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Daily News Analysis

The Hindu Important News Articles & Editorial For UPSC CSE

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Page 01 : GS 2 & 3 : International Reations & Indian Economy

India and New Zealand have concluded negotiations on a comprehensive Free Trade Agreement (FTA), marking a significant milestone in India's evolving trade diplomacy. The agreement, announced by India and New Zealand, aims to double bilateral trade to $5 billion within five years, attract $20 billion in investments over 15 years, and enhance workforce mobility through annual employment visas. Concluded within nine months, the FTA reflects a pragmatic balance between export promotion and protection of politically sensitive domestic sectors.

India, New Zealand conclude trade talks

- New Delhi hopes to double bilateral trade to $5 billion, and bring in $20 billion in investments
- New Zealand will provide 5,000 employment visas annually and a stay of up to three years
- The trade pact will help Indian exporters, who are reeling under 50% tariffs imposed by U.S.

The Hindu Bureau
NEW DELHI

India and New Zealand on Monday concluded discussions on a free trade agreement (FTA) that will give India tariff-free access to the island nation's markets, bring in $20 billion in investments over 15 years, and help double bilateral trade to $5 billion in the next five years.

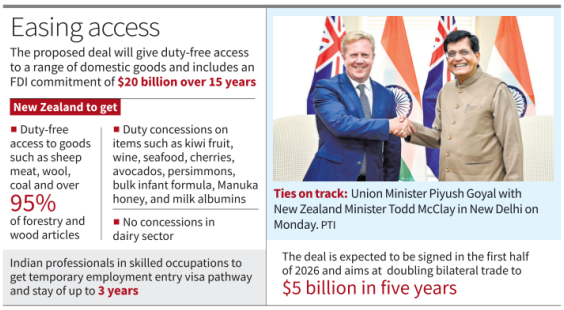
The deal will remove or cut tariffs on 95% of New Zealand's exports – from timber to fruits – to India, but New Delhi safeguarded the interests of its agricultural and dairy farmers, considered politically sensitive, and made no concessions on import of dairy, onions, sugar, spices, edible oils, and rubber. New Zealand will give temporary employment visas for Indian professionals in skilled jobs with a quota of 5,000 visas annually and a stay of up to three years.

Union Minister for Commerce Piyush Goyal said the government has been "sensitive in protecting interests" of agricultural and dairy farmers. "Rice, wheat, dairy, soya and various other agricultural products have not been opened up with any access," he said.

Hailing the FTA, to be signed in the first half of 2026, Prime Minister Narendra Modi said, "Concluded in just nine months, this historic milestone reflects a strong political will and shared ambition to deepen economic ties between our two countries."

'FTA will boost ties'

Mr. Modi spoke to his New Zealand counterpart Christopher Luxon over the phone before jointly announcing the conclusion of the FTA,said an official statement.



"The FTA would significantly deepen bilateral economic engagement, enhance market access, promote investment flows, strengthen strategic cooperation between the two countries, and also open up new opportunities for innovators, entrepreneurs, farmers, MSMEs, students and youths of both countries across various sectors," the External Affairs Ministry said.

The pact will help Indian exporters, reeling under the impact of 50% tariffs imposed by the Trump administration on Indian goods, diversify shipments in the Oceania region. India has already implemented a trade pact with Australia.

Underlining this, Mr. Goyal said the deal will give "opportunities for all sections of our export communities" and exporters wishing to "diversify their export basket". Speaking at a press conference, he said that India has been "very cautious of ensuring that our micro, medium and small enterprises, innovators and start-ups get big opportunities in New Zealand."

The Minister said the agreement will provide a fillip to labour-intensive sectors such as apparel, leather, textiles, rubber, footwear and home decor. It will encourage export of automobiles, auto components, machinery, electronic goods and electrical and pharmaceuticals, he said.

The temporary employment visas cover AYUSH practitioners, yoga instructors, Indian chefs, and music teachers, as well as high-demand sectors including IT, engineering, healthcare, education, and construction, strengthening workforce mobility and services trade.

For New Zealand, Mr. Luxon said "the gains are wide-ranging and significant". "India is the world's most populous country and is the fastest-growing big economy, and that creates opportunities for jobs for Kiwis, exports and growth," he said.

Products not covered

Under the pact, New Zealand will get duty-free access to goods such as sheep meat, wool, coal and over 95% of forestry and wood articles. It will get duty concessions on a number of other items such as kiwi fruit, wine, some seafood, cherries, avocados, persimmons, bulk infant formula, Manuka honey and milk albumins.

But the deal does not cover vegetable products (onions, chana, peas, corn, almonds), sugar, artificial honey, animal, vegetable or microbial fats and oils, arms and ammunition, gems and jewellery, copper and its products, and aluminium and articles.

Key Features of the Agreement

Trade Liberalisation with Safeguards

India will provide tariff reductions or elimination on about 95% of New Zealand's exports, particularly in forestry products, wool, sheep meat, coal, fruits, and wine.

Sensitive Indian sectors—especially agriculture and dairy—are explicitly excluded, including rice, wheat, dairy products, sugar, onions, edible oils, and spices.

This approach aligns with India's long-standing strategy of cautious trade liberalisation to protect small farmers and rural livelihoods.

Boost to Indian Exports and MSMEs

The FTA opens tariff-free access for Indian products such as textiles, apparel, leather, footwear, pharmaceuticals, automobiles, machinery, and electronics.

Labour-intensive sectors are expected to gain significantly, supporting employment generation and MSME growth.

Commerce Minister **Piyush Goyal** highlighted that the agreement safeguards domestic interests while expanding export opportunities.

Services Trade and Workforce Mobility

New Zealand will offer 5,000 temporary employment visas annually for Indian professionals, with stays of up to three years.

Covered categories include IT, engineering, healthcare, education, construction, as well as AYUSH practitioners, yoga instructors, chefs, and music teachers.

This strengthens India's comparative advantage in services and skilled manpower exports.

Strategic and Geopolitical Context

The FTA helps India diversify export markets amid global trade uncertainties, including high tariffs imposed by the Trump administration on Indian goods.

