CURRENTLY - FROM NEWS TO NOTES

DAILY CURRENT AFFAIRS

The Hindu & The Indian express

Headline	Source
MPC holds repo rate at 5.5%, maintains GDP growth at 6.5%	The Hindu, Page 12 • Prelims: Monetary Policy :Repo rate, SDF, LAF, MSF • Mains (GS3): Monetary policy, inflation-growth balance
Decoding China — the lessons for a vulnerable India	The Hindu, Page 8 • Prelims: Rare earth metals • Mains (GS2): India-China relations, economic security

Headline	Source
What is the potential of biochar?	The Hindu, Page 10 • Prelims: Biochar, carbon market • Mains (GS3): Climate change, waste-to-energy, soil health
How Scientists Finally Identified the Elusive Killer of Starfish	The Indian Express, Page 15 • Prelims: Starfish • Mains (GS3): Marine biodiversity, species decline
Fishing gear a major source of microplastic contamination	The Hindu, Page 6 • Prelims: Microplastics, ALDFG • Mains (GS3): Marine pollution, plastic waste control
King of the Hill (Red-eared slider sighting)	The Hindu, Page 3 • Prelims: Red-eared slider, invasive species • Mains (GS3): Biodiversity threat, wetland ecology

MPC holds repo rate at 5.5%, maintains GDP growth at 6.5%

Headwinds emanating from prolonged geopolitical tensions, volatility in global financial markets posing risks to growth outlook, says committee

Lalatendu Mishra
MUMBAI

The Monetary Policy Committee (MPC) of the Reserve Bank of India (RBI) on Wednesday voted to maintain the policy repo rate at 5.50% and continue with its neutral stance after assessing the current and evolving macroeconomic situation.

Consequently, the standing deposit facility (SDF) rate under the liquidity adjustment facility (LAF) remains unchanged at 5.25% and the marginal standing facility (MSF) rate and the bank rate at 5.75%.

This decision is towards achieving the medium-term target for consumer price index (CPI) inflation of 4% within a band of +/- 2%, while supporting growth. The MPC took note that the global environment continues to be challenging. Global growth, though revised upwards by the IMF, remains muted. The pace of disinflation is slowing down, with some advanced economies even witnessing an uptick in inflation, it noted.

In this backdrop, the domestic growth remains resilient and is broadly evolving along the lines of our assessment, it stated.

However, the prospects of external demand remain uncertain amid ongoing tariff announcements and trade negotiations. The headwinds emanating from prolonged geopolitical tensions, persisting global uncertainties, and volatility in global financial markets pose risks to the growth outlook, it observed. Taking various factors into account, the projection for real GDP growth for 2025-26 has been retained at 6.5%, with Q1 at 6.5%, Q2 at 6.7%, Q3 at 6.6% , and Q4 at 6.3%.

Real GDP growth for Q1:2026-27 is projected at 6.6%. The risks are evenly balanced.

Stating that CPI headline inflation declined for the eighth consecutive month to a 77-month low of 2.1% (y-o-y) in June 2025, the MPC observed that this was driven primarily by a sharp decline in food inflation led by improved agricultural activity and various supply side measures. However, core inflation, which remained within a narrow range of 4.1-4.2% during February-May, increased to 4.4% in June, driven partly by a continued increase in gold prices, it stated adding that the inflation outlook for 2025-26 had become more benign than expected in June.

Considering various factors, CPI inflation for 2025-26 has been projected at 3.1% [as compared with 3.7% previously] with Q2 at 2.1%; Q3 at 3.1% ; and Q4 at 4.4%. CPI inflation for Q1:2026-27 is projected at 4.9%. The risks are evenly balanced.

"Despite a challenging external environment, the Indian economy is navigating a steady growth path with price stability," RBI Governor Sanjay Malhotra said in his Monetary Policy statement.

Policy matters: RBI Governor Sanjay Malhotra delivering the monetary policy statement on Wednesday. PTI

Context:

Amid global uncertainties like geopolitical tensions and market volatility, the RBI's Monetary Policy Committee kept the repo rate unchanged at 5.5% to ensure price stability while supporting economic growth. Despite global risks, India's inflation is easing, and GDP growth remains strong at 6.5%, prompting a neutral policy stance.

KEYWORDS EXPLAINED:

Standing Deposit Facility (SDF):

A tool introduced by RBI in 2022 to absorb excess liquidity without collateral. It offers interest to banks for parking funds with RBI overnight.

