

## DAILY CURRENT AFFAIRS (DCA)

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## SECTION 17A OF PREVENTION OF CORRUPTION ACT

### Context

- The Supreme Court delivered a **split verdict** on the **legality of a provision in an anti-corruption law** which mandates prior sanction before prosecuting public servants.

### About

- Justice B.V. Nagarathna concluded that **Section 17A of the Prevention of Corruption Act 1988** was plainly unconstitutional, while Justice K.V. Viswanathan said that sanction must be decided by an independent authority like the Lok Pal or the Lok Ayukta.
  - The **section 17A of Prevention of Corruption Act** has barred the agencies from probing corruption charges against government officials without the Centre's permission.
  - It provides **protection to public servants** from frivolous investigations related to decisions taken in the discharge of official duties.
- The case will now be referred to the **Chief Justice of India** to be placed before a **Bench of three judges**.

### Prosecution of Civil Servants

- It refers to **criminal proceedings initiated against public officials** for acts such as corruption, abuse of power, criminal misconduct, or offences under IPC and special laws, committed during the discharge of official duties.
- Article 311:** It protects civil servants (Union, State, All-India Services) from arbitrary dismissal, removal, or reduction in rank.
  - Authority for Dismissal:** A civil servant cannot be dismissed or removed by an authority lower than the one that appointed him/her.
  - Right to Inquiry:** A civil servant cannot be dismissed, removed, or reduced in rank without being informed of the charges, and being given a reasonable chance to defend himself/herself in an inquiry.
  - Exceptions:** An inquiry is not necessary in the following cases: Criminal conviction, Impracticable inquiry (authority records holding inquiry is not possible.), state security.
- Section 197 of CrPC:** Courts cannot take cognisance of certain offences alleged to have been committed by a public servant.
  - Without prior sanction of the appropriate government.
  - When the offence was committed to act in the discharge of official duty.

- Prevention of Corruption Act, 1988:**
  - Section 19 Sanction for Prosecution:** Prior sanction required before courts take cognisance of offences under the Act.
  - Sanctioning authority:** Central/State Government or competent authority.
  - 2018 Amendments Section 17A:** Prior approval required for investigation of decisions taken in official capacity.

### Arguments in Favour of Section 17A

- Mere possibility of abuse** of an otherwise valid provision cannot be a ground for declaring it unconstitutional.
- Protection against Frivolous Investigations:** It shields honest public servants from motivated or politically driven probes for bona fide decisions.
- Prevents Policy Paralysis:** Reduces fear of post-facto scrutiny, encouraging bold and timely decision-making, especially in complex policy and economic matters.
- Ensures Administrative Efficiency:** Allows officers to focus on governance rather than defending routine decisions before investigative agencies.
- Maintains Balance between Accountability and Governance:** The provision does not bar investigation altogether; it only regulates the stage of initiation, preserving accountability.
- Encourages Professional Autonomy:** Strengthens institutional confidence of civil servants while implementing reforms and policies.

### Arguments Against

- Dilutes Investigative Independence:** Makes police and anti-corruption agencies dependent on executive approval, undermining autonomy.
- Delays Investigation at the Crucial Stage:** Prior approval can cause loss of evidence, especially in white-collar corruption cases.
- Contrary to the Spirit of Anti-Corruption Laws:** Shifts focus from public accountability to bureaucratic protection, weakening deterrence.
- Violation of Equality Before Law (Article 14):** Grants special procedural protection to public servants, unlike private individuals.
- Against Rule of Law:** Section 17A is arbitrary in the manner in which it foreclosed the possibility of even a bare enquiry, this scenario is against the rule of law.
- Weakens Fear of Law:** Reduced likelihood of swift investigation may embolden corrupt practices.

**Way Ahead**

- An independent inquiry of the facts of a corruption complaint would be ideal before a grant of sanction.
- A balance is required between protecting honest public servants from malicious cases and ensuring accountability by prosecuting those against whom there is clear prima facie evidence of corruption.

Source: TH

## 38TH INDIA-FRANCE STRATEGIC DIALOGUE

**Context**

- India and France reaffirmed their strategic partnership during the **38th India-France Strategic Dialogue**, co-chaired by National Security Adviser and Diplomatic Adviser to the French President.