It complements India's existing trade agreement with Australia and reinforces its engagement with the Oceania region.

Leaders Narendra Modi and Christopher Luxon underscored the agreement's role in deepening strategic and economic ties.

Significance for India

Economic Diversification: Reduces overdependence on traditional markets and mitigates external trade shocks.

Investment and Technology Flows: The projected $20 billion investment inflow can support manufacturing, infrastructure, and innovation.

Balanced Trade Policy: Demonstrates India's ability to pursue FTAs without compromising core domestic interests.

People-to-People Linkages: Enhanced mobility strengthens soft power and long-term bilateral relations.

Conclusion

The India–New Zealand FTA represents a calibrated shift in India's trade strategy—combining openness with protection, and economic ambition with political realism. By expanding market access, promoting investment, and enabling workforce mobility while safeguarding sensitive sectors, the agreement strengthens India's economic resilience and strategic footprint in the Indo-

Pacific. For UPSC, it exemplifies India's contemporary approach to FTAs: selective liberalisation, diversification of trade partners, and alignment of economic policy with broader geopolitical objectives.

UPSC Mains Practice Question

Ques : The India–New Zealand FTA is significant for India primarily because:

(a) It opens India's agricultural sector fully to New Zealand

(b) It helps India diversify exports amid rising protectionism

(c) It replaces India's trade agreement with Australia

(d) It mandates free movement of labour between both countries

Ans : b)

UPSC Mains Practice Question

Ques : The India–New Zealand Free Trade Agreement reflects India's evolving approach towards trade liberalisation. Discuss how the agreement balances domestic sensitivities with global economic integration. **(150 words)**

Page 07 : Prelims

Regeneration—the ability to regrow lost or damaged body parts—has long fascinated biologists and policymakers interested in future regenerative medicine. Traditionally, regeneration was understood as a localised phenomenon, driven by specialised tissues or structures near the site of injury. However, two recent studies published in Cell and Cell Reports challenge this view. Research on axolotls and planarian flatworms demonstrates that regeneration is not confined to the wound site alone but involves coordinated, whole-body signalling, redefining our understanding of tissue repair and biological resilience.

Regeneration in axolotls, flatworms, is a whole-body event, studies find

When an axolotl loses a limb, the cells at the stump gather and multiply into a mound of tissue that becomes an engine of new growth; for decades, scientists believed this small structure contained a major part of the regenerative programme; new studies say the whole body itself joins in the act

Anirban Mukhopadhyay

Planarian flatworms are small, unassuming creatures with an astonishing talent. Cut one into pieces, and each fragment can regrow a complete animal. This seemingly magical ability comes from their prolific stem cells, known as neoblasts, which can produce every tissue in the body.

In most animals, such regenerative stem cells grow under the care of nearby niche cells, small micro-environments that signal when to divide. But planarians, despite their extraordinary powers of renewal, appear to lack any such neighbourhoods, leaving biologists puzzled about where their stem cells get their cues.

In a new study in *Cell Reports*, researchers at the Stowers Institute for Medical Research in Missouri, USA, found that the missing niche might not be local at all, but comes from the gut. They combined a powerful gene-mapping tool called Slide-seqV2 with electron microscopy to chart where thousands of stem cells sit and which genes they switch on. The maps revealed that neoblasts rarely stay in contact with nearby tissues, yet their activity depends on chemical messages sent from the intestine. When key intestinal genes were turned off, the usual post-injury burst of cell division disappeared and regeneration faltered; even day-to-day cell replacement changed.

"The planarian gut functions as a central regulator for whole-body regeneration," the study's corresponding author Alejandro Sánchez Alvarado, a molecular biologist at the Stowers Institute, said. He added that the same gut signals may also help guide routine tissue renewal across the body.

The findings don't put the intestine in charge. Instead, they point to a cooperative system in which many tissues, including the gut, help steer stem cells through shared chemical cues. Because stem and intestinal cells sit only a few micrometres apart (roughly a single cell's width), their conversations are likely carried by molecules such as small proteins, fats or other metabolic signals rather than direct contact.

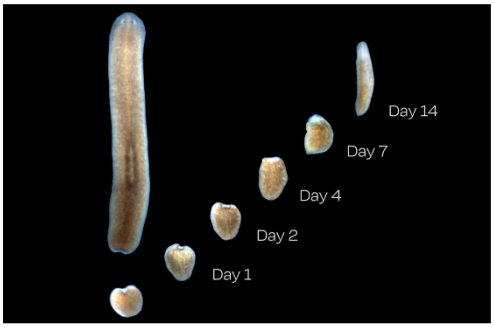
That is to say, in planarians, regeneration seems to depend on a diffuse web of nearby chemical signals rather than a single, fixed neighborhood.

Poised to heal

In another species, that same kind of long-range communication runs through the nervous system rather than the gut.

When an axolotl (*Ambystoma mexicanum*) loses a limb, the cells at the stump gather and multiply into a mound of tissue called the blastema, which becomes an engine of new growth. For decades, scientists believed this small structure contained a major part of the regenerative programme. But a new study in *Cell* by a group at the Harvard Stem Cell Institute in Massachusetts, USA, has reported that the body itself joins the act.

After amputation, a burst of activity in the animal's stress response nerves briefly drives cells throughout the body to reenter the cycle of division. This organism-wide systemic activation seems to prime the animal for repair. When a previously uninjured limb is later amputated, its blastema is noticeably larger by two weeks.



A composite image of a planarian flatworm regrowing itself from a truncated form. SPECIAL ARRANGEMENT

The response was found to be carried by special proteins on cells that sensed stress signals. In distant tissues, one group of these proteins switched on a growth control system called mTOR, putting the body into a temporary state of readiness. At the injury site, another group kept the new limb growing. In both places, the same stress hormone, norepinephrine, a close chemical cousin of adrenaline, acted as the messenger.

When the researchers blocked the animal's stress nerves, regeneration slowed down. But when they used common blood pressure drugs to mimic or block those stress signals, they could dial the response up or down, showing that the body's repair mode could be switched on and off chemically. The primed state itself faded after about four weeks, suggesting that regeneration is not a permanent condition but a short-lived 'repair mode' under the nervous system's control.