- Current Rate: 5.25%

Liquidity Adjustment Facility (LAF):

A mechanism for managing liquidity using repo (lending to banks) and reverse repo (borrowing from banks) operations.

- It includes repo rate and reverse repo rate operations.

Marginal Standing Facility (MSF):

Allows banks to borrow overnight from RBI at a rate higher than the repo rate in case of acute liquidity shortage.

- Current Rate: 5.75%

Disinflation:

A decrease in the rate of inflation, i.e., prices are still rising but at a slower pace than before. It is not deflation (which is a fall in prices)

Real GDP Growth:

The growth rate of the economy adjusted for inflation, reflecting the actual increase in goods and services produced.

- Projection for 2025-26: 6.5%
- Q1 of 2026-27: 6.6%

The terms 'Marginal Standing Facility Rate' and 'Net Demand and Time Liabilities', sometimes appearing in news, are used in relation to

(a) banking operations
(b) communication networking
(c) military strategies
(d) supply and demand of agricul- tural products

[PYQ 2017]

If the RBI decides to adopt an expansionist monetary policy, which of the following would it not do?

1. Cut and optimize the Statutory Liquidity Ratio
2. Increase the Marginal Standing Facility Rate
3. Cut the Bank Rate and Repo Rate

Select the correct answer using the code given below:

1. (a) 1 and 2 only
2. (b) 2 only
3. (c) 1 and 3 only
4. (d) 1, 2 and 3

[PYQ 2020]

Decoding China — the lessons for a vulnerable India

Shashi Tharoor
is a former Under-Secretary General of the United Nations, a fourth-term Member of Parliament (Congress), Lok Sabha, for Thiruvananthapuram, Chairman of the Parliamentary Standing Committee on External Affairs, and the Sahitya Akademi Award-winning author of 27 books, including 'Pax Indica: India and the World of the 21st Century' (2012)

The exodus of over 300 Chinese engineers from Foxconn's pivotal iPhone 17 manufacturing facilities in Tamil Nadu and Karnataka — a recent move ostensibly executed under corporate directive – is far more than an administrative recalibration. It is a meticulously calibrated stratagem, designed to arrest India's burgeoning manufacturing ambitions and to perpetuate a "unipolar Asia" under Beijing's overarching economic hegemony.

A geo-economic move

This calculated withdrawal is not simply a logistical reshuffling. It is a subtle, yet potent, geo-economic manoeuvre by a rival apprehensive of a rising India. The recall of these highly specialised technicians, possessed of invaluable expertise in establishing sophisticated production lines, optimising operational efficiencies, and troubleshooting the labyrinthine complexities of modern manufacturing, represents a deliberate impediment to the crucial transfer of technology. Such knowledge is the bedrock upon which India seeks to construct its edifice of advanced electronics manufacturing, and its withholding strikes at the very heart of India's aspirational ascent.

In addition, China has leveraged its dominance in rare earth production and processing by restricting exports of rare earths (which include elements such as gallium, germanium, graphite), and rare earth magnets, which are crucial for electric vehicles and electronics, to India. China has also imposed curbs on the export of other critical minerals that are vital for various high-tech industries. There have also been informal trade restrictions on the export of capital equipment from China to India, including high-end manufacturing equipment for electronics assembly and other sectors, heavy-duty boring machines and solar equipment, severely impacting India's ability to set up and expand its own manufacturing facilities.

The broader implication of these actions, particularly the recall of engineers and restrictions on specialised equipment, is a deliberate attempt to limit the transfer of advanced manufacturing technology and know-how to India. This aims to keep India dependent on Chinese inputs and prevent it from developing a truly self-reliant high-value manufacturing base. Crucially, many of these restrictions are not formalised bans but are implemented through verbal instructions and administrative delays. This makes them harder to directly challenge but equally effective in disrupting supply chains, increasing costs, and creating uncertainty for Indian manufacturers.

In essence, China's strategy is multi-pronged, leveraging its control over crucial raw materials, manufacturing equipment, and even human capital to impede India's manufacturing ascent, especially in the high-stakes electronics and emerging technology sectors. These actions, when viewed through the prism of Beijing's anxieties concerning India's emergence as a potentially formidable manufacturing competitor in an era of "friend-shoring" by the West, align perfectly with its broader strategic calculus. China's economic success is increasingly predicated upon maintaining robust export revenues.