**About**

- **India and France discussed ongoing bilateral initiatives** spanning the domains of security, defence, technology, space, and civil nuclear cooperation.
- **Opportunities were explored for joint-development and collaboration** in the spirit of Make in India and Atmanirbhar Bharat.

**Major Highlights of the India-France Relations**

- **India–France Strategic Partnership:** It was launched on 26 January 1998 and is India's first-ever Strategic Partnership.
  - ♦ **Core vision:** Enhance strategic autonomy and deepen bilateral cooperation.
  - ♦ **Key Strategic Pillars:** Defence and security, Civil nuclear cooperation and Space collaboration.
  - ♦ **Expanding areas:** Indo-Pacific cooperation, maritime security, digitalisation, cyber security, climate change, sustainable development, advanced technologies, and, counter-terrorism.
- **Defence Cooperation:** It is reviewed via the Annual Defence Dialogue (Minister-level) and High Committee on Defence Cooperation (HCDC) (Secretary-level).
  - ♦ **Rafale Fighter Jets:** India procured 36 Rafales from Dassault Aviation.
  - ♦ **Scorpene Submarines (Project P-75):** Collaboration with France's Naval Group, 6 submarines built in India; latest is INS Vaghsheer.

- ♦ **Combat Aircraft Engine Development:** HAL and France's Safran Helicopter Engines signed an agreement under the IMRH programme to co-develop engines.
- ♦ Recently both nations formally concluded an **Inter-Governmental Agreement (IGA) to procure 26 Rafale-M fighter jets for the Indian Navy.**
- ♦ **Future plans:** Co-development of next-gen fighter jet engines.
- ♦ **Joint Exercises:** Shakti, Varuna, FRINJEX-23.
- **Economic Cooperation:** Within the European Union, **France remains India's fifth-largest trading partner**, following the Netherlands, Belgium, Italy, and Germany.
  - ♦ The bilateral trade between India and France has **more than doubled** in the last decade to **USD 15.11 Billion** in 2023-24.
  - ♦ Both countries are also moving to **jointly develop technologies and integrate existing technologies.**
  - ♦ The process of **enabling Unified Payment Interface (UPI) has been successful in France.**
  - ♦ **French technologies** especially in renewables, sustainable manufacturing and urban infrastructure development are being integrated in India.
- **Space Cooperation:** There is a over 60 years of collaboration between ISRO and CNES (French space agency)
  - ♦ France is a key supplier of components, launch services (Arianespace).
  - ♦ **Joint missions:** TRISHNA (satellite mission), MDA systems, ground station support.
- **Energy Cooperation:**
  - ♦ **International Solar Alliance (ISA):** Co-founded by India and France in 2015 to promote solar energy worldwide.
  - ♦ **Nuclear Energy Cooperation:** The first meeting of the special task force on nuclear energy in the framework of the Indo-French Strategic Dialogue, was convened in 2025.
    - Both sides have agreed to work on establishing a partnership on low and medium power modular reactors or Small Modular Reactors (SMR) and Advanced Modular Reactors (AMR).
- **Community:** There are an estimated 1,19,000 Indian communities in France, largely originating from erstwhile French colonies.

### Areas of Concern

- **Trade Imbalance:** Bilateral trade remains below potential, especially compared to India's trade with other EU nations.
- **Technology Transfer & Defence Restrictions:** While France has supported India's defence goals, there are concerns over the depth of technology transfer in big items.
- **Nuclear Liability Concerns:** Despite a civil nuclear agreement in 2008 and plans for reactors at Jaitapur, progress has been slow.
  - ♦ The Civil Liability for Nuclear Damage Act (2010) poses hurdles for French firms as it imposes liability on suppliers in the event of a nuclear accident.
- **Geopolitical Differences:** France's strong economic ties with China may sometimes dilute full alignment with India on Indo-Pacific issues.
  - ♦ Differences in approach to Middle East geopolitics (e.g., stance on Iran, Israel–Palestine) occasionally diverge.