The group also expressed suspicion that the system actively shut down this


A close-up view of planarian flatworms. SPECIAL ARRANGEMENT

> The studies reveal a more complex, coordinated response where the entire organism is involved in the regenerative process
> NADIA ROSENTHAL
> IMPERIAL COLLEGE OF LONDON

state rather than letting it fade, perhaps through a surveillance mechanism that reined in cell growth once the injury response had served its purpose.

Rethinking regeneration

The same signaling machinery exists in mammals, so scientists are now wondering if mammals could have such abilities, too. However, regenerative biologist and associate professor Jessica Whited, who led the Harvard group, strongly emphasised that any parallels to humans remain speculative.

"It could be possible that humans have latent regenerative abilities that need to be coaxed out with the proper molecular instructions, in a specific sequence," she said, stressing that such hypotheses still require direct testing.

Her team is considering whether mammals could even trigger a similar adrenergic response after severe injury but become "stuck" before the process can proceed, a failure that could reflect molecular brakes blocking the later steps of regeneration.

Even in axolotls, she noted, regeneration is tightly confined to the wound.

"Systemically activated cells don't grow new limbs all over the body," she said. "They appear to be held in check by brakes that limit where and how regeneration proceeds."

Some of these cells near the stump may themselves become blastema precursors while others might act indirectly, signalling to their neighbors to initiate growth. In both cases, she said, the process depends on communication across tissues rather than within a single compartment.

Even so, the way this global coordination works is not the same in every animal. Ken Poss, a biologist at Duke University in North Carolina in the USA, said evolution seems to have invented several ways to achieve that coordination.

"Innate regeneration as a whole certainly uses different architectures," Mr. Poss said. "Nerves and their signals can have major, minor or no role in regeneration, depending on the species and tissue. Finding commonalities and differences helps us piece the puzzle together."

However, those differences don't contradict the idea of body-wide coordination; they refine it.

These studies address an outstanding question: how local is the regenerative response to injury?" Nadia Rosenthal, a researcher at Imperial College of London, said. "They reveal a more complex, coordinated response where the entire organism is involved in the regenerative process."

Salamanders may rely on neural signals and flatworms on metabolic cues, but both, she added, expose "a dynamic balance between local responses and whole-body governance of tissue repair."

Together, the two studies recast regeneration as a team effort, not a solo act. Whether driven by gut signals or nerve impulses, the process depends on a dialogue between the wound and the rest of the body. The next challenge is to learn how those conversations start, and how the body knows when to stop them.

(Anirban Mukhopadhyay is a geneticist by training and science communicator from New Delhi. anirban.genetics@south.du.ac.in)

Key Findings and Scientific Significance

1. Planarian Flatworms: Gut-Driven Whole-Body Regulation

Planarians can regenerate an entire organism from fragments due to abundant stem cells called *neoblasts*.

Contrary to expectations, these stem cells do not rely on local "niche" cells for guidance.

Using advanced gene-mapping (Slide-seqV2) and microscopy, scientists at the Stowers Institute for Medical Research found that:

- The intestine acts as a central signalling hub, releasing chemical cues that regulate stem-cell division across the body.
- Disruption of intestinal genes halted regeneration and even routine cell replacement.

Implication: Regeneration in planarians depends on diffuse metabolic and chemical communication, not a fixed local control centre.

2. Axolotls: Nervous System and Systemic 'Repair Mode'

Axolotls are famous for regrowing limbs via a local structure called the *blastema*.

A new study from the Harvard Stem Cell Institute reveals:

- Injury activates stress-response nerves, triggering organism-wide cell division.
- The stress hormone norepinephrine acts as a messenger, activating growth pathways (notably mTOR) throughout the body.
- This creates a temporary, systemic state of regenerative readiness, lasting about four weeks.

Importantly, regeneration remains spatially restricted to the injury site, controlled by molecular "brakes" that prevent uncontrolled growth.

Conceptual Shift: From Local Repair to Systemic Coordination

These studies suggest that regeneration is a cooperative, whole-organism process, integrating:

- Local wound-specific responses, and
- Global signals from organs such as the gut or nervous system.

Different species use different architectures—metabolic cues in flatworms, neural signals in salamanders—but the underlying principle of body-wide coordination is common.

As noted by researchers at Imperial College London and Duke University, this refines rather than contradicts earlier models of regeneration.

Relevance for Humans and Policy

Humans possess many of the same signalling pathways (e.g., stress hormones, mTOR), raising the possibility of latent regenerative potential.

However, scientists caution that parallels remain speculative; in mammals, molecular brakes may halt regeneration midway.

Policy relevance:

Advances in regenerative biology can inform future strategies in biotechnology, ageing research, trauma care, and organ repair.

Ethical and regulatory frameworks will be crucial as research moves closer to clinical translation.

Conclusion

The new findings from axolotls and planarian flatworms fundamentally recast regeneration as a whole-body event rather than a localised repair mechanism. Whether mediated by gut-derived metabolic signals or nervous-system-driven stress responses, regeneration emerges as a dialogue between injured tissues and the rest of the organism.

UPSC Prelims Practice Question

Ques : In the context of regeneration biology, the term blastema refers to:

(a) A cluster of immune cells preventing infection at the wound site

(b) A mound of undifferentiated cells that drives regrowth after injury

(c) A specialised stem-cell niche found only in mammals

(d) A permanent organ that stores regenerative hormones

Ans : (b)

Page 07
Syllabus : GS 3 : Science and Tech / Prelims

NASA has temporarily lost contact with its Mars Atmosphere and Volatile Evolution (MAVEN) spacecraft, a key Mars orbiter that has been operational for over a decade. Launched by NASA, MAVEN reached Mars in September 2014—just days before India's Mars Orbiter Mission (Mangalyaan). The loss of communication, reported in December, raises concerns not only for planetary science but also for Mars mission support systems, as MAVEN plays a crucial role as a communication relay for surface rovers.

