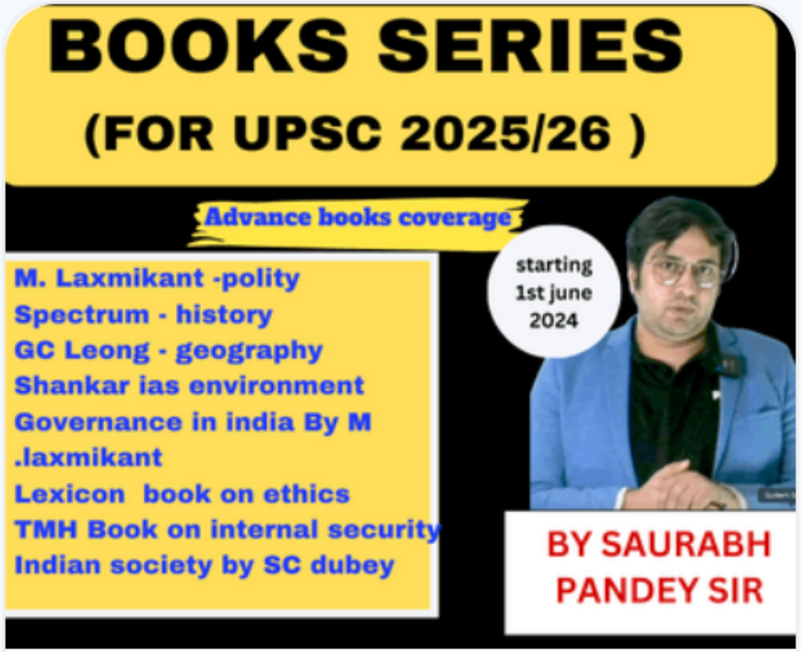
visit saurabhpandeyupsc.com and click on All courses



Current affairs Plus For UPS C 2025 (PIB, Down to eart...

Created by: You(Owner)

1 year



Books series for UPSC 202 5/26

Created by: You(Owner)

1 year

9057921649

LAST MILE BATCH

"LAST MILE" BATCH For Prelims 2024

C-GESIA Batch

- PT 730- 2yrs current
- International relations
- Agriculture for GS
- 10 Full length Tests
- Advance Geo, environment and science

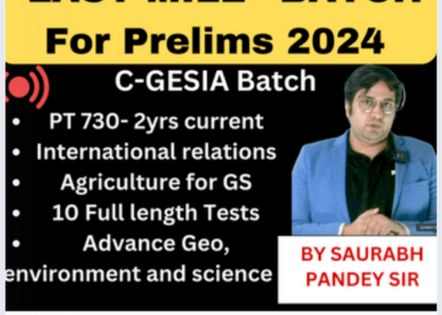
BY SAURABH PANDEY SIR

ONE COURSE ALL SUBJECTS

Rs 3897

CONNECT WITH SIR

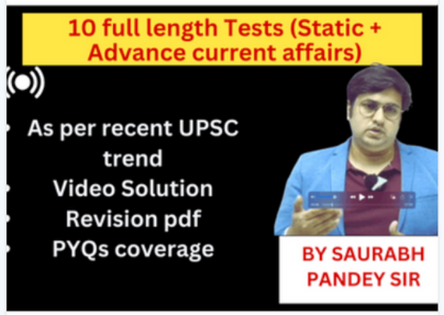
9057921649



Last Mile Batch For UPSC Pr elims 2024. (C-GESIA BAT...

Created by: You(Owner)

5 months



Prelims Vijay Series - 10 Ful l length Tests For upsc pre...

Created by: You(Owner)

4 months

International relations (Basi cs and current affairs)

Created by: You(Owner)

6 months Live

Agriculture for General stud ies

Created by: You(Owner)

6 months Live

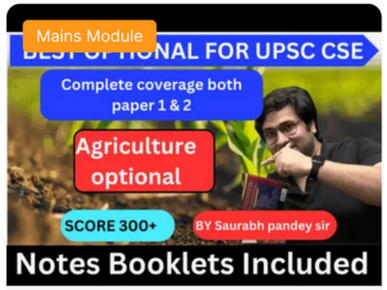
Popular Courses

See More →

"PT 730" PANDEY JI ADVANCED CURRENT...

Admin

Start Learning



Complete Agriculture Optional For IAS/IFoS (...

Admin

Start Learning

Summary With Explanation Of...

