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MINISTRY OF SCIENCE AND TECHNOLOGY



MK Yadav Sir

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ECGC Ups Cover to 90% for Exporters with Up to ₹50-cr Credit Limit

Our Bureau

New Delhi: The Export Credit Guarantee Corporation (ECGC) plans to support exports worth ₹10 lakh crore in FY24 from around ₹6.7 lakh crore at present. It has also increased the insurance cover for exporters with a credit limit of up to ₹50 crore to 90% and extended its cover to nine more banks. The change comes into effect on July 1, 2023 and is expected to benefit around 3,000 exporter-borrower accounts, commerce and industry minister Piyush Goyal said on Friday.

Last year, ECGC extended cover under Export Credit Insurance for banks scheme for the accounts with export credit working capital limits up to Rs 20 crore sanctioned by the banks with enhanced cover of 90% from 60% earlier. Traders and gems, jewellery and diamond exporters were excluded from this. The State Bank of India, Central Bank of India, Bank of Maharashtra and Saraswat Bank have so far opted for the enhanced cover.

Commerce and industry minister Piyush Goyal said that the benefit of the enhanced cover will be extended to the accounts with limits up to ₹50 crore for these four banks without extra cost.

For nine banks where six-year claim to premium ratio is less than 70%, cover for accounts with export credit working capital limits up to Rs 20 crore, will be offered enhanced cover of 90% without any additional cost provided the banks are extending the export credit at an interest rate corresponding to the accounts rated 'AA' (or with



PIYUSH GOYAL
Commerce & Industry Minister

We will request all banks next week to get involved... The experience has been satisfactory in terms of low default ratio in the last one year

equivalent rating).

"We will request all banks next week to get involved in this scheme," Goyal said, adding that the extended cover has led to easing of interest rates on the credit and loans obtained from the banks.

"The experience under the cover has been satisfactory in terms of low default ratio in the last one year," the commerce and industry ministry said.

M Senthilnathan, Chairman, ECGC said that during FY23, ECGC supported over 16,000 exporters with business worth ₹6.68 lakh crore.

Context: The Export Credit Guarantee Corporation (ECGC) plans to support exports worth ₹10 lakh crore in FY24 from around ₹ 6.7 lakh crore at present.

- It has also **increased the insurance cover** for exporters with a credit limit of up to ₹ 50 crore to 90% and extended its cover to nine more banks.
- The **change comes into effect on July 1, 2023** and is expected to benefit around 3,000 exporter borrower accounts.

Export Credit Guarantee Corporation (ECGC)

- The **Ministry of Commerce and Industry** owns 100% of ECGC Ltd.
- In 1957, the Government of India established the **Export Risks Insurance Company**.
- In 1964, the **name was changed** to Export Credit & Guarantee Company Ltd. In August 2014, it was renamed ECGC Ltd.
- The ECGC was **founded to encourage exports by providing exporters with credit insurance** services against nonpayment risks from overseas purchasers due to economic and political reasons.

India, US agree to end 6 WTO disputes

Won't have any trade dispute by year-end: Goyal

SHREYA NANDI
New Delhi, 23 June

In what could give a boost to bilateral trade ties between India and the United States (US), the two countries have decided to close half-a-dozen outstanding disputes at the World Trade Organization (WTO), including the retaliatory tariffs India imposed on imports of some farm products from the US.

"Underscoring the willingness and trust of both countries in resolving trade issues, the leaders welcomed the resolution of six outstanding WTO disputes through mutually agreed solutions as well as their understandings on market access related to certain products of significance to the bilateral trade relationship," both sides said in a joint statement at the end of the three-day state visit of Prime Minister Narendra Modi to the US.

Both sides, within a month's time, will notify the WTO's dispute settlement panel that disputes are being bilaterally resolved and withdraw three cases each, slapped against each other.

"It is a very big victory for India and it is a mutually beneficial arrangement for both countries. PM Modi and President Joe Biden have created a win-win situation for both US and India," Commerce and Industry Minister Piyush Goyal told reporters on Friday.

Goyal said that by year-end, there would be no trade disputes between India and the US since both sides hope to resolve a pending dispute by then. In that case India, in 2015, had lost a long-standing dispute over poultry imports from the US.