Background: MAVEN Mission Profile

A NASA illustration depicting the MAVEN spacecraft orbiting Mars. AP

NASA loses touch with MAVEN craft which reached Mars just before Mangalyaan

Vasudevan Mukunth

NASA has lost contact with its Mars Atmosphere and Volatile Evolution (MAVEN) spacecraft, the Mars orbiter that has worked for more than a decade to study how the planet's atmosphere is escaping into space. The spacecraft went silent in early December, and engineers are still trying to re-establish communication.

MAVEN's job at Mars has been to measure the thin upper atmosphere and the ionosphere (charged particles high above the surface), and to watch how sunlight and the solar wind interact with them. These measurements help scientists estimate how Mars went from a planet that once had flowing water to the cold, dry world we see today.

Beyond science, MAVEN also carries a relay radio that can pass messages between the earth and rovers on the ground, including NASA's Curiosity and Perseverance.

On December 4, MAVEN sent its last full set of routine "health" data about its systems. Two days later, it passed behind Mars from the earth's point of view. This kind of temporary blackout is normal: when a planet blocks the line of sight, radio signals can't get through. But after MAVEN was expected to reappear, NASA's Deep Space Network didn't detect its usual signal. NASA publicly described the problem on December 9 and said it was investigating.

In an update on December 15, NASA reported a small clue: during an ongoing radio science campaign, the team recovered a brief fragment of tracking data from December 6. From that fragment, NASA said MAVEN appeared to be rotating in an unexpected way when it emerged from behind Mars. The signal's frequency also suggested MAVEN's orbit may have changed. NASA hasn't yet said what caused these changes.

MAVEN orbits Mars and repeatedly samples different heights above the planet, which is useful because the upper atmosphere ages with time of day, season, and solar activity. Its instruments measure gases and ions as well as the solar wind and magnetic environment around Mars. When it serves as a relay, MAVEN receives short UHF

MAVEN appeared to be rotating in an unexpected way. The signal frequency also suggested its orbit may have changed

(ultra-high-frequency) transmissions from a rover, then sends the data back to the earth using a high power radio link.

With MAVEN having gone silent, NASA has shifted more relay work to other orbiters, including the Mars Reconnaissance Orbiter and Mars Odyssey, and has coordinated with European orbiters as needed as well.

NASA launched MAVEN in November 2013 from Cape Canaveral in Florida. After a months-long cruise through interplanetary space, it reached Mars and entered orbit in September 2014. MAVEN was designed for a two-year primary mission but has continued operating on an extended mission since, building a long record of how Mars's upper atmosphere responds to the Sun.

India's Mars Orbiter Mission (MOM), or Mangalyaan, entered Mars orbit on September 24, 2014, days after MAVEN arrived. The Indian Space Research Organisation framed MOM as a technology demonstrator, with five instruments added for basic imaging and atmospheric studies.

Many in India often compared MOM to MAVEN at the time using their headline costs — about ₹450 crore for MOM v. $671 million for MAVEN — but the missions were built for different goals and payloads. MAVEN was also the more technically ambitious science mission.

- Objective: To study the Martian upper atmosphere, ionosphere, and interaction with solar wind in order to understand how Mars lost most of its atmosphere and surface water over geological time.
- Scientific Importance: MAVEN has helped explain the transition of Mars from a potentially habitable planet to the cold, arid world observed today.
- Operational Role: Beyond science, MAVEN serves as a relay orbiter, transmitting data between Earth and rovers such as Curiosity and Perseverance.
- Mission Design: Originally planned as a two-year mission, MAVEN has been operating in an extended phase, contributing to long-term datasets on solar–planet interactions.

What Went Wrong?

- On December 4, MAVEN transmitted its last complete set of routine health data.
- After a normal communication blackout caused by Mars blocking the Earth line-of-sight, the spacecraft failed to re-establish contact.
- NASA's Deep Space Network (DSN) later recovered a brief fragment of tracking data suggesting:
  - Unexpected rotation (possible attitude control anomaly).
  - A potential change in orbit.

The exact cause—whether due to hardware failure, software glitch, or external factors—remains under investigation.

Immediate Operational Response

Relay responsibilities have been shifted to other orbiters, including:

- Mars Reconnaissance Orbiter (MRO)

Coordination with European Mars orbiters

This ensures continuity of communication with surface missions, highlighting the redundancy and resilience built into interplanetary exploration architectures.

India Context: MAVEN vs. Mangalyaan

ISRO's Mangalyaan entered Mars orbit on September 24, 2014, shortly after MAVEN.

MOM was primarily a technology demonstrator, with limited scientific payload, while MAVEN was a dedicated atmospheric science mission.

Cost comparisons (₹450 crore for MOM vs. $671 million for MAVEN) are often misleading, as the objectives, payload complexity, and mission scope differed significantly.

Together, both missions underscored India's growing space credibility and the value of complementary international missions at Mars.

Broader Significance

Planetary Science: Loss or degradation of MAVEN would affect long-term datasets crucial for understanding atmospheric escape and habitability of planets.

Space Infrastructure Dependence: Mars exploration relies on a network of orbiters for relay and navigation, underlining the importance of cooperative and redundant systems.

Deep Space Mission Risks: The incident highlights the vulnerability of ageing spacecraft operating far beyond their design life, reinforcing the need for lifecycle planning and backup missions.

International Cooperation: Coordination with European orbiters reflects the collaborative nature of modern space exploration.

Conclusion

The temporary loss of contact with NASA's MAVEN spacecraft marks a significant moment in Mars exploration. While immediate scientific and operational risks have been mitigated through alternative orbiters, the incident underscores the challenges of sustaining long-duration deep space missions.

UPSC Prelims Practice Question

Ques: Consider the following statements about the MAVEN mission:

1. MAVEN was launched to study the lower atmosphere and surface geology of Mars.

2. It helps scientists understand how Mars lost its atmosphere over time.

3. It also functions as a communication relay for Mars rovers.

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

Ans : b)

UPSC Mains Practice Question

Ques: Compare and contrast India's Mars Orbiter Mission (Mangalyaan) with NASA's MAVEN mission. What does this comparison reveal about differing national approaches to space exploration?