### Future Outlook

- **Horizon 2047 Roadmap envisions:** To mark the **25th anniversary** of the Indo-French partnership, both countries agreed to adopt a roadmap to set the course for the bilateral relationship up to 2047.
  - ♦ Joint development and production of advanced defence technologies.
  - ♦ Export of jointly developed products to third countries for global good.
  - ♦ Deeper maritime and space security cooperation.
  - ♦ Growing convergence in the Indo-Pacific through strategic dialogue and joint military presence.

### Conclusion

- India–France defence cooperation is a cornerstone of their wider Strategic Partnership.
- With shared interests in sovereignty, multilateralism, and regional stability, both countries are set to elevate ties further under the Horizon 2047 vision — making defence ties more collaborative, innovative, and export-oriented.

Source: DD

## DELAY IN CONSTITUTING ARBITRATION COUNCIL OF INDIA

### Context

- The Union Government has not yet constituted the Arbitration Council of India (ACI) despite amendments to the Arbitration and Conciliation Act in 2019.

### What is the Arbitration Council of India (ACI)?

- The ACI was proposed under the **Arbitration and Conciliation (Amendment) Act, 2019**. It is mandated to regulate and promote institutional arbitration in India.
- **Its key functions include:**
  - ♦ Grading arbitration institutions.
  - ♦ Framing norms for arbitral institutions and arbitrators.
  - ♦ Promoting professionalism, transparency, and efficiency in arbitration.

### Arbitration Mechanism in India

- Arbitration is a **quasi-judicial process of settlement of disputes** between Trading Member, Investor, Clearing Member, Authorised Person, Listed Company etc.
- Arbitration aims at **quicker legal resolution for the disputes**.
- **The Arbitration and Conciliation Act 1996** has been modelled on lines of the UNCITRAL (United Nations Commission on International Trade Law) framework of laws.
  - **Arbitration Agreement:** Parties can agree to resolve their disputes through arbitration either before or after a dispute arises.
  - **Arbitral Tribunal:** The arbitral tribunal, comprised of one or more arbitrators, is appointed by the parties or as per the procedure agreed upon by them.
    - ♦ The decision on the dispute is mostly **binding on the parties**.
    - ♦ Generally, there is no right to appeal an arbitrator's decision.
  - **Arbitration Proceedings:** The Arbitration Act provides a framework for conducting arbitration proceedings, including the appointment of arbitrators, the conduct of hearings, submission of evidence, and issuance of the final arbitral award.
  - **Enforcement:** The Act empowers arbitral tribunals to grant interim measures to preserve the rights of parties, pending the final resolution of the dispute.
    - ♦ Arbitral awards, once granted, are enforceable in the same manner as court judgments.
  - **Institutional and Ad Hoc Arbitration:** Arbitration in India can be conducted through institutional arbitration bodies like the **Indian Council of Arbitration (ICA)**, **International Chamber of Commerce (ICC)**, or through **ad hoc arbitration where parties directly appoint arbitrators**.

### Implications of the Delay

- **It weakens investor confidence** in India's dispute resolution framework.

- It hampers ease of doing business and contract enforcement.
- The delay reduces India's competitiveness vis-à-vis established arbitration hubs.
- It encourages forum shopping and preference for foreign arbitration centres.
- **Problems with Ad-hoc Arbitration:**
  - ♦ The dominance of ad-hoc arbitration has led to **procedural delays and rising costs**.
  - ♦ Ad-hoc arbitration has increasingly **mirrored court litigation** rather than offering speedy resolution.

#### Indian Council of Arbitration

- The Indian Council of Arbitration, India's premier arbitral institution, is a **registered society under the Societies Registration Act, 1860**, operating on a not-for-profit basis.
- The ICA was established in **1965** as a specialized arbitral body at the **national level**.
- The main objective of ICA is to promote **amicable, quick and inexpensive settlement of commercial disputes** by means of arbitration, conciliation, regardless of location.
- ICA has a distinguished **panel of arbitrators** that comprise of Former Chief Justices of India, Former Judges of Supreme Court, High Courts, District Judges, Chairman of Tribunals, Senior Advocates, Advocates, Former Bureaucrats, Chartered Accountants and other experts.