Apart from the breakthrough in the disputes, India

THE SIX DISPUTES

DISPUTES INITIATED BY INDIA

- Countervailing measures on certain hot-rolled carbon steel flat products from India
- Measures relating to the renewable energy sector
- Measures on steel and aluminium products

DISPUTES INITIATED BY US

- Measures relating to solar cells and solar modules
- Export-related measures
- Additional duties on some products from the US

PENDING DISPUTE: Measures concerning the importation of certain agricultural products (poultry case) initiated by the US

continued to push for restoration of its status under the US Generalised System of Preferences programme. According to the joint statement, the US will consider it keeping in mind the eligibility criteria fixed by the US Congress.

India's beneficiary status—allowing duty-free market access to certain goods—under GSP was withdrawn in 2019. Both nations welcomed the 'substantial conclusion' of

negotiations on the proposed Indo-Pacific Economic Framework supply chain agreement. India and the US also committed to working with 12 other IPEF partner nations to conclude negotiations of the agreements under the clean economy and fair economy.

WTO disputes

One of the major cases involved the US in 2018 imposing 25 and 10 per cent import duty on steel and aluminium, respectively, citing national security reasons, by then US President Donald Trump. Thereafter, India retaliated with tariffs on 28 items in June 2019. Both sides have now firmed up a mutually agreeable solution.

India has agreed to remove retaliatory tariffs on items, such as lentils, walnuts, apples, almonds, chickpeas, as well as on boric acid, and diagnostic reagents. "As part of the market access, going forward, the US Department of Commerce will clear 70 per cent of steel and 80 per cent of aluminium applications for products originating in India. These applications will be made under the exclusion process of Section 232 by the importers on behalf of the exporters. It would provide significant impetus to raise India's steel and aluminium exports by about 35 per cent," the Indian commerce ministry said in a statement.

"Any out-of-court settlement creates a conducive environment for trade to grow because none of the sides are hurt. It's a good decision. It will not only be favourable in terms of India's exports to the US, but will give the right signal for overall exports also," said Ajay Sahai, director-general and CEO, Federation of Indian Export Organisations.

Context: In what could give a boost to bilateral trade ties between India and the United States (US), the two countries have decided to close half dozen outstanding disputes at the **World Trade Organization (WTO)**, including the retaliatory tariffs India imposed on imports of some farm products from the US.

Key Points

- By year end, there would be **no trade disputes** between India and the US since both sides hope to resolve a pending dispute by then.
- In that case India, in 2015, had **lost a longstanding dispute** over poultry imports from the US. Apart from the breakthrough in the disputes, India continued to push for restoration of its status under the US Generalised System of Preferences programme.
- According to the joint statement, the US will consider it keeping in mind the **eligibility criteria fixed by the US Congress**.
- **India's beneficiary status** - allowing duty free market access to certain goods - under GSP was withdrawn in 2019.
- Both nations welcomed the '**substantial conclusion**' of negotiations on the proposed Indo Pacific Economic Frame -work supply chain agreement.
- **India and the US also committed to working** with 12 other IPEF partner nations to conclude negotiations of the agreements under the clean economy and fair economy.
- One of the major cases involved the **US in 2018 imposing 25 and 10 per cent import duty on steel and aluminium**, respectively, citing national security reasons, by then US President Donald Trump.
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- Both sides have now firmed up a **mutually agreeable solution**.
- **India has agreed to remove retaliatory tariffs** on items, such as lentils, walnuts, apples, almonds, chickpeas, as well as on boric acid, and diagnostic reagents.
- As part of the **market access**, going forward, the US Department of Commerce will clear 70 per cent of steel and 80 per cent of aluminium applications for products originating in India.
- These applications will be made under the **exclusion process of Section 232 by the importers** on behalf of the exporters.
- It would provide significant impetus to raise India's steel and aluminium exports by about 35 per cent.

