

Australian scientists develop model to spot soft corals most at risk of bleaching (GS Paper 3, Environment)

Why in news?

- Recently, Australian scientists have come up with a model that will help researchers quickly **identify soft corals most vulnerable to bleaching** from marine heatwaves, helping prioritise resources to preserve reefs.

What are coral reefs?

- Corals are marine invertebrates or animals not possessing a spine. Each coral is called a polyp and thousands of such polyps live together to form a colony, which grows when polyps multiply to make copies of themselves.

Corals are of two types; hard coral and soft coral.

- Hard corals, also called hermatypic or ‘reef building’ corals extract calcium carbonate (also found in limestone) from the seawater to build hard, white coral exoskeletons.
- Soft coral polyps, however, borrow their appearance from plants, attach themselves to such skeletons and older skeletons built by their ancestors.
- Soft corals also add their own skeletons to the hard structure over the years and these growing multiplying structures gradually form coral reefs. They are the largest living structures on the planet.



What is coral bleaching?

- Bleaching happens when corals experience stress in their environment due to changes in temperature, pollution or high levels of ocean acidity.
- Under stressed conditions, the zooxanthellae or food-producing algae living inside coral polyps start producing reactive oxygen species, which are not beneficial to the corals.
- So, the corals expel the colour-giving zooxanthellae from their polyps, which exposes their pale white exoskeleton, giving the corals a bleached appearance. This also ends the symbiotic relationship that helps the corals to survive and grow.

Mechanism involved:

- The researchers found one type of soft coral was healthier during a heatwave and produced more algal cells than when temperatures were normal.
- Soft corals are often under-researched as they do not form reefs, though they are present in reef ecosystems.
- They grinds up wet, frozen samples of soft coral to create a puree, which is put through a centrifuge that separates algal cells from coral protein.
- Researchers can then look at the quantity of protein, algal cells and chlorophyll, which are all indicators of coral health.

Conclusion:

- Coral bleaching has struck many reefs around the world, including Australia's Great Barrier Reef, which was hit by four mass bleaching events in the past seven years.
- Soft corals take more time to bleach than hard corals but it would be "catastrophic" when they become affected.

Global Electric Mobility Readiness Index 2022
(GS Paper 3, Science and Tech)

Why in news?

- Recently, the Global Electric Mobility Readiness Index (GEMRIX 2022) was released.

<h1 style="margin: 0;">GEMRIX</h1>				
<p>Management consulting firm Arthur D. Little's GEMRIX focuses on four major parameters to gauge EV adoption trend—markets, customers, infrastructure and governments.</p>	<p>GEMRIX has been calculated for 15 countries of which India holds the 11th rank in terms of market readiness for EV adoption.</p>	<p>The Index is designed to compare the market conditions for EV and internal combustion engine (ICE)-driven vehicles.</p>	<p>An EV readiness score of 100 means that in a given country, it is equally beneficial to buy and operate an electric vehicle as one with an internal combustion engine.</p>	<p>The overall usage of electric vehicle (EV) has been on a rise over the last two years across the globe, says the GEMRIX 2022 report.</p>

Key Findings:

- Norway has emerged as the electric vehicle (EV) adoption leader across the globe.
- Norway has a Global Benchmark score of 115, indicating that EVs are emerging as the popular choice for mobility among citizens in that country.
- This is followed by three other distinct groups of countries comprises ‘**Ambitious Followers**’ **China** (Score 83), **Germany** (76), the **UK** (74) and **Singapore** (74), which possess all prerequisites for EV mobility and where EVs are on the verge of becoming mainstream.
- The starters like India, which has a score of 31 face major challenges in costs and infrastructure.

Findings on Starter countries like India:

- In India, with 40 different types of vehicles on offer, customers enjoy a good variety. However, this is mainly in the two- and three-wheeler space while private cars in India do not have a significant share of the EV market yet.
- China in contrast offers more than 100 different models with around half of those being passenger cars.