Consequently, any nation daring to challenge its pre-eminence in global manufacturing, particularly in high-value sectors such as electronics, is inevitably perceived not merely as a competitor but also as an existential threat. The withdrawal of these engineers, therefore, constitutes a potent stratagem to disrupt India's trajectory and safeguard China's long-entrenched export market share and economic primacy in the region and beyond. India's ambition to transform itself into a globally competitive manufacturing hub is seen in Beijing as a direct challenge to China's long-term stability.

The reality in China

Consider the demographic exigencies currently confronting China: an ageing and progressively shrinking populace, an unfortunate legacy of the protracted one-child policy, coupled with a palpable erosion of wealth occasioned by an enduring property crisis – even as local satraps exceed production targets in their zeal to impress Beijing. This widening structural imbalance between an excessive production capacity and faltering domestic consumption increasingly compels China to lean heavily on export revenues to underwrite its fiscal outlays and maintain a semblance of economic progress. As its social welfare and pension liabilities burgeon exponentially, the Chinese government finds itself under mounting fiscal duress. Any reduction of export revenues would directly impinge upon Beijing's capacity to fund critical domains such as domestic security and military expenditure, potentially precipitating an undesirable degree of social instability.

China's formidable trade surplus, now on the cusp of a trillion dollars, is not solely a testament to its industrial prowess but also a stark manifestation of weak internal consumption and persistent industrial overcapacity. The People's Bank of China's repeated interest rate reductions on savings accounts have largely failed to ignite internal demand. This chronic overcapacity, therefore, constrains Chinese enterprises to aggressively depress prices and inundate international markets in a desperate bid to remain solvent – a strategy that has, perhaps ironically, severely eroded profitability across a plethora of sectors. As a result, China's determined endeavours to stymie competition are not merely a reflection of simple geopolitical rivalry. Rather, they are an undeniable reflection of profound domestic compulsions. Should India, by dint of astute policy and diligent execution, succeed in getting its house in order and convincingly demonstrate the potential to compete comprehensively in the global manufacturing landscape, Beijing is highly likely to escalate its countermeasures. These could range from the insidious pressures of economic coercion to outright military posturing, all in a relentless quest to safeguard its core economic interests and, by extension, its internal stability.

China's determined moves to target India are part of a meticulously calibrated plan to safeguard its core economic interests and its internal stability

However, the news of the U.S. raising India's tariffs to 50%, even while China enjoys a 90-day exemption from punitive tariffs despite buying more Russian oil and gas than India does, makes India less of a threat to China. While India has been seen as a key partner in western efforts to diversify supply chains away from China, the imposition of the new U.S. tariffs serves as a reminder that all alignments carry their own fragilities, and underscores the need for India to build true strategic autonomy. The Indian Prime Minister's forthcoming visit to Beijing comes against this complex backdrop.

An appraisal of India's strengths, shadows

China's industrial pre-eminence is not fortuitous or trivial; it is a systemic dominance that spans critical and emerging sectors, from the esoteric realms of Artificial Intelligence and quantum computing to the cutting-edge frontiers of 6G telecommunications and electric vehicles. We need to understand that China does not merely export goods; it orchestrates and largely controls global supply chains in these advanced technologies. Even its overcapacity, otherwise a sign of economic infirmity, is being deftly weaponised as a strategic instrument for price suppression and audacious market capture. The aggressive pricing strategies employed by behemoths such as BYD in the electric vehicle segment are a quintessential illustration: by flooding global markets with irresistibly priced goods, China effectively stifles nascent competition and inexorably solidifies its global market share. This is economic statecraft in action.

In stark contrast, India's manufacturing ecosystem, despite its vibrant aspirations, remains undeniably nascent. The cherished dream of transforming into a global "manufacturing hub" frequently founders upon a litany of formidable hurdles, including persistent infrastructure lacunae and the pervasive sclerosis of bureaucratic red tape. We remain regrettably reliant on imports for a pantheon of crucial components – ranging from sophisticated chips and engines to semiconductors and sensors – even for the foundational "screwdriver technology" indispensable for basic assembly. This profound reliance on external sources underscores the considerable ground India must traverse to genuinely metamorphose into a self-sufficient manufacturing powerhouse. "Make in India" still needs help from outside India.