Page 08 : GS 2 : Governance

In a significant judgment dated December 19, the Supreme Court of India has reinterpreted Corporate Social Responsibility (CSR) under Indian company law by placing environmental and wildlife protection within its enforceable legal meaning. While continuing its efforts to prevent deaths of the Great Indian Bustard caused by overhead power infrastructure, the Court has elevated CSR from a discretionary corporate activity to a constitutional and statutory obligation, rooted in Article 51A(g). This marks a doctrinal shift with far-reaching implications for conservation financing, corporate accountability, and sustainable development.

Core Elements of the Judgment

CSR as a Legal Obligation, Not Charity

The Court held that corporations, as legal persons, share the constitutional duty under Article 51A(g) to protect the environment and wildlife.

Consequently, expenditure on environmental conservation through CSR is not voluntary philanthropy but a means of discharging a constitutional obligation under the Companies Act framework.

Strengthening Conservation Financing

By reading environmental protection into CSR, the judgment strengthens the legal basis for compelling corporate financing for conservation, especially where corporate activity contributes to ecological harm.

For the Great Indian Bustard, this enables sustained funding for:

Undergrounding or rerouting power transmission lines

Breeding, rearing, and releasing chicks

Restoration and long-term maintenance of grassland ecosystems

Continuity with Earlier Judicial Interventions

In 2021, the Court restricted overhead transmission lines across nearly 99,000 sq. km of bustard habitat and mandated a committee-led feasibility assessment.

In 2024, an expert committee was constituted to balance species protection with renewable energy and climate commitments.

Step up

CSR as corporate obligation can support costs of restoring grasslands

The December 19 judgment by a Supreme Court Bench placing corporate environmental responsibility inside the legal meaning of corporate social responsibility (CSR) reframes how the Court reads CSR in Indian company law while continuing its attempts since 2021 to reduce deaths of great Indian bustards from power infrastructure. The Bench has treated the CSR regime as an enforceable obligation rather than an undertaking at companies' discretion while also reading social responsibility to include environmental and wildlife protection through the Companies Act itself. According to the Court, a corporation as a legal person shares the duty under Article 51A(g), which means spending CSR funds on environmental measures can be framed as discharging one's constitutional obligation rather than engaging in charity. For great Indian bustards, the Court has thus strengthened the legal basis for conservationists to demand corporate financing for projects to recover species endangered by corporate activity. The Court's 2021 interim order restricted overhead transmission lines across 99,000 sq. km and required a committee-led approach to feasibility and undergrounding. In 2024, it constituted an expert committee to balance species protection with climate commitments and renewable energy build-out, which the new order has operationalised. If CSR and project-linked financing become easier to compel, they can support the recurring costs of breeding and releasing chicks and of restoring grasslands and maintaining them.

However, the verdict is also a legal interpretation; it does not specify which companies must pay how much, where, when, and with what audit trail (the penalty for non-compliance will remain according to existing provisions). The Court's shift from a large-area approach, as in its 2021 order, to revised priority areas also reduces conflict with renewable energy deployments while pushing some of the onus to the accurate mapping of habitats – a problem given bustards move around and infrastructure risks can lie outside formal boundaries. The judgment improves the legal position for getting companies to pay for prevention and recovery and specifies a narrower but more detailed habitat and infrastructure plan. Whether it is sufficient will depend less on the doctrine it announces and more on whether governments and utilities can deliver the undergrounding and rerouting work at the required pace, and whether corporate funding translates to outcomes on the ground.

The present judgment operationalises this approach by refining priority areas and linking conservation needs with potential CSR and project-linked corporate funding.

Limitations and Implementation Challenges

Lack of Operational Clarity: The verdict does not specify which companies must contribute, the quantum of CSR funding, timelines, or detailed audit mechanisms. Enforcement remains within existing CSR compliance provisions.

Habitat Mapping Constraints: The shift from a large-area blanket approach to revised priority zones reduces conflict with renewable energy expansion but increases dependence on accurate habitat mapping, a challenge given the migratory and dynamic nature of bustards.

Execution Bottlenecks: The success of the judgment depends on:

Government and utility capacity to implement undergrounding and rerouting at scale

Effective coordination between regulators, conservationists, and corporations

Translation of CSR funding into measurable ecological outcomes rather than procedural compliance

Broader Significance

Environmental Jurisprudence: Expands the scope of CSR through constitutional interpretation, reinforcing the "polluter pays" and precautionary principles.

Corporate Governance: Signals stricter expectations of corporate accountability beyond profit maximisation.

Sustainable Development: Attempts to reconcile biodiversity conservation with renewable energy and infrastructure expansion.

Conclusion

The Supreme Court's December 19 judgment represents a doctrinal advance in Indian environmental governance by embedding wildlife and environmental protection within the enforceable framework of CSR. It improves the legal position for mobilising corporate resources for conservation, particularly for critically endangered species like the Great Indian Bustard, and aligns corporate action with constitutional duties. However, its real impact will depend less on the legal principle it announces and more on effective implementation—clear allocation of responsibility, accurate ecological mapping, timely infrastructure modification, and outcome-oriented use of CSR funds. The verdict thus opens a stronger pathway for conservation financing, but its success will be judged on results on the ground rather than intent in law.

UPSC Prelims Practice Question

Ques : With reference to the recent Supreme Court judgment on Corporate Social Responsibility (CSR), consider the following statements:

1. The Supreme Court has held that CSR spending by companies is purely voluntary in nature.

2. The Court interpreted CSR to include environmental and wildlife protection under the Companies Act.

3. Corporations, as legal persons, were held to share duties under Article 51A(g) of the Constitution.

Which of the statements given above is/are correct?

