

## Prelim Bits 22-03-2024 | UPSC Daily Current Affairs

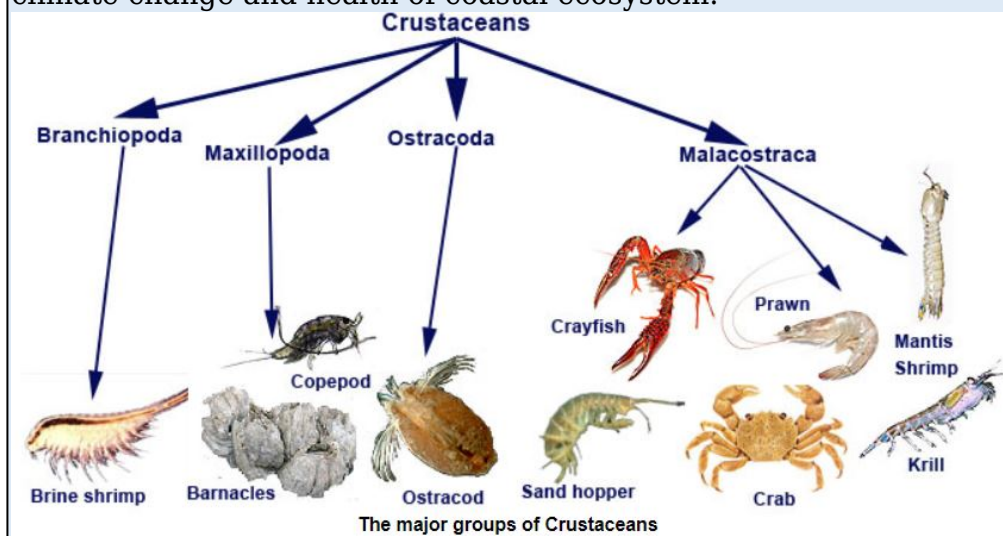
### Brucethoa isro

*New species of deep-sea isopod discovered off Kollam, Kerala named after ISRO.*

- **Genus** - The tiny fish-parasitic crustacean, belonging to the genus *Brucethoa*, was recovered from the base of the gill cavity of the Spinyjaw greeneye, a marine fish.

### Crustacean

- Crustaceans are a group of invertebrate animals and make up a very large group of the Arthropods.
- Mostly they are free-living freshwater or marine animals (e.g. Crabs, lobsters, shrimps) but some are terrestrial (e.g. woodlice), some are parasitic (e.g. fish lice) and some do not move (e.g. barnacles).
- They have a hard exoskeleton (carapace), a segmented body that is bilaterally symmetrical, more than four pairs of jointed appendages and an open circulatory system.
- Gills are used for respiration and a pair of green glands are used to excrete wastes.
- Amphipods do not have a carapace and also serve as indicators for studying the impact of climate change and health of coastal ecosystem.



*The new species has been named *Brucethoa isro* in honour of the Indian space agency's successful space missions, including the successful lunar mission titled Chandrayaan-3.*

- The new species was identified by the same team that had in 2020 described *Brucethoa* as a new genus from India.
- **Features** - Females of the *Brucethoa isro* species tend to be larger than the males.
- Females grow to about 19 mm in length and 6 mm in width, while males are smaller at around half the size.

- The distinctive morphology and behaviour of deep-sea parasitic isopods have long intrigued taxonomists.

## Isopods

- Isopods are an order of invertebrates (animals without backbones) that belong to the greater crustacean group of animals, which includes crabs and shrimps. *Scientists estimate that there are around 10,000 species of isopods (all belonging to the order Isopoda).*
- They are one of the most morphologically diverse of all the crustacean groups, coming in many different shapes and sizes and ranging from micrometers to a half meter in length.
- They also live in many different types of habitat, from mountains and deserts to the deep sea, and they are distributed worldwide.
- Isopods often do not look alike, but they do have common features.
- All isopods have two pairs of antennae, compound eyes, and four sets of jaws.
- The body, or pereon, of all isopods consists of seven segments, each with its own pair of walking legs.
- Isopods have a short abdominal section composed of six segments, called pleons, and one or more of these segments is fused into a tail section.

*Brucethoa isro* is the second species within this genus to be documented in India.