COAL-BASED THERMAL POWER GENERATION

(Syllabus: GS Paper 3 - Energy)

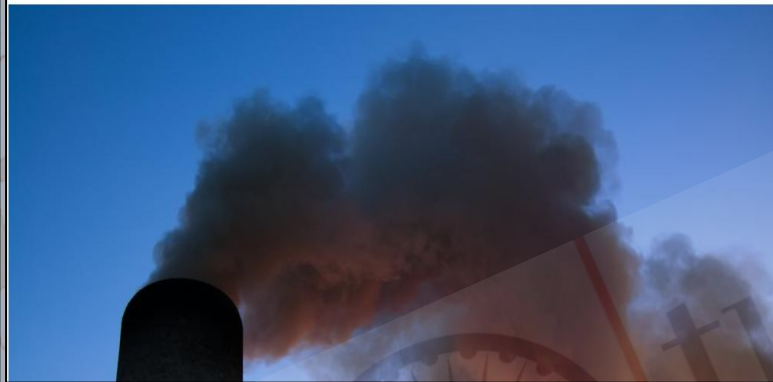
Only 5% of India's coal-based thermal power capacity meets SO2 emissions norms: CSE report

None of the plants in the eastern states were found to be compliant



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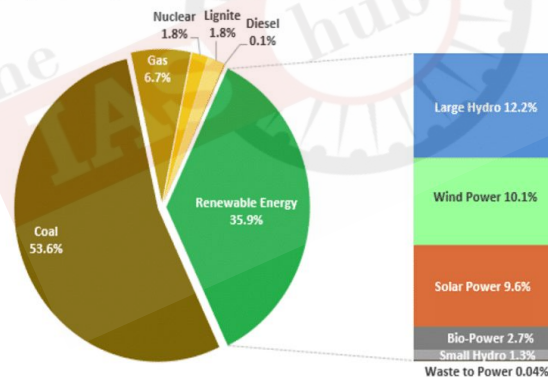
By Preetha Banerjee
Published: Friday 23 June 2023



India - Cumulative Installed Power Capacity Mix (%)

Renewables (including Large Hydro) comprise ~35.9% of India's total installed capacity, with solar accounting for ~9.6%. Among renewables, solar accounts for ~26.7% of the installed capacity

MERCOM
India research



Data from CEA, MNRE, Mercom India Solar Project Tracker (Installed Capacity as on 31 Dec 2019)

Source: Mercom India Research

Context: As of April 2023, only 5 per cent of the country's installed coal-based thermal power generation capacities had the flue gas desulfurization (FGD) mechanism in place, according to a new report by Delhi-based non-profit Centre for Science and Environment (CSE).

- Moreover, **17 percent of the overall coal power capacity** was still at very initial stages of compliance.
- **FGD is a set of technologies used to remove sulfur dioxide (SO₂)** from exhaust flue gases of fossil-fuel power plants, and from the emissions of other sulfur dioxide emitting processes such as waste incineration, petroleum refineries, cement and lime kilns.

Key Points

- The findings for **eastern India were abysmal**: No plant in the region was found to be compliant of SO₂ emissions norms.
- **Maharashtra has the highest capacity** complying with the norms, followed by Gujarat, Uttar Pradesh, Haryana and Tamil Nadu.
- **Only 0.81 GW of the 32.63 GW** newly commissioned capacity is complying with the norms.
- The latest **National Electricity Plan (NEP) for 2022-32** cited various factors that may have delayed the implementation of the norms: The sector's dependency on the external market for some FGD components, novelty of the technology for the Indian market and the COVID-19 pandemic.

DGFT liberalizes and simplifies the policy for export of Drones/Unmanned Aerial Vehicles (UAVs) for civilian end uses from India

Context: The **Directorate General of Foreign Trade (DGFT)**, Ministry of Commerce and Industry, has simplified and liberalized the policy for export of Drones/UAVs meant for civilian end uses from India.

- This decision has been taken in line with the emphasis laid in **India's Foreign Trade Policy 2023** on facilitating the export of high tech items which includes the promotion of exports of Drones/Unmanned Aerial Vehicles (UAVs) manufactured in India for civilian end uses and taking into consideration India's international obligations on non-proliferation.

