DAILY CURRENT AFFAIRS 29-05-2024

GS-1

1. **Virupaksha Temple in Hampi**

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3. **Sweet sorghum**
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5. **Armoured Sailfin Catfish**

Virupaksha Temple in Hampi

Syllabus: GS-1; Medieval Indian History

Context

- *Recently, A portion of the* **Virupaksha temple in Karnataka** *collapsed following torrential rains.*

What is the Virupaksha temple's historical significance?

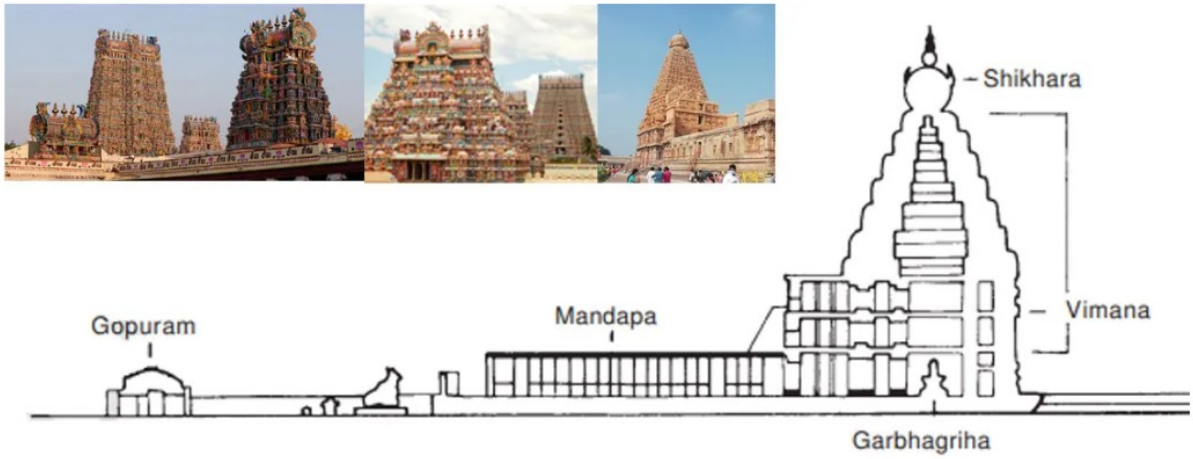
- *It is part of the Group of Monuments at Hampi, designated as a UNESCO World Heritage Site.*
- *The temple is dedicated to* **Sri Virupaksha**.
- *The temple was built by* **Lakkan Dandesha,** *a nayaka (chieftain) under the ruler* **Deva Raya II,** *also known as* **Prauda Deva Raya** *of the Vijayanagara Empire.*
- *Virupaksha Temple is the main center of pilgrimage at Hampi, and has been considered the most sacred sanctuary over the centuries.*
- *It is intact among the surrounding ruins and is still used in worship.*
- *The temple is dedicated to Lord Shiva, known here as Virupaksha/Pampa pathi, as the consort of the local goddess Pampadevi who is associated with the Tungabhadra River.*

Vijayanagara Empire

- *Despite legends about its origins going further back, the Virupaksha temple gained prominence and underwent extensive expansion in the 14th century during the* **Vijayanagara Empire (1336 to 1646).**
- **Founded by Harihara I of the Sangama dynasty**, *the Vijayanagara empire expanded from a strategic position on the banks of the* **Tungabhadra river** *to become one of the most powerful kingdoms of its time.*
- *The temple flourished under the patronage of the Vijayanagara rulers, who were great builders and patrons of art. It became a vital centre for the religious and cultural activities of its time.*
- *It is a prime example of* **Dravidian temple architecture**, *characterised by its grand gopurams (towering gateways), the shikhara towering over the sanctum sanctorum, its intricate carvings and pillared halls.*
- *Richly adorned with carvings and sculptures, the gopuram depicts various deities, mythological scenes and animals.*
- *With several other temples and structures located there, Hampi was the empire's capital city and stands today as evidence of what is known as the last 'great Hindu empire' of South India.*

- *UNESCO also recognised its uniqueness and categorised the Group of Monuments at Hampi as a World Heritage Site.*

Dravidian temple architecture



DRAVIDA STYLE OF TEMPLE ARCHITECTURE

International Court of Justice (ICJ)

Syllabus: GS-2: International Organisations.