Source: TH

## RBI PROPOSES REOPENING LICENSING WINDOW FOR URBAN CO-OPERATIVE BANKS

### Context

- Recently, the **Reserve Bank of India (RBI)** has proposed reopening the licensing window for **Urban Co-operative Banks (UCBs)** after two decades of halt.
  - ♦ RBI suspended UCB licensing nearly 20 years ago after a wave of **financial failures among newly licensed small UCBs**.

### About the Urban Co-operative Banks (UCBs)

- They are **co-operative societies** that engage in **banking activities**, including **accepting deposits and lending money**, mainly to **members of the co-operative** and the **general public** within **urban and semi-urban areas**.

- UCBs are **member-owned**, operating on the principle of '**one member, one vote**', regardless of the amount of share capital held, **unlike commercial banks**, which operate as **joint-stock companies**.

### Legal and Regulatory Framework

- **Banking Regulation Act, 1949 (Part V):** It regulates their banking functions such as lending, deposits, liquidity, and prudential norms.
  - ♦ It is administered by the **Reserve Bank of India (RBI)**.
- **Co-operative Societies Acts (of respective states or the Central Co-operative Societies Act, 2002):** It governs the registration, management, elections, and audit of UCBs.
  - ♦ It is administered by the **Registrar of Co-operative Societies**.

### Objectives and Role

- Promoting **financial inclusion** among small traders, artisans, and salaried groups in urban and semi-urban areas.
- Providing **credit facilities** to members at reasonable interest rates.
- Mobilizing **local savings** for productive and social purposes.
- Strengthening **co-operative principles** such as mutual help and democratic management.

### Structural Profile of UCBs

- As of **March 31, 2025**, India had **1,457 UCBs** comprising **838 (Tier 1; 57.5%)**, **535 (Tier 2)**, **78 (Tier 3)**, and **6 (Tier 4)** banks.
- In deposit terms, **large UCBs dominate** the sector:
  - ♦ Only **7%** of UCBs hold deposits exceeding **₹1,000 crore**, but they account for **62.5% of total deposits**.
  - ♦ Conversely, **52%** of UCBs hold deposits below **₹100 crore**, constituting a mere **5.6%** of total deposits.
- The **aggregate assets** of UCBs stood at **₹7.38 lakh crore**, and **total deposits** at **₹5.84 lakh crore** as of FY25, up from **₹4.35 lakh crore** and **₹3.55 lakh crore** respectively in 2015.

### Eligibility Criteria For New Licensing

- The **High-Powered Committee on Urban Co-operative Banks**, led by **RBI Deputy Governor**, had recommended that new licenses be issued only to **financially sound and well-managed co-operative credit societies**.
- The RBI proposes restricting eligibility to **large co-operative credit societies** that:

- ◆ Have been **operational for at least 10 years**;
- ◆ Maintain a **good financial track record for at least five years**;
- ◆ Possess a **Capital to Risk-Weighted Assets Ratio (CRAR) of not less than 12%**, and;
- ◆ Maintain **Net Non-Performing Assets (NNPA) at not more than 3%**.
- According to the RBI, such criteria aims to ensure that **only financially stable and well-governed entities** transition into UCBs.

### Related Concerns & Issues

- **Overlapping Authority & Compliance Challenges:** The dual control structure of RBI and **Co-operative Societies Acts** often leads to **overlapping authority and compliance challenges**, especially in governance and supervision.
- **Challenges Related To Governance:** The **'one member, one vote'** principle, while democratic, discourages capital investment and growth.
  - ◆ The **entry and exit of shareholders at face value** provides no incentive for investors, making co-operative bank shares unattractive.
- **Challenges Related To Capital: Capital raising difficulties** persist due to the **non-perpetual nature of co-operative share capital**, which can be refunded and is often linked to borrowing activities.
- **Other Concerns:** The RBI's analysis of **UCB license cancellations between 2020–2025** revealed recurring issues of **management fraud, governance lapses, and director-related lending violations**, particularly among smaller UCBs.