A. 2 and 3 only

B. 1 and 3 only

C. 2 only

D. 1, 2 and 3

Ans : A)

UPSC Prelims Practice Question

Ques : Critically examine the role of Article 51A(g) in strengthening environmental governance in India. How has the judiciary used fundamental duties to shape corporate responsibility? **(250 words)**

Page 10 : GS 2 & 3 : Indian Polity & Environment / Prelims

Recurring episodes of severe air pollution in New Delhi and the wider NCR have transformed environmental degradation from a policy concern into a constitutional question. With public health repeatedly compromised by hazardous levels of particulate matter, judicial interpretations linking environmental protection to the right to life under Article 21 have gained renewed relevance. The debate now centres on whether India should move beyond judicial creativity and explicitly recognise the right to a clean and healthy environment within the constitutional framework, thereby strengthening state accountability and citizen responsibility.

On the right to a healthy environment

Amid rising air pollution, legal interpretations linking environmental rights to the right to life and explicit constitutional provisions to enforce environmental protections, emphasising the state's responsibility, is the need of the hour

LETTER & SPIRIT

C.B.P. Srivastava

Come winter and the national capital wakes up with thick smog and severely low air quality, which cripples the city and poses serious health challenges. The directions given by the Delhi government and the Directorate of Education to ensure work from home and to run classes in schools in hybrid mode respectively do not bring much succour, as possible health hazards continue to haunt Delhiites and those living in the National Capital Region (NCR) districts.

Some of the major causes of air pollution include the burning of fossil fuels, transport, industrial processes, waste management, demolition and agriculture. However, particulate matter is the most deadly of them all causing major health hazards like stroke, heart and lung diseases which kill large number of people every year.

Severity of particulate matter

Particulate matter is defined for the purpose of quality regulations. Particles having a diameter of 10 microns or less (PM10) may enter the body through breathing and adversely affect health. On the other hand, fine particulate matter includes particles having a diameter of less than 2.5 microns (PM2.5). Particles emitted from the burning of diesel called DPM (Diesel Particulate Matter) are mostly less than 1 micron in size and constitute a sub-category of PM2.5. These cause severe health hazards, even in children. In this context, the Commission for Air Quality Management (CAQM) has amended the Graded Response Action Plan (GRAP) and made it mandatory to close schools in Delhi and NCR districts under Phases 3 and 4 of the plan. Earlier, the decision to implement these measures was at the discretion of the State government. Moreover, as an additional directive under Phase 3 of the GRAP, State governments will now have to stagger the timings of public offices and municipal bodies in Delhi and NCR districts.

Constitutional provisions

Though the original Constitution did not mention any provisions for environmental protection, the concepts of natural justice and protection of nature were enshrined in the entire constitutional scheme. This is the reason why, by way of literal interpretation, the Supreme Court gave its opinion that clean environment shall be included in the meaning of life under Article 21 in *Maneka Gandhi versus Union of India, 1978*.

However, over the years, especially after growing demands for proper safeguards for the protection of the environment and sustainable development, India has adopted policies for which it needs proper and effective constitutional provisions. This led to the insertion of Articles 48A and 51A (g) as responsibilities of the state and citizens respectively. A significant aspect of Article 48A is that the Constitution intends to make agriculture and environment compatible. In *Subhash Kumar versus State of Bihar, 1991*, the Supreme Court read Articles 48A and 51A (g) with Article 21, and inferred that the state is constitutionally obliged to take steps to protect and improve the environment so that every citizen is able to enjoy his right to pollution free air and water, which are necessary for a meaningful life.

However, since the mid-1980s, increasing privatisation and economic liberalisation have degraded the environment on a large scale due to which the judiciary had to step in to provide guidelines to strike a balance between economic development and environmental protection. The judiciary's commitment to social good in general, and environmental protection in particular, has resulted in the innovative use of Public Interest Litigations (PILs) under Articles 32 and 226 of the Constitution, as a tool for social and environmental justice.

Moreover, a healthy environment is also one of the elements of a welfare state. Under Section 2(a) of the Environment (Protection) Act, 1986, 'environment' includes water, air and land, and the interrelationship which exists between the three and human beings, other living creatures, plants, microorganisms and property. The right to live in an environment free of danger of disease and infection is an important attribute of the right to live with human dignity.

The right to live in a healthy environment as part of Article 21 of the Constitution was first recognised in *Rural Litigation and Entitlement Kendra versus State of U.P., 1985*. In 1987, the Supreme Court in *M.C. Mehta versus Union of India* treated the right to live in a pollution free environment as part of the fundamental right to life under Article 21 of the Constitution.

Disasters and environmental protection

During times of disasters and calamity, whether natural or man-made, the issue of protecting the environment assumes greater significance. The concept of 'absolute liability' was introduced for disasters arising out of the storage, leak or use of hazardous substances such as in the Oleum Gas Leak case. While strict liability is the concept that makes a defendant responsible for the consequences of an action, even if he did not intend to cause harm or was not at fault, absolute liability is the imposition of legal responsibility on a party for damages caused, regardless of fault or negligence, but with certain exceptions. Moreover, strict liability is used in both criminal and civil law.

Two more principles that assume significance in cases of disasters which affect the environment include the 'precautionary principle' and the 'polluter pays principle'. These concepts were explained in the *Vellore Citizens' Welfare Forum versus Union of India, 1996*. The precautionary principle is an approach wherein states should adopt precautionary measures if there are serious threats to the environment. According to the United Nations, this principle needs to be widely adopted by nations according to their own capabilities. In cases where there are threats of serious or irreversible damage, a lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures which could prevent environmental degradation. The precautionary principle is a part of the law of the land and should be applied when there is a threat of serious or irreversible environmental damage. The traditional concept that development and ecology are opposed to each other, is no longer acceptable. Sustainable development should be prioritised.

On the other hand, the polluter pays principle is the commonly accepted practice that those who are responsible for the pollution should bear the costs of managing it to prevent damage to human health or the environment. For instance, a factory that produces a potentially poisonous substance as a by product of its activities is held responsible for its safe disposal. The polluter pays principle is part of a set of broader principles to guide sustainable development worldwide.

Public trust doctrine

Another major idea behind the principles of environmental protection is the public trust doctrine. In *M.C. Mehta versus Kamal Nath*, the Supreme Court explained the doctrine as a reflection of a social contract between the state and the people, in which the state serves as the trustee while the people or the communities own the resources. Although the state holds certain rights over said resources, it shall not utilise them for personal gains and shall be used only for the benefits of the people.