## Quick Facts

### Spinyjaw greeneye (*Chlorophthalmus corniger*)

- It is a species of ray-finned fishes in the family of greeneyes.
- **Distribution** - Western Indian Ocean, Southern Indonesia (off the south coast of Java) and South West Thailand to India (off Chennai, Tuticorin and Kerala), the Gulf of Aden and off the coast of Somalia.
- *Brucethoa isro* resides in the gill cavity of this species.
- **IUCN Status** - Least Concern



*Chlorophthalmus corniger*

## References

1. [The Hindu - New species of deep-sea isopod discovered off Kollam](#)
2. [NCBI - Brucethoa isro](#)
3. [Research Gate - New species of parasitic deep-sea isopod discovered](#)

## **Impeachment of the President in the USA and India**

*The impeachment inquiry into President Joe Biden has hit crossroads, lacking the political support.*

- The term impeachment is derived from old French empeechier meaning to hinder or impede.
- Impeachment refers to the act of formally accusing a public official of a serious offence in connection with their job.

*The first recognised case of impeachment dates back to 1376 in England.*

- In India, Impeachment itself results in removal of the President from his office while an impeachment is regarded as an indictment in the US.

*The Impeachment Procedure of President in the US and India is both borrowed from the fundamental idea of impeachment of Great Britain. However, they differ from each other, both procedurally as well as substantially.*

**Impeachment Procedure of President  
in US**

**Impeachment Procedure of President in  
India**

<ul style="list-style-type: none"> <li>• <b>Head of State</b> - The President of the United States of America is the head of the state and the head of the Government of the United States of America.</li> <li>• <b>Article II</b> - Article II of the US Constitution, provides for the establishment of the executive branch of the US Government and vests the executive power upon the President.</li> <li>• <b>Impeachment</b> - Section 4 of Article II of the Constitution provides for impeachment of the President on grounds of treason, bribery, or other high crimes and misdemeanours.</li> <li>• In the United States, an impeachment does not result in removal from the office.</li> <li>• It is the first step, which if followed by a conviction, results in removal from the office.</li> <li>• If the House passes the Articles of Impeachment by a simple majority, the President stands impeached.</li> <li>• The indictments are then forwarded to the Senate for trial.</li> <li>• The Senate Trial is presided over by the Chief Justice of the US Supreme Court.</li> <li>• <b>Trial</b> - During these trials, the President can appear himself or be represented by a Representative.</li> <li>• <b>Majority</b> - A Conviction in the Senate Trial requires a supermajority of 2/3rd of the present and voting and it is upon Conviction that the President stands removed from the Office.</li> <li>• <b>Reasons</b> - A US President can be impeached for "Treason, Bribery, or other high Crimes and Misdemeanours".</li> <li>• A total of three Presidents, namely Andrew Johnson, Bill Clinton and Donald Trump, have been impeached so far.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Head of State</b> - The President of India is officially known as the President of the Republic of India and is the Head of the State.</li> <li>• <b>Article</b> - The only condition for impeachment of the President in India is "violation of the constitution" as per Article 56 (1) (b) of the Constitution of India.</li> <li>• <b>Impeachment</b> - However, the words violation of the constitution don't find their definition anywhere in the Constitution.</li> <li>• Article 61 further provides for the procedure of impeachment of President.</li> <li>• <b>Initiated by</b> - Accordingly, impeachment proceedings against the President can be initiated by either of the houses, provided that the charges are signed by at least 1/4 of the members of that house.</li> <li>• Thereafter, a 14 days' notice is served to the president.</li> <li>• Then the resolution is voted upon in the house, and requires a special majority of not less than two thirds of the total membership of the House.</li> <li>• It is then sent to the other house which investigates upon the charges.</li> <li>• <b>Trial</b> - Such a trial is presided over by the presiding officer of the house in which the charges are to be investigated.</li> <li>• Article 61 (3) of the Constitution gives the President the right to appear himself and to be represented during the investigation of charges, based on the principle of Audi alterum partum.</li> <li>• <b>Majority</b> - If a resolution is passed by a special majority of at least 2/3rd of the total membership of the investigating House, it would result in removal of the President from his office from the date of passing of the resolution.</li> <li>• Till date the provision for impeachment of the President has never been used.</li> </ul>
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## References

1. [The Indian Express - Biden impeachment inquiry is at a crossroads](#)
2. [The Guardian - Biden to testify on impeachment](#)