### Strengthening UCBs in India

- **RBI's Policy Initiatives and Structural Reforms:** The RBI introduced a **graded regulatory framework** that classifies UCBs into four tiers based on deposit size and risk profile.
  - ◆ **Tier 1:** Small local UCBs
  - ◆ **Tier 2:** Medium-sized regional UCBs
  - ◆ **Tier 3 and Tier 4:** Large UCBs with multi-state operations;
    - It enables **proportionate regulation**, ensuring smaller banks are not overburdened while large ones follow stricter governance norms.
- **Enhanced Regulatory Powers under the Banking Regulation (Amendment) Act, 2020:**
  - ◆ **Approve CEO appointments** and board members in UCBs.
  - ◆ **Supersede management boards** in case of governance failures.
- **Initiate reconstruction or merger schemes** to safeguard depositor interests.
- **Strengthening Governance and Management:**
  - ◆ **Professionalization of Boards:** The RBI emphasizes the inclusion of **domain experts** in UCB boards like professionals in banking, accounting, and law to improve oversight.
  - ◆ **Eliminating Director-Related Lending:** UCBs are strictly prohibited from **granting loans to directors or their relatives**, a practice that has led to several past failures, to avoid conflicts of interest.
- **Improving Capital Adequacy and Financial Resilience:**
  - ◆ **Introduction of Innovative Capital Instruments:** The RBI has encouraged exploration of **Tier-II capital instruments** and **debt-like products** to enhance capital buffers, since traditional shares in UCBs are non-tradable and refundable.
  - ◆ **Consolidation and Mergers:** The RBI encourages **voluntary mergers** of weak UCBs with stronger ones to create **financially sustainable entities** capable of adopting modern technology and practices.
  - ◆ **Stronger Risk Management Frameworks:** UCBs are now required to implement:
    - **Comprehensive risk-based supervision,**
    - **Early Warning Systems (EWS)** for credit risk, and
    - **Stress testing** for capital adequacy and liquidity.
- **Technological Modernization:** Digital transformation is key to strengthening UCB operations. The RBI promotes:
  - ◆ Adoption of **Core Banking Solutions (CBS)** for seamless transactions;
  - ◆ Integration with **digital payment platforms** such as UPI and NEFT;
  - ◆ Implementation of **cybersecurity frameworks** and data protection norms.
- **Depositor Protection and Transparency:** Deposits in UCBs are covered under the **Deposit Insurance and Credit Guarantee Corporation (DICGC)** up to 5 lakh per depositor.

### Road Ahead

- The **strengthening of UCBs** is a long-term process requiring a **balanced mix of regulation, modernization, and co-operative ethics**. For future resilience, UCBs need to:
  - ◆ Diversify revenue sources while maintaining prudent lending.

- ◆ Build **robust internal controls** and **auditing mechanisms**.
- ◆ Embrace **digital banking and green finance opportunities**.
- ◆ Move toward **self-sustainability** rather than dependency on state or sectoral support.
- These measures can **restore trust, improve efficiency**, and position UCBs as **strong, inclusive pillars** of India's financial architecture, if implemented effectively.

Source: IE

## NEWS IN SHORT

### VALLEY OF FLOWERS

#### Context

- A fire has been raging near the **Valley of Flowers** forcing the Forest Department to seek the help of the Air Force.

#### About Valley of Flowers

- It is situated in the **Chamoli district of Uttarakhand** inside the Valley of Flowers National Park, which is part of the **Nanda Devi Biosphere Reserve**.
- It is called the Valley of Flowers because the entire valley comes alive with **thousands of blooming flowers during the monsoon**.
- It was declared a **National Park in 1982**. In **2005**, it was declared a **UNESCO World Heritage Site** because of its unmatched beauty and unique alpine ecosystem.
- **The valley was officially discovered by British mountaineer Frank Smythe in 1931** when he accidentally reached the location.



Source: TH

### NPS VATSALYA SCHEME, 2025

#### In News

- The Pension Fund Regulatory and Development Authority (PFRDA) has issued guidelines for the

**NPS Vatsalya Scheme, 2025**, expanding the National Pension System (NPS) framework to enable early-life pension inclusion for minors.