From Beijing's vantage point, China has nothing to worry about yet; its actions against India are an effort to neutralise potential "noise" within its immediate periphery while it assiduously scales up its economic and political corridors with key strategic partners across the sprawling geographies of Pakistan,the Association of Southeast Asian Nations (ASEAN), Africa, and Latin America. India's narrative of offering an alternative to the Chinese behemoth falters on our own dependence. If India genuinely harbours the ambition to "compete" on the global stage, it needs a laser-like focus on its own foundational development. That is what China's behaviour has taught India: The onus is on us Indians.

Context:

Over 300 Chinese engineers have withdrawn from Apple supplier Foxconn's facilities in India — a move with wider geo-economic implications tied to China's strategic industrial policies.

Key Points:

China's Strategic Withdrawal from India:

- **Not just corporate reshuffling, but a deliberate strategy to stall India's rise as a manufacturing rival.**
- **Aimed at protecting China's dominance in electronics and other high-tech sectors.**

China's Levers of Control:

- **Restricts exports of rare earth minerals (like graphite, gallium) essential for electronics.**
- **Bans export of certain manufacturing equipment and tech to India.**
- **Uses industrial policy, subsidies, and state support to dominate supply chains.**

China's Economic Tactics:

- Combines state direction, export control, and tech nationalism.
- Promotes Chinese champions like BYD and uses platforms like BRI for global influence.
- China's growth is less about free market and more about state-led capitalism.

India's Vulnerability:

- India lacks comparable state support and suffers from regulatory and administrative bottlenecks.
- The Chinese engineer exit may delay India's ambitions to be a global electronics hub.

Lessons for India:

- Need for resilient, self-reliant supply chains.
- Move beyond just "Make in India".
- Diversify manufacturing inputs and adopt long-term strategic industrial policy.

What is the potential of biochar?

What are the byproducts of biochar production and how can they generate additional electricity and fuels? How can biochar help the construction sector? Why does biochar remain underrepresented in carbon credit systems? How should one enable large-scale adoption of biochar?

EXPLAINER

Harishankar Kopperi
Suresh N.S.

The story so far:

With the Indian carbon market set to be launched in 2026, CO2 removal technologies such as biochar are expected to play a crucial role. Biochar is a type of charcoal rich in carbon and is produced from agricultural residue and organic municipal solid waste. It offers a sustainable alternative to manage waste and capture carbon. However, to truly serve as a scalable pathway for negative emissions across sectors, biochar requires participation and support from multiple stakeholders.

What is biochar's potential?

India generates over 600 million metric tonnes of agricultural residue and over 60 million tonnes of municipal solid waste every year. A significant portion of both is burnt openly or dumped in landfills, leading to air pollution from particulate matter and greenhouse gases such as methane, nitrous oxide, and CO2.

By using 30% to 50% of surplus waste, India can produce 15-26 million tonnes of biochar and remove 0.1 gigatonnes of CO2-equivalent annually. Byproducts of biochar production, such as syngas (20-30 million tonnes) and bio-oil (24-40 million tonnes), can generate additional electricity and fuels. Theoretically, utilising syngas could generate around 8-13 TWh of power, equivalent to 0.5-0.7% of India's annual electricity generation, replacing 0.4-0.7 million tonnes of coal per year. Bio-oil can likewise potentially offset 12-19 million tonnes (or 8%) of diesel or kerosene production annually, leading to lower crude oil imports and reducing more than 2% of India's total fossil-fuel-based emissions.

How can biochar be a carbon sink?

Biochar can hold carbon in the soil for 100-1,000 years due to its strong and stable characteristics, making it an effective long-term carbon sink. Its application across different sectors provides scalable opportunities for reducing emissions.

Removing emissions: A biochar pit and graded sticks. GETTY IMAGES

In agriculture, applying biochar can improve water retention, particularly in semi-dry and nutrient-depleted soils. This, in turn, can abate nitrous oxide emissions by 30-50%. Notably, nitrous oxide is a greenhouse gas with 273-times the warming potential of CO2, making its mitigation a crucial benefit of biochar.

Biochar can also enhance soil organic carbon, helping restore degraded soils.

In carbon capture applications, modified biochar can adsorb CO_2 from industrial exhaust gases. However, its carbon removal efficiency is currently lower than that of conventional methods.

In the construction sector, biochar can be explored as a low-carbon alternative to building materials. Adding 2-5% of biochar to concrete can improve mechanical strength, increase heat resistance by 20%, and capture 115 kg of CO_2 per cubic metre, making building materials a stable carbon sink.