## Income and Wealth Inequality in India, 1922-2023

*Data on India for a century has revealed income and wealth inequality now as being worse than during British colonial rule, according to the World Inequality Lab.*

## World Inequality Lab (WIL)

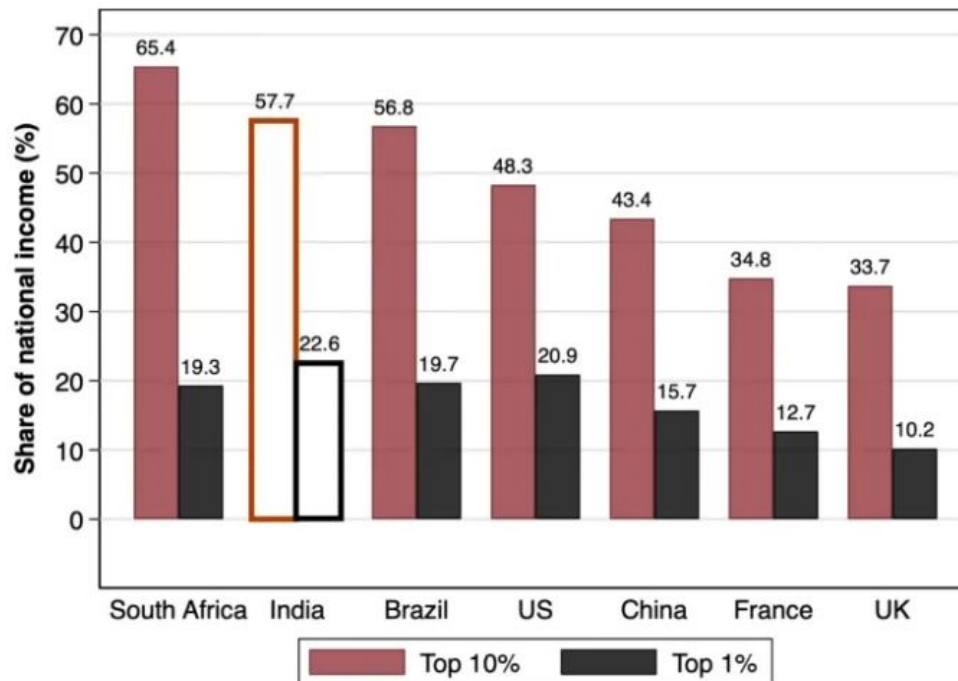
- The WIL is a Paris based global research center focused on the study of inequality and public policies that promote social, economic and environmental justice.
- The WIL hosts and maintains the World Inequality Database (WID), the most comprehensive open-access database on global inequality dynamics.
- WID includes data on the evolution of income and wealth distribution, as well as gender and environmental inequality.

- The WIL has released a paper out on the state of inequality in India, titled, Income and Wealth Inequality in India, 1922-2023: The Rise of the Billionaire Raj.
- The report has analysed the data between 1922 and 2022, a century of data on incomes and wealth.
- **Findings** - By 2022-23, top 1% income and wealth shares (22.6% and 40.1%) are at their highest historical levels.
- India's top 1% income share is among the very highest in the world, higher than even South Africa, Brazil and US.
- **Billionaire raj** - It says the 'billionaire raj' is now more unequal than the British colonial raj.
- Billionaire raj is the term used to define the post - 2010s rapid rise of billionaires in the country.
- It makes two other observations, one on income tax being regressive, and the other being the poor economic data, which has seen a decline recently.
- Inequality has been rising sharply in India since the 1980s, between 2014-15 and 2022-23, the rise of top-end inequality has been particularly pronounced in terms of wealth concentration.

### Key Takeaways

- **Inequality** - Inequality declined post-independence till the early 1980s, after which it began rising and has skyrocketed since the early 2000s.
- Trends of top income and wealth shares track each other over the entire period of the study.
- **2014-15 & 2022-23** - Between 2014-15 and 2022-23, the rise of top-end inequality has been particularly pronounced in terms of wealth concentration.
- By 2022-23, top 1% income and wealth shares (22.6% and 40.1%) are at their highest historical levels.
- India's top 1% income share is among the very highest in the world, higher than even South Africa, Brazil and US.