In India, Clause (b) of Article 39 provides that material resources shall be owned by the community and Clause (c) of the Article says that the state shall have the responsibility to prevent any concentration of the means of production. Further, when the state takes steps for the welfare of the people, the citizens have a duty to allow the state to do so. Thus, the relationship of the state and citizens is guided by *jus publicum*, or public law. It also refers to the right, title or dominion of public ownership which means that the government has the right to own resources for the benefit of the public. This is very well articulated in the Constitution, especially in the Directive Principles.

For example, in *Radhey Shyam Sahu*, the Supreme Court held that the doctrine of public trust emanates from the provisions of Article 21 of the Constitution protecting the life of the people and put the state under the obligation to maintain public parks for the citizens.

So far as the effects of climate change are concerned, the top Court in *M. K. Ranjitsinh versus Union of India, 2024* recognised the right against adverse effects of climate change as being part of the right to life under Article 21 and also with the right to equality under Article 14 of the Constitution.

Despite the fact that national and foreign governments have claimed to have taken steps for the protection of the environment, their claims have been far from satisfactory. Moreover, as judicially recognised rights cannot be directly claimed unless linked to any of the rights provided in Part III of the Constitution, the state may also become reluctant to take steps with concern. It is therefore, the opportune moment to expressly include the right to a clean and healthy environment in the Constitution to make both the state and the citizens equally responsible.

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Intense pollution: A layer of smog seen over moving traffic near the ITO area, in New Delhi on December 22. SUSHIL KUMAR VERMA

THE GIST

The directions given by the Delhi government and the Directorate of Education to ensure work from home and to run classes in schools in hybrid mode respectively do not bring much succour, as possible health hazards continue to haunt Delhiites and those living in the National Capital Region (NCR) districts.

During times of disasters and calamity, whether natural or man-made, the issue of protecting the environment assumes greater significance.

Despite the fact that national and foreign governments have claimed to have taken steps for the protection of the environment, their claims have been far from satisfactory.

Environmental Pollution and Public Health

Particulate Matter (PM10 and PM2.5) is the most lethal pollutant, linked to respiratory, cardiovascular diseases, and premature deaths.

Diesel Particulate Matter (DPM), a sub-category of PM2.5, is particularly harmful due to its ability to penetrate deep into the lungs.

In response, the Commission for Air Quality Management has tightened the Graded Response Action Plan (GRAP), mandating school closures and staggered office timings under severe pollution phases.

These measures, while necessary, are largely reactive and underline the need for a stronger rights-based environmental governance framework.

Constitutional and Judicial Evolution

Article 21 and Environmental Rights

The Supreme Court of India has consistently interpreted the right to life to include environmental quality.

In Maneka Gandhi v. Union of India, Article 21 was given an expansive interpretation, laying the foundation for environmental jurisprudence.

Subsequently, Subhash Kumar v. State of Bihar affirmed the right to pollution-free air and water as integral to life with dignity.

Directive Principles and Fundamental Duties

The 42nd Constitutional Amendment inserted Article 48A (State's duty to protect the environment) and Article 51A(g) (citizens' duty).

These provisions strengthened constitutional intent but remain non-justiciable, limiting direct enforcement.

Public Interest Litigation (PIL)

Through Articles 32 and 226, the judiciary expanded access to environmental justice.

Landmark cases like M.C. Mehta v. Union of India institutionalised the right to a pollution-free environment.

Principles Governing Environmental Protection

Absolute Liability: Evolved in the Oleum Gas Leak case, imposing uncompromising responsibility on industries handling hazardous substances.

Precautionary Principle & Polluter Pays Principle: Recognised in Vellore Citizens' Welfare Forum v. Union of India, these principles prioritise prevention over cure and internalise environmental costs.

Public Trust Doctrine: In M.C. Mehta v. Kamal Nath, the Court held the State as a trustee of natural resources, bound to protect them for public use.

Climate Change and Emerging Jurisprudence

In M.K. Ranjitsinh v. Union of India, the Supreme Court explicitly recognised the right against adverse effects of climate change as part of Articles 21 and 14.

This marks a shift from pollution-centric cases to broader ecological and intergenerational justice concerns.

Limitations of the Current Framework

Judicially evolved rights lack direct enforceability unless linked to Part III.

Over-reliance on courts may lead to executive inertia.

Absence of an explicit constitutional right dilutes uniform policy implementation across states.

Conclusion

The jurisprudential expansion of environmental rights under Article 21 has played a transformative role in India's environmental governance. However, recurring pollution crises and the growing threat of climate change expose the limitations of relying solely on judicial interpretation. Explicit constitutional recognition of the right to a clean and healthy environment would convert moral and directive obligations into enforceable duties, ensuring proactive state action and responsible citizenship. For a welfare state committed to sustainable development, embedding environmental rights within the Constitution is no longer aspirational but imperative.

UPSC Mains Practice Question

Ques : Critically examine how the Indian judiciary has interpreted the right to a clean and healthy environment as an integral part of Article 21 of the Constitution. Do you think there is a need for an explicit constitutional right to a healthy environment? Justify your answer. **(250 Words)**

Page : 08 : Editorial Analysis

Right to Disconnect: Drawing the line after work

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The Right to Disconnect Bill has been introduced as a private member's bill, a form of legislation that is rarely enacted. It comes in the context of India's recent consolidation of labour law through the four labour codes, which regulate working hours, overtime, and employer control. Against this background, the Bill marks a pivotal moment in Indian labour law. In this age of digital technologies, work increasingly extends beyond the physical workspace. Therefore, it is only prudent for the legislature to reconsider how labour law responds to constant connectivity. However, it does so in a framework that regulates work primarily through time-based constructs.

Indian labour law is yet to define what constitutes as 'work' in a digital economy. While the Bill regulates after-hours communication, it does so without clarifying the scope of 'work'. This omission becomes crucial when the Bill is read alongside other codes governing working time and employer control. Therefore, we examine unresolved questions concerning the definition of 'work', the scope of the proposed right, and its potential constitutional character, while drawing a comparison as well.