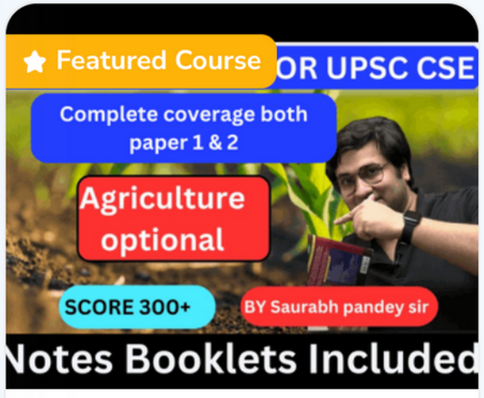
Admin

Start Learning

Prelims Vijay Series – 10 Full Length Tests For...

Admin

Start Learning



Complete Agriculture option al For IAS/IFoS (Batch-2)

Created by: You(Owner)

8 months

40 PER OFF IN ALL COURSES
LINK IN DESCRIPTION BOX

For any query msg-
9057921649

DOWNLOAD APP

Google Play Games Apps Movies & TV Books Kids

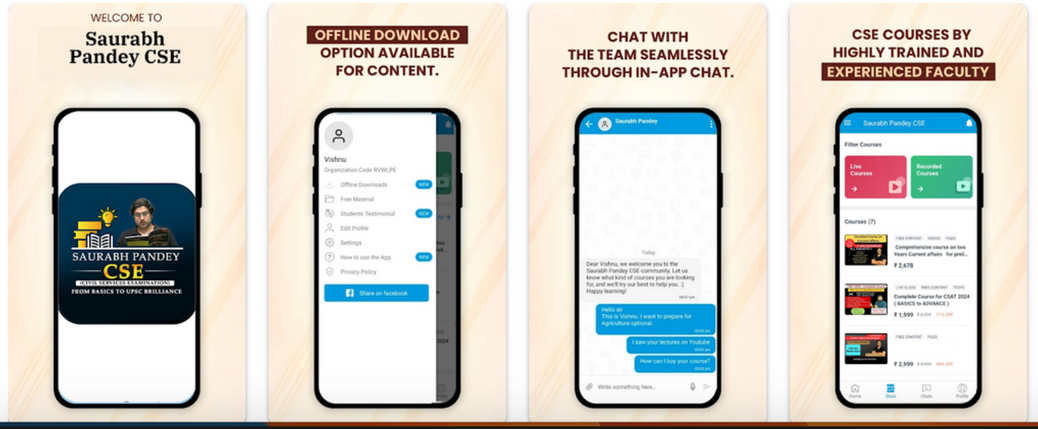
Saurabh Pandey CSE

Saurabh Pandey CSE

4.8★ 73 reviews | 1K+ Downloads | E Everyone

Share | Add to wishlist

You don't have any devices

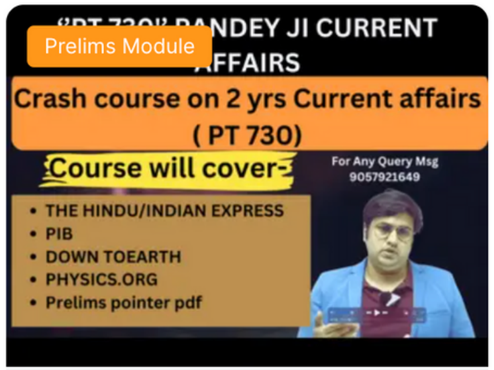


App support

visit saurabhpandeyupsc.com

Popular Courses

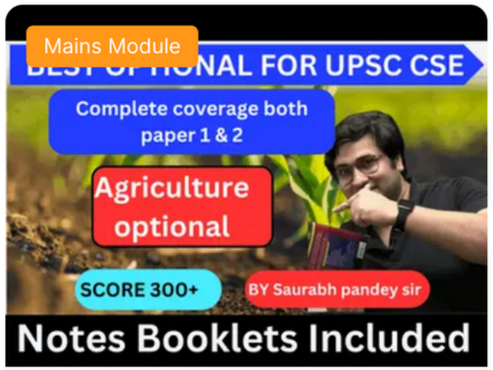
See More →



"PT 730" PANDEY JI ADVANCED CURRENT...

Admin

Start Learning



Complete Agriculture Optional For IAS/IFoS (...

Admin

Start Learning

Summary With Explanation Of...

Admin

Start Learning

Prelims Vijay Series – 10 Full Length Tests For...

Admin

Start Learning

Target Mains 2024/25

Q“ Renewable energy expansion will impact food security and biodiversity “ Examine

प्रश्न" नवीकरणीय ऊर्जा विस्तार खाद्य सुरक्षा और जैव विविधता को प्रभावित करेगा" परीक्षण करें

send your answer - Saurabh pandey upsc telegram channel