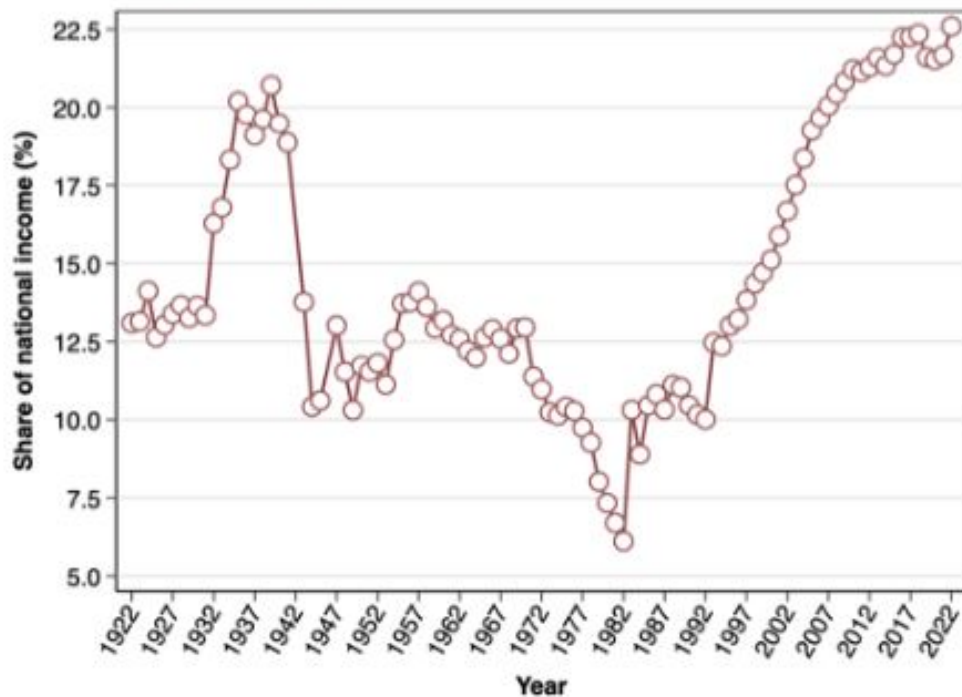
**Figure 15a: Top income shares in global perspective, 2022-23**



- **Income Tax** - In line with earlier work, the paper finds suggestive evidence that the Indian income tax system might be regressive when viewed from the lens of net wealth.
- A restructuring of the tax code to account for both income and wealth, and broad-based public investments in health, education and nutrition are needed to enable the average Indian.
- **Super Tax** - A super tax of 2% on the net wealth of the 167 wealthiest families in 2022-23 would yield 0.5% of national income in revenues and create valuable fiscal space to facilitate such investments.
- Super tax serves as a tool to fight inequality.



**Figure 5a: Top 1% national income share, 1922-2022**



Bharti, Chancel, Piketty and Somanchi, 2024

## References

1. [The Wire - India's Inequality at Historic High](#)
2. [The Indian Express - Takeaways from World Inequality Lab paper](#)
3. [Deccan Herald - India's richest 1% holds 40% of wealth](#)
4. [WID - Income and wealth inequality in India, 1922-2023](#)