Key Points

- **All kind/type of drones/UAVs** were earlier controlled/restricted for export under the category 5B of the SCOMET (Special Chemicals Organisms Material Equipments and Technology) list under Appendix 3 of Schedule 2 of the ITCHS classification of Import and Export Items.
- **This list deals with the category of items** that are subject to specific regulations due to their potential dual-use nature-meaning they can have both civilian and military applications.
- **SCOMET license** was required for export of such items and the Industry was facing challenges to export drones with limited capability which are only meant for civilian use.
- The **export of Drones/UAVs not covered under the specified categories in SCOMET list** and capable of range equal to or less than 25 km and delivering a payload of not more than 25 kgs (excluding the software and technology of these items) and meant for only civilian end-use, will now be subject to General Authorization for Export of Drones (GAED), a one time general license valid for 3 years.
- This **policy change will not require the Drone Manufacturers/Exporters** with GAED Authorization to apply for SCOMET license for every similar export shipment meant for civilian purpose, within the validity period of 3 years subject to post reporting and other documentary requirements, reducing the compliance by the Industry to apply for SCOMET license every time they have to export any kind of civilian drone/UAVs.

Far from Kashmir, the world's most expensive spice blooms indoors

Entrepreneurs are using controlled environments to cultivate saffron in Maha, AP and Haryana

Priya.Kothari@timesgroup.com

Kashmir is famous for its saffron, the world's most expensive spice which is notoriously tricky to grow but also to harvest because the delicate flowers have to be hand-picked. But now the farming of saffron, which is a sought-after ingredient for everything from curries to cosmetics and cocktails, is moving to controlled indoor environments in Maharashtra, Haryana and Andhra Pradesh. Students, aspiring entrepreneurs and even software engineers with no farming experience are trying to cultivate the 'red gold' as the spice is called.

Haryana-based Naveen and Praveen Sindhu, who used to cultivate Cordyceps militaris, a variety of medicinal mushrooms, have been early movers to saffron growing in a non-traditional region. "We started about three to four years ago. It is as technical as cultivating Cordyceps militaris. We do indoor farming with automated devices to control the temperature, humidity and light to grow the flower that yields saffron," Naveen said. With an initial investment of Rs 10 lakh, the Sindhu brothers harvested about 5kg last year. They said that 70% of their harvest is exported to the US, Dubai, Canada and Portugal.

Saffron's fragrance and flavour are unique and it is used widely in many cuisines. The dried-orange strands come from the purple corm sativus plant which has two flowers, each with three stigmas.

Growing saffron and caring for it is a task. "The corms need to be constantly monitored as the weather conditions are critical. The corms or bulbs are planted in late June or early July and they bear flowers by October or early November," says software engineer-turned-farming entrepreneur Shailesh Modak, who runs 365Dfarms in Pune. The bulbs need at least six to eight hours of sunlight and a well-drained soil that is moderately rich in organic matter.

Harvesting saffron is hard work. Each corm typically bears one or two flowers. The flowers are extremely delicate and are



ORANGE IS THE NEW FLAVOUR: Saffron cultivation, a labour-intensive, delicate process, has been unique to Kashmir but now farmers elsewhere are taking to it

traditionally plucked when they are in full bloom at sunrise to avoid wilting. "The stigmas are hand plucked and dried, a labour-intensive process that can take many days. These stigmas are placed in trays for drying for 3-5 days until their moisture content is down to 8-10%. They are then packed and ready for dispatch," a saffron farmer says. It takes some 200 flowers to produce one gram of saffron.

Estimates indicate that globally around 300 tons of saffron are produced every year. After Iran which contributes to 80% of production, India with 7% is the second largest grower. Spain and Greece are the other producers. Demand for the world's costliest condiment is higher than its supply which keeps prices up. The scarcity has also encouraged a counterfeit market. Pune resident Richa Somani says earlier she was never sure if the saffron she bought was genuine. "The GI tag for the Kashmiri saffron does help guarantee quality but it is prohibitively costly. Since more people are now farming saffron now, I hope the price comes down," she adds.

Modak says he had a successful saffron harvest in his first attempt last year with about 500kg of good quality saffron corms from Kashmir. "We were able to harvest 740g last year using soil-less farming cultivation techniques and are now working

SPICED UP: Pune's Shailesh Modak has switched from software to saffron farming

Size of the global market: \$589 million in 2022

Growth rate: 6.4% CAGR from 2022 to 2030

Growth drivers: Medicinal, cosmetic
(Source: Grand View Research)

Cost of 1g of Kashmiri saffron:
₹ 500-700 (in India)
₹ 900-Rs 1,000 (in US, Europe)



ing on the corm production techniques in indoor farming," Modak adds.