In wastewater treatment, biochar offers a low-cost and effective option to reduce pollution. India generates more than 70 billion litres of wastewater every day, of which 72% is left untreated. A kilogram of biochar, along with other substances, can treat 200-500 litres of wastewater, implying a biochar demand potential of 2.5-6.3 million tonnes.

What hinders biochar's application?

Despite its theoretically substantial potential to capture carbon, biochar remains underrepresented in carbon credit systems due to the absence of standardised feedstock markets and consistent carbon accounting methods, which undermine investor confidence.

While research confirms biochar's technical feasibility for applications across sectors, deployments are hindered by barriers such as limited resources, evolving technologies, market uncertainties, and insufficient policy support. Viable business models are yet to emerge for large-scale adoption. Market development is further constrained by limited awareness among stakeholders, weak 'monitoring, reporting, verification' frameworks, and a lack of coordination across areas such as agriculture, energy, and climate policy.

To enable large-scale adoption, sustained support for R&D is essential to create region-specific feedstock standards and to optimise biomass utilisation rates based on agro-climatic zones and crop types. Further, biochar should be systematically integrated into existing and upcoming frameworks, including crop residue management schemes, bioenergy initiatives in both urban and rural contexts, and state-level climate strategies under the State Action Plans on Climate Change. Recognising biochar as a verifiable carbon removal pathway within the Indian carbon market will generate additional income for investors and farmers through carbon credits. Deploying biochar production equipment at the village level has the potential to create approximately 5.2 lakh rural jobs, linking climate action with inclusive economic development. The additional benefits of biochar, such as better soil health, lower fertilizer requirement (by 10-20%), and higher crop yield (by 10-25%), should be systematically integrated into policy and market frameworks to fully realise its potential.

In sum, although biochar is not a silver bullet, it offers a science-backed multisectoral pathway for India to achieve its climate and development goals.

Harishankar Kopperi is a senior associate and Suresh N.S. is a senior research scientist in the Strategic Initiatives group at Center for Study of Science Technology and Policy.

THE GIST

- By using 30% to 50% of surplus waste, India can produce 15-26 million tonnes of biochar and remove 0.1 gigatonnes of CO2-equivalent annually.
- Biochar can hold carbon in the soil for 100-1,000 years due to its strong and stable characteristics, making it an effective long-term carbon sink.
- While research confirms biochar's technical feasibility for applications across sectors, deployments are hindered by barriers such as limited resources, evolving technologies, market uncertainties, and insufficient policy support.

Context:

India plans to launch its carbon market in 2026, increasing focus on carbon dioxide removal (CDR) technologies. Among them, biochar is gaining attention as a scalable solution for capturing carbon, improving soil health, and managing waste. However, adoption remains low due to technical, financial, and policy challenges.

What is Biochar?

- **A type of charcoal made by pyrolyzing agricultural and municipal solid waste.**
- **Acts as a carbon sink, storing carbon in the soil for 100-1,000 years.**
- **Helps reduce GHG emissions like methane, CO_2, nitrous oxide.**

Byproducts of Biochar Production:

Syngas, bio-oil — usable for:

- **Electricity (8-13 TWh/year)**
- **Diesel/kerosene replacement (12-19 million tonnes)**

Applications:

- **Agriculture: Improves soil fertility, reduces input costs, increases yield**
- **Wastewater treatment: Adsorbs contaminants**
- **Construction: Replaces cement (2.5-3.5% by weight), cuts emissions**
- **Carbon markets: Stores carbon permanently, acts as a stable carbon sink**

India's Biochar Potential:

India generates:

- **600 million tonnes of agri-residue**
- **60 million tonnes of municipal solid waste annually**
- **Using 30-50% of surplus biomass could:**
- **Produce 15-26 million tonnes of biochar**
- **Remove 0.9-1.0 gigatonnes CO_2 equivalent annually**

Challenges to Adoption:

- **Limited R&D, financial incentives, and awareness**
- **Underrepresentation in carbon credit systems**
- **Lack of integration into existing climate and agricultural policies**

What Needs to Be Done:

- **Incorporate biochar into crop residue frameworks and State Action Plans on Climate Change**
- **Develop viable business models, standard protocols, and region-specific feedstock strategies**
- **Recognise biochar in India's carbon market to incentivize farmers and industry**

Conclusion:

"Biochar is not a silver bullet, but a science-backed multilateral pathway for India to meet its climate and development goals."

What is the use of biochar in farming?