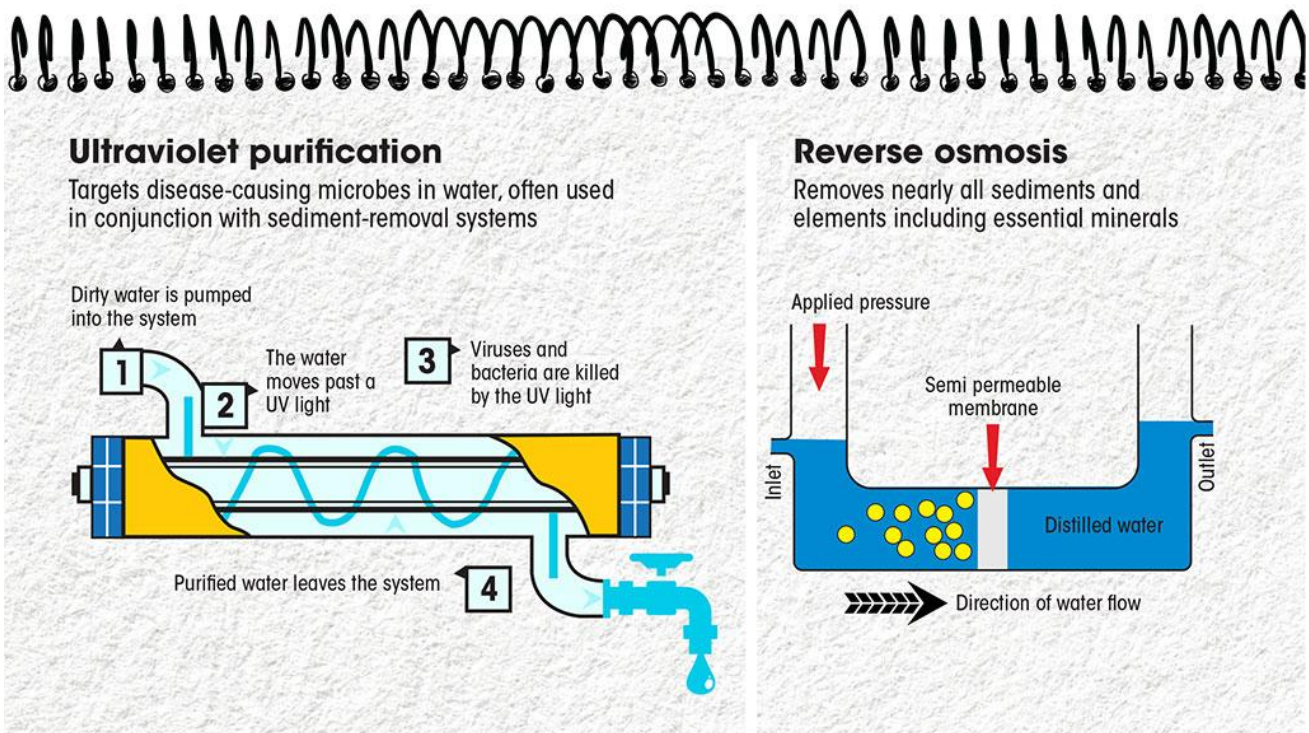
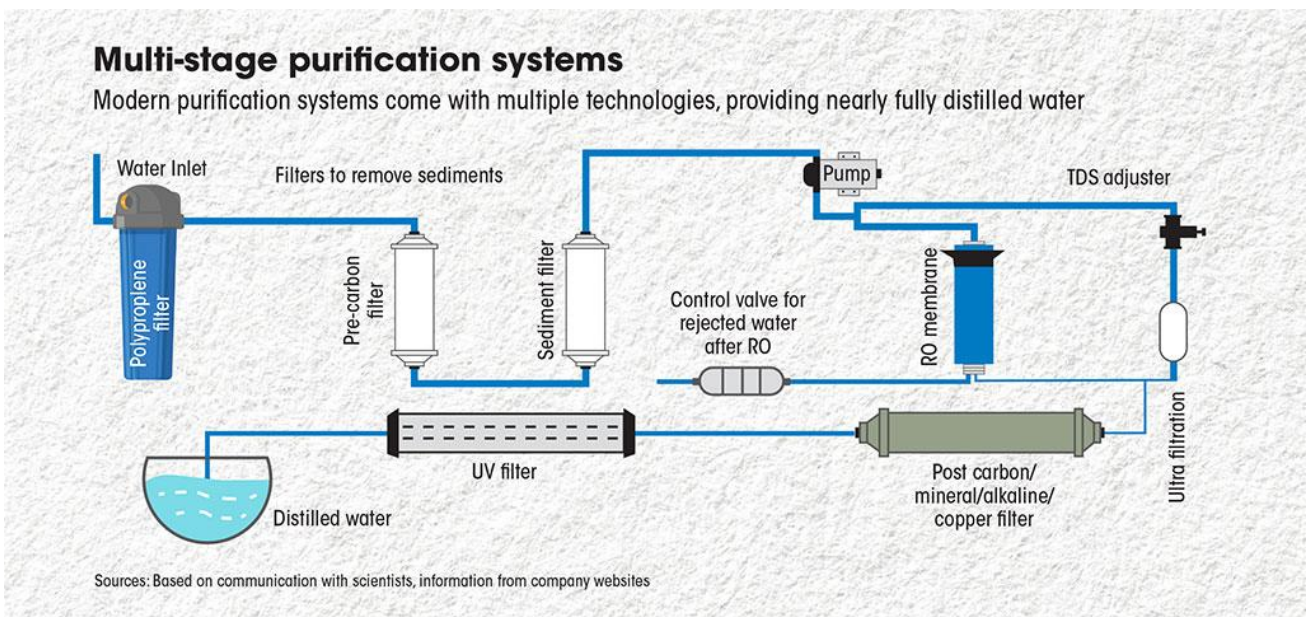
## Reverse Osmosis