While it may be relatively easy to source corms from Kashmir and grow saffron in a controlled environment, the real challenge lies in corm production, especially in indoor cultivation methods, say saffron farmers. "We are working on technology for indoor corm production. Once developed, it will be demonstrated to entrepreneurs," says Bashir Ahmad Allie, head of advanced research station for saffron & seed spices, Sher-e-Kashmir University of Agricultural Sciences and Technology.

With the implementation of advanced farming techniques, better corm selection, nutrient management, production of saffron hit a 27-year high in 2022 in Kashmir. Statistics released by the department of agriculture in J&K said saffron production reached 16.3 metric tons in 2022 as compared to 15 metric tons in 2021.

With saffron selling as high as Rs 500-Rs 700 per gram, indoor saffron farming is emerging as a popular choice. "We have received over 100 queries from students, and prospective entrepreneurs to learn indoor saffron cultivation. We will conduct training sessions in July and August at the university and provide kits to prospective cultivators," says Allie.

Modak and Sindhu too have conducted training workshops for farmers and agriculture students on saffron farming. "While growing saffron may be lucrative, it requires a lot of initial investment in technology and infrastructure. Many farmers give up if the first crop fails. It requires patience and precision," points out a saffron cultivator.

Context: Kashmir is famous for its saffron, the world's most expensive spice which is notoriously tricky to grow but also to harvest because the delicate flowers have to be hand-picked.

Key Points

- Now the farming of saffron, which is a sought-after ingredient for everything from curries to cosmetics and cocktails, is moving to controlled indoor environments in Maharashtra, Haryana and Andhra Pradesh.
- Students, aspiring entrepreneurs and even software engineers with no farming experience are trying to cultivate the 'red gold' as the spice is called.
- Haryana-based Naveen and Praveen Sindhu, who used to cultivate Cordyceps militaris, a variety of medicinal mushrooms, have been early movers to saffron growing in a non-traditional region.
- Saffron is a plant whose dried stigmas (thread-like parts of the flower) are used to make saffron spice.
- Pampore region, in India, commonly known as Saffron bowl of Kashmir, is the main contributor to saffron production, followed by Budgam, Srinagar, and Kishtiwari districts.
- The National Saffron Mission (launched as a part of Rashtriya Krishi Vikas Yojana) was sanctioned by the central government in the year 2010 in order to extend support for creation of irrigation facilities through tube wells and sprinkler sets which would help in production of better crops in the area of saffron production.

Region-specific anti-venoms are required to improve snakebite treatment in Assam

Context: A collaborative study consisting of clinicians, herpetologists, and volunteers shows that **region-specific antivenom** can improve management of snakebite treatment in Assam.

Key Points

- The study shows that **about 1011 patients were bitten by snakes** in this small region in the last five years, of which 13.7% were venomous bites.
- Treatment with several vials (10-30) of **commercial polyvalent antivenom** somehow could save the lives of patients bitten by Cobra and Kraits; however, antivenoms are ineffective in neutralizing the clinical effects (coagulopathy) of pit viper venoms. This study shows the requirement for region-specific antivenoms for better-managing snakebites in this region.
- **Snakebite is a neglected tropical disease (NTD)** because it primarily affects marginalized populations in impoverished rural areas with limited healthcare services.
- According to the World Health Organization, there are **~5.4 million snake bites yearly**; however, in the Indian subcontinent, the actual magnitude of the snakebite problem is far from the reported value.
- **Assam is a biodiversity hotspot**, has a unique distribution of venomous snakes from the rest of the country and is predominated by the Indian monocled Cobra (*Naja kaouthia*), banded krait (*Bungarus fasciatus*), greater black krait (*B.niger*), lesser black krait (*B. lividus*), King cobra (*Ophiophagous hannah*), green pit viper (*Trimeresurus erythrurus*), and Salazar's pit viper (*T. salazar*), etc. Sadly, the snakebite data remains elusive in Assam.