1. Biochar can be used as a part of the growing medium in vertical farming.
2. When biochar is a part of the growing medium, it promotes the growth of nitrogen-fixing microorganisms.
3. When biochar is a part of the growing medium, it enables the growing medium to retain water for longer time.

Which of the statements given above is/are correct?

1. (a) 1 and 2 only
2. (b) 2 only
3. (c) 1 and 3 only
4. (d) 1, 2 and 3

[PYQ 2020]

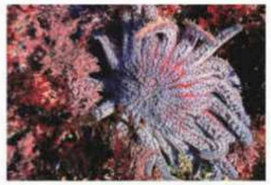
EXPLAINED SCIENCE

HOW SCIENTISTS FINALLY IDENTIFIED THE ELUSIVE KILLER OF STARFISH

TWELVE YEARS after a mysterious disease started killing starfish in droves — more than 5 billion are estimated to have died since 2013 — scientists have identified a bacterium to be the culprit.

The starfish, or sea stars, of various species died due to a wasting disease, in which their limbs fell off and their bodies melted away to leave just a pile of gunk. The epidemic was found along the Pacific coast of North America.

A study, published in the journal *Nature* on August 5, revealed that the starfish were falling victim to *Vibrio pectenicida*, which is related to the bacterium that causes cholera in humans.



Sunflower starfish off the coast of California, US. *Wikimedia Commons*

How did scientists find the bacterium responsible?

It was a long process. While studies earlier focused on a virus type called the densovirus, it was later found to occur naturally in some starfish. Also, some studies were examining the tissue samples of the dead starfish, when the bacterium was in fact present in the coelomic fluid, the equivalent of starfish blood.

The breakthrough came at the Hakai Institute in British Columbia, Canada, where scientists raised sunflower sea stars in the labs, and then exposed them to the infected starfish in various ways, such as bringing them physically in contact with diseased body parts or injecting mixtures from such parts. It was found that injections passed on the infection, but not when their contents had been treated with heat. In effect, boiling was killing the cause of the disease, pointing to a bacterium.

The scientists then examined the coelomic fluid — a fluid that fills the body cavity and surrounds the internal organs — of both healthy and infected starfish. Dr Alyssa Gehmanopens, co-author of the study, was quoted by the UK's National History Museum as saying, "When we compared the coelomic fluid of exposed and healthy sea stars, there was basically one thing different: Vibrio. We all had chills. We thought, 'That's it. We have it. That's what causes wasting'."

Why is this significant?

Understanding the cause of a disease is the first step to treating it. Scientists will now see if starfish in the sea can be given probiotics to fight off the bacteria, and if Vibrio-resistant starfish can be grown in labs and introduced into the wild, among other measures.

Protecting the population of starfish is crucial for the marine ecosystem as they help maintain a stable food chain. When billions of starfish died, the population of sea urchins, which they feed on, exploded. These sea urchins started eating away whole forests of kelp, a seaweed other marine animals thrive on and which helps sequester carbon. **ENS**

Context:

Since 2013, a mysterious disease known as "sea star wasting disease" has been devastating starfish populations along the Pacific coast of North America. Over 5 billion starfish have died, with their bodies decaying into mush. After 12 years of research, scientists have finally identified the bacterium Vibrio pecticenicida as the cause — marking a major breakthrough in marine disease research.

Scientific Process:

- **Earlier theories blamed a virus (densovirus), but it was ruled out.**
- **Researchers found Vibrio bacteria in the coelomic fluid (starfish's internal body fluid).**
- **At Canada's Hakai Institute, healthy starfish were infected in lab experiments.**
- **The disease only spread when the bacterial fluid wasn't heat-treated — confirming it was a heat-sensitive bacterium, not a virus.**

Environmental Significance:

- **Starfish are keystone predators, especially of sea urchins.**
- **After their mass death, urchin populations exploded, destroying kelp forests.**
- **Kelp forests are vital carbon sinks, helping fight climate change.**
- **Starfish loss disrupted marine food chains and carbon sequestration systems.**

Why It Matters:

- **Identifying the cause allows scientists to:**
- **Develop probiotics or breed resistant starfish.**
- **Protect marine biodiversity and food chains.**
- **Preserve kelp ecosystems, which are crucial for carbon absorption.**

Fishing gear a major source of 'microplastic' contamination along Indian coasts: Minister

Jacob Koshy
NEW DELHI

The major sources of 'microplastic' pollution along India's coasts are "riverine inputs" and abandoned, lost, and discarded fishing gear, Union Minister of State for Science and Technology Jitendra Singh said in a written response to a question in the Lok Sabha on Wednesday.