*Water purifiers that use reverse osmosis (RO) are emerging as a popular choice for safe and clean drinking water in India, however, experts warn that RO water with dangerously low levels of mineral content can have adverse impact on health.*

- **Reverse Osmosis (RO)** - It is a water purification process that uses a partially permeable membrane to remove ions, unwanted molecules and larger particles from drinking water.
- Reverse osmosis works by reversing the principle of osmosis.
- The salt solution is subjected to pressure and pressed against the semi-permeable membrane.
- Here, the applied pressure is greater than the osmotic pressure.
- Thus, the molecules move from a highly concentrated solution to a less concentrated solution.
- **Diffusion** - Diffusion is a process by which the molecules move from the region of higher concentration to lower concentration.
- There is a net movement meaning more molecules moving in one direction than in the opposite direction.
- In osmosis, the water molecules and the concentration gradient occurs over the semipermeable membrane which allows the entry of water and blocks the passage of

ions and other larger molecules including sodium, chlorine, bacteria, glucose, etc.

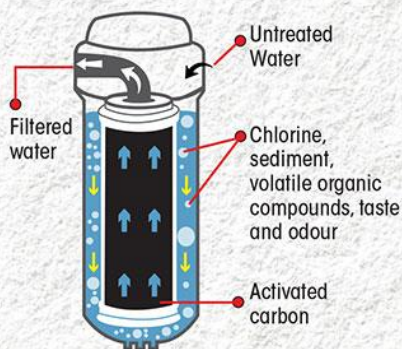
- Reverse osmosis is the process or the technology which is used to remove ions, mineral chemicals, and other impurities from drinking water.
- In this process, greater pressure is applied, forcing the water to travel through the semipermeable membrane in opposite to natural osmosis.
- **TDS** - In RO, the total dissolved solids (TDS), a major determinant of water quality - in water are reduced to meet potable water standards.
- TDS comprise inorganic salts like calcium, magnesium, etc and some small amounts of organic matter that are dissolved in water.
- Home filters waste nearly 80% of the water during treatment.
- The resort to restrict home filters may cause consumer to worry but it is unlikely that they will be taken to task for using such water filters.
- Various methods, technologies to remove impurities from water:





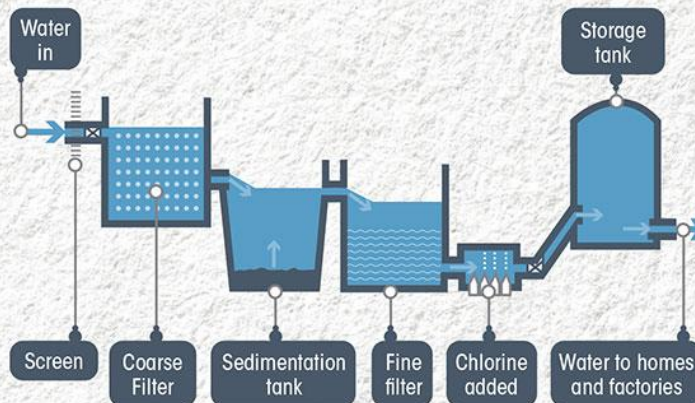
## Activated carbon filter

Removes chlorine, pesticides and other organic matter from water



## Filtration, chlorination

Method used by most municipalities, water-supplying authorities. Sedimentation removes solids, while chlorination kills bacteria



## Boiling, straining

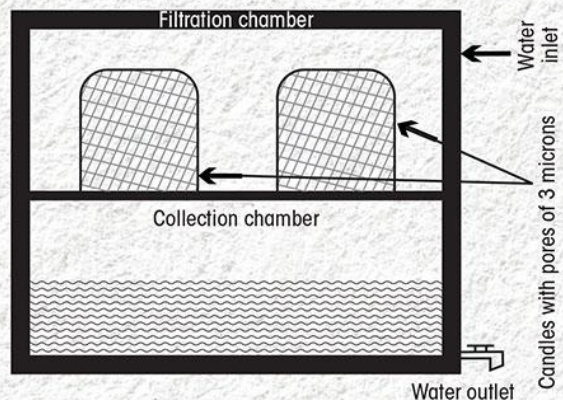
Simplest method to rid water of all impurities and microbes