Snakebites in India

- A report by the Kerala Forest department stated that **Snakebites results in the highest number of human deaths** nearly double that of wild elephants.
- As per ICMR study India has seen an estimated 1.2 million (12 lakh) snakebite deaths from 2000 to 2019, an average of 58,000.
- India accounts for almost 50% of global snakebite deaths.
- In India, around 90% of snake bites are caused by the **'big four': Russell's viper, saw-scaled viper, spectacled cobra, and the common krait.**

Treatment

- **Antivenoms:** Antivenoms are **purified antibodies** against venoms or venom components. Antivenoms are produced from antibodies made by animals to injected venoms.
 - Antivenom is the **only definitive treatment** for effective bites by venomous snakes.
 - Snake antivenoms are included in the WHO Essential Medicines List.
- **Antivenoms making process:** To make life-saving antivenoms, scientists enlist the help of horses that live on specialized ranches.
 - The **scientists inject the animals with a tiny, harmless dose of venom**, which causes their immune systems to produce antibodies proteins that attack and disable the venom toxins.
 - Then the scientists can **collect the antibodies** and use them to treat people who have been bitten or stung.

NATO winds up its largest air exercise in Europe

Agence France-Presse
BERLIN

NATO on Friday concluded its largest ever air force deployment exercise in Europe in a show of force against potential threats such as Russia.

The German-led "Air Defender 23" manoeuvres brought together some 250 military aircraft from 25 NATO and partner nations like Japan and Sweden.

Up to 10,000 service members participated in the drills intended to boost interoperability and preparedness to protect against drones and cruise missiles in the case of an attack within NATO territory.

The exercise was a "complete success", the head of the German air force said.

Context: NATO concluded its largest ever air force deployment exercise in Europe in a show of force against potential threats such as Russia.

- The German-led "Air Defender 23" manoeuvres brought together some 250 military aircraft from 25 Nato and partner countries including Japan and Sweden, which is bidding to join the alliance.
- The Euro-Atlantic military alliance's largest ever air exercise has come to a close in Germany.

North Atlantic Treaty Organization (NATO)

- **About:** It is a **military alliance** established by the North Atlantic Treaty (also called the Washington Treaty) of April, 1949, by the **United States, Canada, and several Western European nations** to provide collective security against the Soviet Union.
- **Members:** currently 30 member states.
 - **12 founding members:** Belgium, Canada, Denmark, France, Iceland, Italy, Luxembourg, the Netherlands, Norway, Portugal, the United Kingdom and the United States.
 - **Latest member:** North Macedonia (2020)
 - **India is not a member of NATO** because it is a firmly non-aligned country and stakes its international reputation on remaining non-aligned.
- **Headquarters:** Brussels, Belgium.
- **Objectives:**
 - **Political objectives:** NATO promotes democratic values and enables members to consult and cooperate on defense and security-related issues to solve problems, build trust and, in the long run, prevent conflict.
 - **Military Objectives:** NATO is committed to the peaceful resolution of disputes. If diplomatic efforts fail, it has the military power to undertake crisis-management operations.
- **Funding:** NATO is funded by its members.
 - The U.S. contributes roughly three-fourths of NATO's budget.
- **Functions:** NATO has an integrated military command structure but very few forces or assets are exclusively its own.
 - **Most forces remain under full national command and control until member countries agree** to undertake NATO-related tasks.
 - **All 30 allies have an equal say**, the Alliance's decisions must be unanimous and consensual, and its members must respect the basic values that underpin the Alliance, namely democracy, individual liberty and the rule of law.
 - NATO's protection does not extend to members' civil wars or internal coups.

VULTURES CONSERVATION

(Syllabus: GS Paper 3 - Env & Eco)

Ban on more drugs harmful for vultures welcome move, but more stringent steps needed: Experts

Nimesulide drug continues to possess a threat and should also be banned soon, conservationists say



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By Himanshu Nitnaware
Published: Friday 23 June 2023



Conservation Efforts by India

- **Vulture Action Plan 2020-25:** The Action Plan for Vulture Conservation (APVC) in India, 2020-2025 advocates expansion of the Conservation Breeding Programme of vultures by establishing more centres in different parts of the country.
- **Vulture Conservation and Breeding Centre:** It is a joint project of the Haryana Forest Department and the Bombay Natural History Society (BNHS) to save the three species of vultures, the White-backed, Long-billed and Slender-billed, from looming extinction.