The Ministry of Earth Sciences (MoES), through the National Centre for Coastal Research (NCCR), conducted field surveys along India's coastline between 2022 and 2025 to assess microplastic and marine debris levels. Assessment of microplastics in both water and sediment has been carried out along the east and west coasts of India. On the west coast, 19 transects were surveyed from Porbandar (Gujarat) to Kanniyakumari (Tamil Nadu), while on the east coast, around 25 transects were sampled from Puri (Odisha) to Thoothukudi (Tamil Nadu). The findings indicated that the predominant sources of microplastic pollution are riverine inputs and abandoned, lost, and discarded fishing gear (ALDFG), he said.

Plastic waste washed ashore after flowing into the sea in Visakhapatnam.

Microplastics are tiny plastic particles, ranging in size from 1 micrometre to 5 millimetres. They can be either primary microplastics, manufactured at that size, or secondary microplastics, formed from the breakdown of larger plastic items. The major concern for microplastics is that they are being increasingly linked to tumours, and are said to be poisonous to marine and aquatic life.

The Food Safety and Standards Authority of India commissioned a project to assess microplastic contamination in food products and develop methods for its detection. The environmental research organisation Toxics Link tested 10 types of salt that claimed to reveal the presence of microplastics in all salt and sugar samples, in various forms, including fibre, pellets and films.

Context:

Union Minister Jitendra Singh informed the Lok Sabha that riverine inputs and abandoned, lost, or discarded fishing gear (ALDFG) are the main sources of microplastic pollution along India's coasts. The findings come from surveys conducted by the National Centre for Coastal Research (NCCR) under the Ministry of Earth Sciences.

Microplastics are tiny plastic particles measuring between 1 micrometre and 5 millimetres. They are classified into:

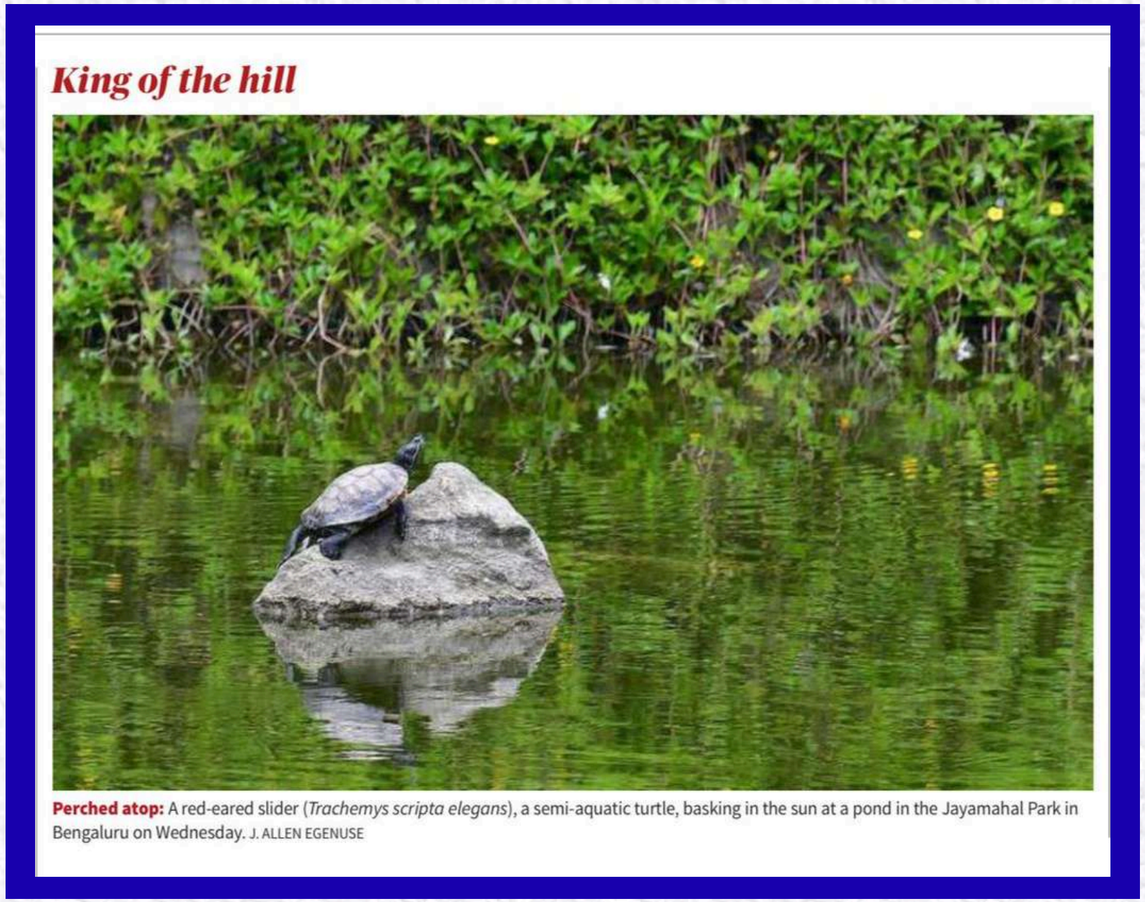
- **Primary microplastics: Manufactured to be small (e.g., in cosmetics or scrubbers).**
- **Secondary microplastics: Formed from the breakdown of larger plastic waste like bags, bottles, or fishing gear.**