While boiling kills microbes, straining ensures all solids are removed



## Candle filter

Basic purification system that clears drinking water of large sediments



## Reference

[Down To Earth - Are water purifiers safe?](#)




## Great Indian Bustard (GIB)

*The Supreme Court constituted an expert committee to determine the scope, extent and feasibility of electric lines in priority spots of Great Indian Bustard.*

- **Scientific Name - *Ardeotis nigric***
- Locally called **Godawan**, GIB is a large bird of the bustard family (Otididae) and one of the heaviest flying birds in the world.
- They are not great fliers but have wide sideways vision to maximise predator detection.
- Great Indian Bustard is the **state bird of Rajasthan**.

The mascot for CMS COP13, which was held in Gandhinagar, India in 2020 was “**Gibi - The Great Indian Bustard**”.

- **Habitat** - Dry grasslands and scrublands on the Indian subcontinent.
- Its largest populations are found in **Rajasthan** in the arid grasslands of Thar Desert National Park and Pokhran Field Firing Range.
- It is considered as an indicator of the health of grassland ecosystem.
- **Feed** - They are omnivores.
- **Reproduction** - They are a slow-reproducing species and lay few eggs and have almost a year-long parental care of chicks.
- **Threat** - Habitat loss, Hunting and poaching.
- **Conservation Efforts** - In 2012, **Project Bustard**, a national conservation program was launched to protect the GIB along with **Bengal florican** (Critically endangered) and **lesser florican** (Critically endangered).
- GIB has also been identified as one of the species for the recovery programme under the **Integrated Development of Wildlife Habitats** of Ministry of Environment, Forests and Climate Change.

Conservation Status of Great Indian Bustard														
IUCN Red List	Critically Endangered	<table border="1"> <thead> <tr> <th colspan="3">Conservation Status of Great Indian Bustard</th> </tr> </thead> <tbody> <tr> <td>IUCN Red List</td> <td>Critically Endangered</td> <td rowspan="4"></td> </tr> <tr> <td>Wildlife (Protection) Act, 1972</td> <td>Schedule I</td> </tr> <tr> <td>CMS Convention</td> <td>Appendix I</td> </tr> <tr> <td>CITES</td> <td>Appendix I</td> </tr> </tbody> </table>	Conservation Status of Great Indian Bustard			IUCN Red List	Critically Endangered		Wildlife (Protection) Act, 1972	Schedule I	CMS Convention	Appendix I	CITES	Appendix I
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## References

1. [The Hindu | SC forms expert panel for Bustard](#)
2. [WWF India | Great Indian Bustard](#)
3. [Britannica | GIB](#)

## Other Important Topics

### EXERCISE IMT TRILAT- 2024

The 2<sup>nd</sup> edition of the Trilateral Exercise (IMT TRILAT) began recently in the western Indian Ocean.

- It is a joint Tri Lateral maritime exercise between **India, Mozambique, and Tanzania**.
- The exercise aims at capability development to address common threats through training and sharing of best practices.

### The Order of the Druk Gyalpo

Prime Minister Narendra Modi was recently awarded the order of the Druk Gyalpo during the 114<sup>th</sup> National Day of Bhutan.

- The award was announced in 2021 in appreciation for his efforts towards strengthening India-Bhutan ties, and in particular India's provision of the first round of 500,000 doses of Covid-19 vaccines.
- **The Order of the Druk Gyalpo** also known as "Ngadag Pel gi Khorlo" is the **highest civilian award of Bhutan** recognizing lifetime service to the people and kingdom.