International efforts

- **SAVE (Saving Asia's Vultures from Extinction):** It includes fourteen organisations involved and committed to helping the vultures to date, and this number is steadily growing.
 - **Bombay Natural History Society works with SAVE.**

Context: Vulture conservationists and experts have welcomed the central government's move to ban veterinary drugs aceclofenac and ketoprofen that are fatal for vultures, but suggest more needs to be done for creating a safe environment for the bird.

- **Ketoprofen and aceclofenac** in cattle are equally toxic as Diclofenac and can kill vultures.
- The aceclofenac was rapidly metabolized into **diclofenac** and **ketoprofen** is toxic to Gyps vultures.

Vultures

- It is **one of the 22 species of large carrion-eating birds** that live predominantly in the tropics and subtropics.
- They **act an important function as nature's garbage collectors** and help to keep the environment clean of waste.
- Vultures also **play a valuable role in keeping wildlife diseases in check.**
- **Threats include** Poisoning from diclofenac, Loss of Natural Habitats, Food Dearth and Contamination and Electrocutation by Power lines.

Vultures in India

- India is **home to 9 species of Vulture namely** the Oriental white-backed, Long-billed, Slender-billed, Himalayan, Red-headed, Egyptian, Bearded, Cinereous and the Eurasian Griffon.
- Bearded, Long-billed, Slender-billed, Oriental white-backed are protected in the **Schedule-1 of the Wildlife Protection Act 1972.**
 - Rest are protected under 'Schedule IV'.

IUCN Status

- **Critically Endangered:** Oriental White-backed Vulture, Long-billed Vulture, Slender-billed Vulture and Red-headed Vulture.
- **Endangered:** Egyptian Vulture.
- **Near Threatened:** Himalayan Vulture, Cinereous Vulture and Bearded Vulture.
- **Least Concern:** Eurasian Griffon.

WORLD HYDROGRAPHY DAY CELEBRATIONS AT NATIONAL HYDROGRAPHIC OFFICE, DEHRADUN

Context: The **World Hydrography Day (WHD)** was celebrated by the Indian Naval Hydrographic Department on 21 June 2023.

- The theme for this year's World Hydrography Day is: "**Hydrography - Underpinning the Digital; Twin of the Ocean**" in keeping with development of virtual representation.

Key Points

- As a leading institution responsible for hydrographic surveys and chart production in India, **National Hydrographic Office (NHO)** hosted a range of activities to commemorate the occasion.
- Hydrography is the **science of measuring and describing the physical features** of the Earth's oceans, seas, lakes, rivers, and canals.
- **Hydrographic surveys** are used to collect data on the depth, bottom type, currents, tides, and other characteristics of water bodies. This data is used for a variety of purposes, including navigation, safety, environmental protection, and resource management.
- The **Indian Naval Hydrographic Department (INHD)** celebrates World Hydrography Day by organizing various events and activities to showcase its achievements and to educate and spread awareness about hydrography and its importance in our lives. The department also honours its personnel who have excelled in their fields and have contributed to the advancement of hydrography.
- The **Indian Naval Hydrographic Department (INHD) functions under the Indian Navy** as the nodal agency conducting hydrographic surveys and producing nautical charts in India.

What happened to the Titan submersible in the deep ocean?

Gareth Vipers
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The five people inside a submersible that went missing Sunday are believed to be dead, according to the U.S. Coast Guard and the company that operated the vessel.

The craft, called Titan and operated by OceanGate Expeditions, was launched from an area about 900 miles

off Massachusetts' Cape Cod on an expedition to visit the wreck of the Titanic. Titan lost contact with a research vessel on the surface about one hour and 45 minutes into the dive, kicking off a desperate, days-

long search for the submersible and its passengers.

The Coast Guard said Thursday it found debris consistent with "the catastrophic loss" of the submersible's pressure chamber approximately 1,600 feet from the bow of the Titanic.

What's the latest update on the search?

The search uncovered five major pieces of debris that

investigators they had found the Titan's remains, including a nose cone and the front-end bell of the pressure hull, officials said at a news briefing Thursday.

The debris was found on the



The Titan submersible, whose disappearance on 18 June led to a massive rescue operation, deep into the Atlantic Ocean.

ocean floor in a smooth area without any debris from the Titanic shipwreck, said Carl Hartsfield of the Woods Hole Oceanographic Institution,

which was helping with the search.