Some ambiguity

The Bill provides employees the right to not respond to work-related calls or mails beyond the prescribed working hours. However, it fails to address whether such after-hours engagement falls within the legal constructs of work.

This ambiguity is particularly obvious in the interaction of the Bill with the Occupational Safety, Health and Working Conditions Code, 2020, which continues governing working hours and overtime in Indian labour law. However, the Bill does not clarify whether after-hours digital engagement amounts to "work" under the Code. This inadvertently creates a conceptual gap where communication is regulated without being integrated in the legal framework governing working time. As a consequence, the right to disconnect operates more as a behavioural norm than a labour standard.

> Until the Bill directly addresses how digital labour complies with existing labour laws, it continues to rely on a framework designed to regulate physical workplaces

Approach of other jurisdictions

The gaps become apparent when compared with jurisdictions that have already imbibed the right to disconnect in their legal regimes. In the European Union, employer control became a key parameter for assessing working time. Through judicial precedents, an expansive definition was adopted, which included on-call time, standby periods, and other forms of availability, even where no active work is performed but the employer continues to exercise control. This principle further evolved through decisions such as *SIMAP, Tyco,* and *Jaeger*, where the European Court of Justice equated employer's control with work. Similarly, France does not try to redefine work. Instead, its labour law demarcates working time and rest time. Periods of availability under employer control are considered working time, and digital communication is integrated into this framework through collective bargaining. Germany enforces strict working time and rest period regulations as well. These comparisons are not offered for replication in India, but to engage with an unresolved legal question: when does an employee's time belong to the employer?

The Indian labour code contains mandatory rules, prescribing limits on working hours, and contractual terms negotiated through employer policy and agreements. The Right to Disconnect Bill does not specify whether the given right is a mandatory labour standard or its term can be modified via a contract.

Another question concerns the Bill's constitutional character. The freedom to disengage bears an evident relationship with Article 21 of the Constitution. Yet the Bill neither traces its constitutional lineage nor articulates how these guarantees are to be realised within the workplace. The Bill leaves unresolved whether the right to disconnect is purely statutory or indicative of a deeper constitutional engagement between work and individual autonomy.

Conclusion

The Bill recognises that digital work has blurred the traditional boundaries between working time and personal time, but it does not explain how this transformation is to be accommodated within the legal framework which governs working hours, overtime and employer control.

A comparative study reveals that the right to disconnect becomes effective when an employee's time is treated as working time. This gap is yet to be filled. Until the Bill addresses how digital labour complies with existing labour laws, it will continue to rely on a framework designed for regulating physical workplaces.

The Bill leaves open whether the right has a constitutional character. Although there is an evident connection between Right to Disconnect and individual autonomy under Article 21 of the Constitution, this is not made apparent by the legislature. The Bill neither identifies this gap nor acknowledges it, which leaves it open to divergent interpretations.

For these reasons, the Bill is best seen as the beginning of a broader conversation, one that the Indian labour law jurisprudence will eventually address.

GS Paper 2 : Governance

UPSC Mains Practice Question : Discuss the significance of the Right to Disconnect in the digital economy. What legal and constitutional challenges does its implementation face in India? (150 words)

Context :

The proposed Right to Disconnect Bill, introduced as a private member's Bill, represents an important intervention in India's labour law discourse in the age of digital work. With remote work, smartphones, and instant communication blurring the boundary between professional and personal life, the Bill seeks to give employees a legal right to disengage from work-related communication beyond prescribed working hours. Coming after the consolidation of labour laws into four labour codes, the Bill signals recognition of a new form of workplace stress—constant digital availability—but also exposes conceptual and legal gaps in India's existing labour framework.

Key Issues and Analysis

1. Undefined Concept of 'Work' in the Digital Economy

Indian labour law continues to regulate employment largely through time-based constructs such as working hours and overtime.

The Bill restricts after-hours communication but does not clarify whether digital engagement outside office hours amounts to "work".

This creates a disconnect with the Occupational Safety, Health and Working Conditions Code, 2020, which governs working time.

As a result, the right risks functioning more as a behavioural guideline than as an enforceable labour standard.

2. Employer Control vs Employee Autonomy

In digital work environments, employer control may persist even without active labour (e.g., expectation to respond to emails).

The Bill does not engage with this idea of control, leaving unanswered the question: When does an employee's time legally belong to the employer?

3. Comparative Perspective

European Union jurisprudence treats periods of employer control—including standby and on-call time—as working time.

France integrates the right to disconnect within labour law by clearly demarcating work time and rest time, often through collective bargaining.

Germany enforces strict limits on working hours and mandatory rest periods.

These examples show that the right to disconnect becomes meaningful only when digital availability is legally recognised as part of working time—an issue India has yet to address.

4. Mandatory Right or Contractual Term?

Indian labour law combines mandatory statutory protections with contractual flexibility.

The Bill does not clarify whether the right to disconnect is non-negotiable or can be diluted through employment contracts or workplace policies.

This ambiguity may weaken enforcement, especially for workers with lower bargaining power.

5. Constitutional Dimension

The right to disconnect has a clear linkage with Article 21 of the Constitution, which protects life, personal liberty, and by extension, dignity and mental well-being.

However, the Bill does not articulate this constitutional foundation, leaving it unclear whether the right is:

purely statutory, or

reflective of a deeper constitutional guarantee of individual autonomy at the workplace.

This omission opens the door to varied judicial interpretations.

Conclusion

The Right to Disconnect Bill is a timely and necessary acknowledgement of the challenges posed by digital labour and constant connectivity. However, it stops short of addressing the structural transformation required in Indian labour law. By failing to define digital engagement as "work", clarify its relationship with existing labour codes, or articulate its constitutional grounding under Article 21, the Bill remains conceptually incomplete.

For UPSC purposes, the Bill should be seen not as a final solution but as the starting point of a broader legal and constitutional conversation on work, autonomy, and dignity in the digital age. Its effectiveness will ultimately depend on whether Indian labour jurisprudence evolves to recognise employer control in digital spaces and redefines working time beyond the physical workplace.