#### About NPS Vatsalya Scheme, 2025

- NPS Vatsalya is a pension savings scheme for minors under the National Pension System.
- It allows a parent or legal guardian to open and operate an NPS account on behalf of a child.
- **Key Features**
  - ◆ **Eligibility:** Indian citizens below 18 years of age.
  - ◆ **Account Type:** Individual pension account in the name of the minor.
  - ◆ **Operation:** Managed by parent/guardian until the child attains majority.
  - ◆ **Conversion:** On turning 18, the account is converted into a regular NPS account.
  - ◆ **Minimum Contribution:** Minimum initial and annual contribution of ₹250 and no maximum limit on contributions.
  - ◆ **Investment:** Funds invested through Pension Fund Managers (PFMs) as per NPS guidelines.

Source: PIB

### ADVISORY BOARD ON DISARMAMENT MATTERS

#### In News

- Senior Indian diplomat DB Venkatesh Varma has been nominated by the UN Secretary General to chair the Advisory Board on Disarmament Matters for the 2026–27 term, marking the first time an Indian will hold the position.

#### Advisory Board on Disarmament Matters

- It was established in 1978 pursuant to paragraph 124 of the Final Document of the Tenth Special Session of the General Assembly.
- **Composition** : Members of the Advisory Board are chosen by the Secretary General from all regions of the world based on their knowledge and experience in disarmament and international security.
  - ◆ The Board comprises fifteen members, with the Director of the United Nations Institute for Disarmament Research serving as an ex officio member.
- **Functions** : It advises the Secretary-General on issues related to arms limitation and disarmament, including studies and research carried out under the auspices of the United Nations or institutions within the UN system.

- It serves as the Board of Trustees of the United Nations Institute for Disarmament Research. It also advises the Secretary General on the implementation of the United Nations Disarmament Information Programme.

Source :FP

## NIRANTAR PLATFORM

### In News

- The Union Minister for Environment, Forest and Climate Change chaired a meeting of the National Institute for Research & Application of Natural Resources to Transform, Adapt and Build Resilience (NIRANTAR).

### NIRANTAR

- It is a platform of institutions under the Ministry of Environment, Forest and Climate Change (MoEFCC) aimed at improving coordination and collaboration.
- Its four verticals focus on research, assessment, and utilisation of resources, particularly bioresources, to ensure their sustainable use for development.
- The NIRANTAR platform can play a key role in ensuring bioresources sustainable use for development.

Source :PIB

## QUICK COMMERCE PLATFORMS TO STOP 10-MINUTE SERVICE

### Context

- Indian quick commerce firms Swiggy and Zepto have changed the branding of their quick commerce operations **to stop promoting it as a "10-minute" service** following a government order.
  - The move is aimed at ensuring greater safety, security and improved working conditions for gig workers.

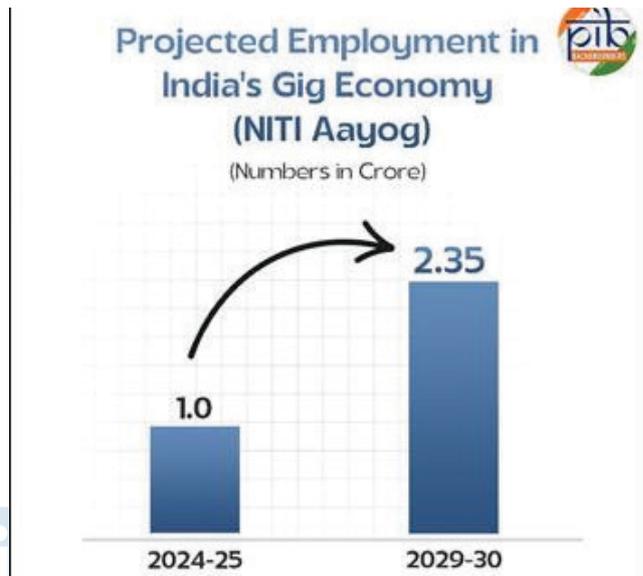
### Who are Gig Workers?