- In Starter countries, competition grew significantly, driving prices down and pushing up quality.
- **Electric two- and three-wheeler sales grew at 132 per cent and 102 per cent**, respectively, in the financial year 2022, reaching large scale production, leading to sales prices decline.
- Combined with the recent increase in oil prices, the total cost of operating electric two- and three-wheelers is much lower than that of other vehicles.

Way Forward:

- EVs are here to stay. However, despite the mature globalisation of the automotive industry, markets and their requirements differ significantly around the world.
- These differences must be acknowledged to successfully implement a ‘once-in-a-century’ disruption like the change from fossil fuel energy to electric energy, **from molecules to electrons**.
- At the same time, **effective government policies as a response to climate change** and air pollution must look at promoting EV adoption at a faster pace.

India raises concern at UNSC over Haiti's multi-dimensional challenges
(GS Paper 2, International Relation)

Why in news?

- Recently, India raised concern over the multi-dimensional challenges Haiti faces in the backdrop of natural calamities and political turmoil at the **United Nations Security Council (UNSC)**.

Background:

- The resilience of the people of Haiti has been tested repeatedly by unpredictable political developments and tragic national calamities.
- In 2021, Haiti faced challenges on both of these fronts. The assassination of President Jovenel Moise in July 2021 and **the** devastating earthquake of high magnitude followed by a hurricane in August, all these calamities have exaggerated the humanitarian crisis.

Current Situation

<p>The dire humanitarian situation has been further complicated by the prevailing situation of economic stagnation.</p>	<p>The restoration of law and order remains one of the biggest impediments to Haiti's progress.</p>	<p>The persisting gang-related violence and kidnappings, including in the capital Port of Prince have further contributed to a prevailing sense of insecurity.</p>	<p>In some instances, UN personnel have also been targeted</p>
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India's role:

- India's contribution to deflating the persistent problems in Haiti is commendable.

- India has been a major Troop Contributing Country to UN Peacekeeping Operations in Haiti and has also contributed **3 Formed Police Units (FMUs)** to United Nations Stabilizing Mission in Haiti (MINUSTAH).

About Haiti:

- Haiti is a country in the Caribbean Sea that includes the western third of the island of Hispaniola and such smaller islands as Gonâve, Tortue (Tortuga), Grande Caye, and Vache.
- The capital is Port-au-Prince.

BIS develops an Indian Standard for Non-electric cooling cabinet made of clay'

(GS Paper 3, Science and Tech)

Why in news?

- Recently, the Bureau of Indian Standards (BIS), has developed an Indian Standard, IS 17693: 2022 for 'non-electric cooling cabinet made of clay'.

Background:

- 'Mitticool Refrigerator' was exhibited at the 4th batch of Innovations Scholars In-residence Programme held at Rashtrapati Bhawan (2017) in partnership with the National Innovation Foundation (NIF).
- Refrigeration is a food storage technique that prevents bacterial growth whereby increasing its shelf life and making it fit for consumption.

Innovator:

- Named as 'Mitticool refrigerator', Mansukh Bhai Prajapati from Gujarat is the innovator behind the refrigerator which projects an eco-friendly technology.

Supports 6 SDGs:

- BIS standard specifies the construction and performance requirements of a cooling cabinet made out of clay, which **operates on the principle of evaporative cooling**.
- These cabinets may be used to store perishable foodstuff without the need of electricity.
- This standard helps BIS in fulfilling 6 out of 17 United Nations Sustainable Development Goals (SDGs) like **No poverty, Zero hunger, Gender equality, Affordable and clean energy, Industry, innovation, and infrastructure, and Responsible consumption and production**.



Significance:

- It is a natural refrigerator made primarily from clay to store vegetables, fruits, milk, and also for cooling water.
- It provides natural coolness to foodstuffs stored in it without requiring any electricity. Fruits, vegetables, and milk can be stored reasonably fresh without deteriorating their quality.
- It is playing an influential role in reviving the pottery culture, tradition, and heritage; connecting people back to roots in better healthier ways; promoting sustainable consumption; economically empowering the indigent community; working towards green and cool earth, economic development and employment generation; and finally contributing towards rural women upliftment and making them financially independent.