"The debris is consistent with the catastrophic loss of the pressure chamber," said Titan.

Coast Guard Rear Adm. John Mauger, who has been leading the search. Experts previously said death would have been instantaneous in those circumstances.

Asked about the prospect of finding the passengers' bodies, Mauger said the operation took place in "an incredibly unforgiving environment."

"We'll continue to work and to search the area but I don't have an answer for prospects," he said.

Teams and equipment from around the world converged in a remote part of the North Atlantic to help with the search. They combed an area at least twice the size of Connecticut for the 22-foot-long Titan.

Rescuers had focused on an area where Canadian aircraft detected banging noises underwater, officials said Wednesday. Officials said Thursday there didn't appear to be any connection between the noises and where debris from the vessel was found.

What is the timeline of events?

Officials are still piecing together a timeline to determine when the submersible imploded, Mauger said.

A top secret military acoustic detection system designed to spot enemy submarines first heard what the U.S. Navy suspected was the Titan implosion hours after the submersi-

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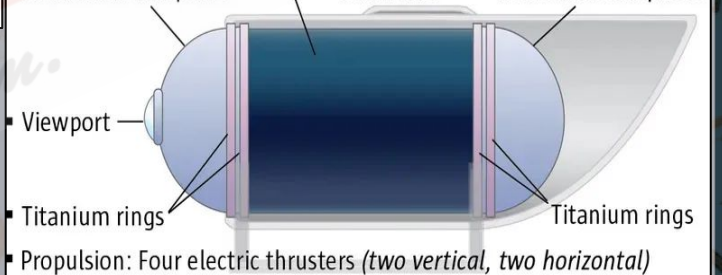
Titan: Manned submersible

Designed and built by OceanGate, Titan is a Cyclops-class manned submersible able to dive to depths of 13,123 feet with a crew of five and can carry up to five people. It is designed to be used for site survey and inspection, research and data collection, film and media production, and deep sea testing of hardware and software.

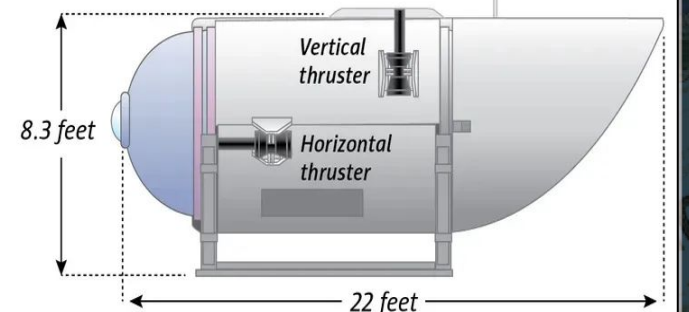
- Capacity: **Five** (one pilot, four crew)
- Life support: **96 hours for five passengers**
- Maximum depth: **13,123 feet**

PRESSURE VESSEL MATERIAL

- Carbon-fiber-wound cylinder (diameter: 4.6 feet, length: 8.3 feet)
- Titanium hemisphere
- Outer hull
- Titanium hemisphere



OVERALL DIMENSIONS



Source: oceangate.com

MARK NOWLIN / THE SEATTLE TIMES

Context: The Titan submersible, which went missing with five passengers onboard earlier this week, was destroyed after suffering a catastrophic implosion.

Submersibles

- Submersibles are **small, limited-range watercraft** designed for a set mission, that are built with characteristics that allow them to operate in a specific environment.
- These vessels are **typically able to be fully submerged** into water and cruise using their own power supply and air renewal system.
- While some submersibles are **remotely operated** and essentially manually controlled or programmed robots, these usually operate unmanned.
- Vessels like the missing Titan are known as **human-occupied vehicles**.
- The **difference between a submarine and a submersible** is a submarine has enough power to leave port and come back to port under its own power.
- On the other hand, a **submersible has very limited power** reserves so it needs a mother ship that can launch it and recover it.
- The **procedure is similar to a boat** that takes scuba divers out to sea with their gear, allowing them to jump for their underwater adventure and then climb back onboard for the trip back to shore.
- Moreover, unlike submarines, **submersibles also have a viewport** and external cameras to view the outside space surrounding the vessel. They also have limited power reserves.

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