To refer Prime Minister Narendra Modi's [Other Awards](#)

### **E-cigarettes ban in New Zealand**

- New Zealand recently said that it would ban **disposable e-cigarettes or vapes**, and raise financial penalties for those who sell such products to minors.
- **India bans e-cigarettes in 2019.**
- **Disposable e-cigarettes** - A type of e-cigarette designed to be used one time (not rechargeable or refillable)

### **Byadgi chilli**

- Byadagi chillies are a type of chili that are primarily grown in **Karnataka, India.**
- They are named after the town of **Byadgi**, where the chillies were earlier grown in.
- Byadgi chillies are **hotter than Kashmiri** chillies but milder than the Guntur variety.
- **Primary varieties**
  - **Byadgi Kaddi**
  - **Byadgi Dabbi**
- These 2 chilli varieties were granted the Geographical Indication (**GI**) tag in **2011.**

### **Ban of cotton candy in Himachal Pradesh**

**Himachal Pradesh** has recently instituted a **1-year ban** on the production, sale and storage of cotton candy or candy floss.

- It was due to the presence of a chemical named [Rhodamine-B](#) was confirmed.
- The other states that ban Rhodamine-B were **Karnataka, Tamil Nadu, Puducherry and Goa.**

### **Arsenic Contamination**



A new study highlighted that 32% of the global population lives in low- and middle-income countries that do not adhere to the World Health Organization's recommended limits of Arsenic in water.

- **Arsenic contamination-** Arsenic is highly toxic in its inorganic form and can be found in high levels in the groundwater of several countries.
- Rice contains more arsenic in comparison to other cereals. Rice contains inorganic arsenic (iAs), a Group 1 carcinogen.
- Prolonged exposure of arsenic can lead to even diabetes and cardiovascular diseases.
- **WHO recommendation** - The World Health Organization (WHO) recommends that drinking water contain no more than **10 micrograms of arsenic per liter (µg/L)**.
- India adopts 10 parts per billion as its standard.

### Operation Indravati

India recently launched 'Operation Indravati'

- **Aim** - To evacuate its citizens stranded in **war-torn Haiti**
- India does not have an embassy in Haiti and the situation in the country is being monitored by the Indian mission at Santo Domingo, the capital of the Dominican Republic.



**International Telecommunication Union's Digital Innovation Board (DTB)**



*Dr Neeraj Mittal was unanimously elected as co-chair of the Digital Innovation Board of International Telecommunication Union's (ITU).*

- **Aim** - To create a more inclusive and equitable digital future for all.
- It formed under the aegis of ***Innovation and Entrepreneurship Alliance for Digital Development***.

- The Digital Innovation Board comprises of Ministers and Vice Ministers of Telecom/ICT of ***23 Member Countries*** of ITU.

### **International Telecommunication Union (ITU)**

- ITU is the United Nations specialized agency for information and communication technologies (ICTs).
- The Organization is made up of ***193 Member States*** and more than 1000 companies, universities and international and regional organizations.
- **Headquarters - Geneva, Switzerland**
- ITU is the oldest agency (since 1865) in the UN family.

### **Pygmy Hippo (Choeropsis liberiensis)**

*A rare pygmy hippo was recently born in captivity in Athens' Attica Zoological Park, Greece.*

- The pygmy hippo is the smaller, reclusive and nocturnal cousin to the more widely known common hippo.
- **Distribution** - They are found in western Africa, mainly in Liberia, but also in Sierra Leone, Guinea, and Cote d'Ivoire.
- **Habitat** - They are solitary, living in lowland primary and secondary forests close to rivers, streams and palm tree swamps.
- **Conservation status**
  - **IUCN** - Endangered.
  - **CITES** - Appendix II.



**Orans, Dev vans, Runds**

*Rajasthan recently notified to recognize orans, dev vans and runds as deemed forests has sparked fear among community dwellers.*

<b>Types</b>	<b>Description</b>
<b>Orans</b>	<ul style="list-style-type: none"><li>• Community-preserved sacred groves in Rajasthan, also known as "virgin" forests.</li><li>• <b>Found in</b> - Aravali Mountain Range and the Great Indian Desert of Rajasthan.</li></ul>
<b>Dev vans</b>	<ul style="list-style-type: none"><li>• These are sacred forests that perform ecological functions such as water recharging, nutrient cycling, biodiversity conservation, and preventing soil erosion.</li><li>• In mountain areas, they can also prevent landslides.</li></ul>
<b>Runds</b>	<ul style="list-style-type: none"><li>• Traditionally conserved open forests.</li></ul>

- **Deemed forests** are areas of land that appear to be forested but are not officially classified as such in government or revenue records.
- In India, deemed forests account for about 1% of total forest land.