Health & Environmental Concern:

- **Microplastics are linked to tumours.**
- **Harmful to marine and aquatic life.**

Food Safety Risk:

- **FSSAI commissioned a study to detect microplastics in food products.**
- **Toxics Link NGO found microplastics in salt and sugar samples, including pellets and films.**



King of the hill

Perched atop: A red-eared slider (*Trachemys scripta elegans*), a semi-aquatic turtle, basking in the sun at a pond in the Jayamahal Park in Bengaluru on Wednesday. J. ALLEN EGENUSE

Red-Eared Slider (Trachemys scripta elegans)

- **Type: Semi-aquatic freshwater turtle**
- **Native to: Southern United States and northern Mexico**
- **Appearance: Greenish shell with yellow stripes and a distinct red patch behind each eye**
- **Habitat: Prefers ponds, lakes, and slow-moving water with basking spots**

Ecological Concern

- **Invasive in India: Released as pets into water bodies**
- **Threat: Outcompetes native turtles, spreads diseases, disrupts ecosystems**

UnderStand UPSC
What we UnderStand, We Conquer

7th AUG, 2025

DAILY MCQs FOR PRACTICE

Q1. Which of the following are instruments used by the RBI in its monetary policy operations?

1. Standing Deposit Facility (SDF)
2. Marginal Standing Facility (MSF)
3. Liquidity Adjustment Facility (LAF)
4. Market Stabilisation Scheme (MSS)

Select the correct answer using the code below:

A. 1, 2 and 3 only
B. 2, 3 and 4 only
C. 1 and 4 only
D. 1, 2, 3 and 4

Q2. With reference to rare earth elements, consider the following:

1. They are essential in the manufacture of semiconductors and electric vehicles.
2. India is the largest producer of rare earths in the world.
3. China dominates the global supply chain of rare earth elements.

Which of the above are correct?

A. 1 and 3 only
B. 1 and 2 only
C. 2 and 3 only D. 1, 2 and 3

Q3. Consider the following statements regarding Biochar:

1. It is produced through anaerobic digestion of organic waste.
2. It enhances soil fertility and helps in carbon sequestration.
3. It can reduce methane emissions from rice paddies.

Which of the above is/are correct?

A. 1 and 2 only
B. 2 and 3 only
C. 1 and 3 only
D. 1, 2 and 3

DAILY MCQs FOR PRACTICE

Q4. Which of the following best describes the cause of mass mortality among sea star populations along the Pacific Coast as recently discovered?

A. Plastic ingestion
B. Overfishing
C. Bacterial infection by Vibrio pecticenicida
D. Ocean acidification

Q5. Consider the following sources of microplastic pollution in oceans:

1. Abandoned, lost or discarded fishing gear (ALDFG)
2. Personal care products
3. Synthetic textile fibres
4. Coral reef bleaching

Which of the above contribute directly to microplastic pollution?

A. 1, 2 and 3 only
B. 2 and 4 only
C. 1 and 3 only
D. 1, 2, 3 and 4

MAINS QUESTION FOR PRACTICE

Q. Biochar is increasingly being recognized as a tool for environmental sustainability. Examine the multifarious environmental benefits of biochar and its potential in addressing climate and soil-related challenges in India. (GS Paper 3 - Environment - 150 words)