- Non-standard or gig work consists of **income-earning activities outside of standard, long-term employer-employee relationships**.
- It relies **heavily on temporary and part-time positions** filled by **independent contractors and freelancers** rather than full-time permanent employees.
- The term is borrowed from the music world, where performers book **"gigs"** that are **single or short-term engagements** at various venues.

- The gig economy uses **digital platforms** to connect freelancers with customers to provide **short-term services or asset-sharing**.
  - Examples include **ride-hailing apps, food delivery apps, and holiday rental apps**.

### India's Gig Economy

- India's gig workforce is projected to grow from **1 crore in 2024–25 to 2.35 crore by 2029–30**.



- Code on Social Security, 2020** provides legal recognition and social security benefits to gig and platform workers.
- e-Shram portal** has registered over 30.98 crore unorganised workers, including 3.37 lakh platform workers.
  - Uttar Pradesh, Bihar, and West Bengal** have the highest registrations, with strong female participation.

Source: TH

## PUFFERFISH POISONING

### In News

- Scientists have confirmed India's first case of pufferfish poisoning, drawing attention to a largely unrecognised riverine health risk.

### Pufferfish

- It belongs to the order Tetraodontiformes and is known locally by names such as toadfish, patkafish, balloonfish and fugu.
  - Global catalogues list approximately 190–193 valid species.
- It is omnivorous and benthic in habitat and Freshwater pufferfish species reported from India are often endemic to specific geographical areas and serve as indicators of healthy river ecosystems.

**Status in India**

- Indian waters currently support eight genera and 32 species of pufferfish.
- Their distribution is specific to certain regions and river systems, primarily the Western Ghats and major basins such as the Ganga, Brahmaputra and Mahanadi.

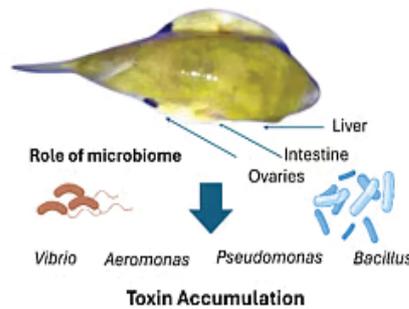
- **IUCN Red List status** : The dwarf pufferfish is classified as **Vulnerable** on the International Union for Conservation of Nature's Red List due to declining populations caused by wastewater pollution and collection for the aquarium trade.

**Toxic Pufferfish in Indian Rivers: Hidden Health Risk**

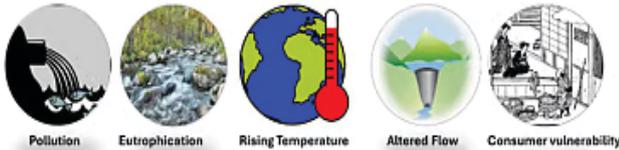
Freshwater pufferfish in Indian rivers are posing an overlooked health risk due to deadly neurotoxin tetrodotoxin (TTX)

**Major Symptoms of Pufferfish (Tetrodotoxin) Poisoning**

- Rapid numbness and tingling of lips, tongue and face
- Nausea and vomiting
- Dizziness and weakness
- Difficulty speaking (sturred speech)
- Progressive paralysis

**How Pufferfish become toxic**

Major river basins  
Ganges,  
Brahmaputra  
and Mahanadi

**Major Environmental Factors****Key Actions for public health protection****Pufferfish poisoning**

- Pufferfish are ecologically important and often indicators of healthy freshwater systems
- Some Pufferfish carry tetrodotoxin (TTX), which blocks nerve sodium channels and can cause paralysis, respiratory failure and death.
  - ♦ The toxin is heat-stable and has no known antidote.
- Evidence suggests pufferfish do not produce TTX themselves; instead, the toxin likely originates

from symbiotic or ingested bacteria such as *Vibrio*, *Aeromonas* and *Bacillus*.

- Across Asia, pufferfish poisoning is widely documented, with deaths reported in Bangladesh, Singapore and Hong Kong. In Japan, where pufferfish (fugu) is consumed as a delicacy, only licensed chefs are permitted to prepare it.
  - ♦ India, however, lacks comparable protective measures.

Source :DTE