Context:

- **The International Court of Justice (***ICJ) recently ordered Israel to immediately halt its military operations in Rafah, and one of the judges who favoured the ruling was* **Judge Dalveer Bhandari**, *the Indian representative at the ICJ.*

Details of the ICJ Decision:

- *The decision was announced by* **Presiding Judge Nawaf Salam.**
- *It came in response to an application from South Africa,* **accusing Israel of committing genocide in Rafah.**
- *The ICJ's ruling was* **supported by a majority of 13 judges**, *with only 2 judges dissenting (Julia Sebutinde from Uganda and former Israeli High Court President Aharon Barak).*
- *The ruling emphasized the* **need for Israel to allow humanitarian aid** *and give access to UN bodies investigating the genocide allegations.*

Reactions to the ICJ Decision:

Palestinian Reaction:

- *Palestinian Ambassador to* **the UN, Riyad Mansour**, *praised the ruling and urged for its immediate implementation.*
- *He stressed that Israel, as a* **signatory to the Genocide Convention**, *must comply with ICJ resolutions.*

Israeli Reaction:

- *Israel firmly* **rejected the ICJ's order.**
- **Israel's National Security Adviser Tzachi Hanegbi** *and War Cabinet Minister Benny Gantz stated that Israel's military actions in Rafah are in line with international law and that they do not intend to create conditions leading to the destruction of the Palestinian population.*
- *They* **confirmed that military operations** *would continue as necessary.*

Judge Dalveer Bhandari:

- *He is an Indian judge who has been a* **member of the ICJ since 2012.**
- *Born in 1947 in Jodhpur, Rajasthan, India.*
- *Awarded the Padma Bhushan, a prestigious Indian civilian honor, in 2014.*
- *Had a distinguished* **career in India's Supreme Court**, *serving as a judge since 2005.*
- *Delivered important rulings in various legal fields such as constitutional law, criminal law, and family law.*
- *Before joining the Supreme Court, he was the* **Chief Justice of the Bombay High Court**.
- *Notably ruled that an* **irretrievable breakdown of marriage** *could be grounds for divorce, influencing changes to Indian divorce law.*
- *Honored by* **Northwestern University School of Law in Chicago** *as one of its most distinguished alumni.*

International Court of Justice (ICJ):

- *Also known as* **the World Court.**
- *The only international court that settles disputes between countries and provides advice on legal issues internationally.*
- *One of the six main parts of the* **United Nations (UN).**
- *Located in* **The Hague, Netherlands.**

History:

- *Succeeded the* **Permanent Court of International Justice** *(PCIJ), which was set up in 1920 by the League of Nations.*
- *After World War II, the* **UN replaced the League of Nations**, *and the ICJ replaced the PCIJ.*
- *The* **Statute of the ICJ outlines** *its purpose and structure, similar to the PCIJ's statute.*

Membership and Cases:

- *All UN member states are* **part of the ICJ Statute** *and can start legal cases.*
- *Only specific* **UN organs and agencies** *can request advisory opinions.*

Structure:

- **Consists of 15 judges** *elected by the* **UN General Assembly** *and Security Council for nine-year terms.*
- *Judges represent different* **nationalities and legal systems**.
- *Based in the* **Peace Palace in The Hague**, *the only UN main body not in New York City.*
- *Official languages are* **English and French.**

Case Information:

- **The ICJ has handled 191 cases** *from its first case on 22 May 1947 to 13 November 2023.*
- *Decisions and opinions are* **binding only for the countries** *involved in the particular case.*

Sweet sorghum

Syllabus: GS-3; Agriculture

Context

- *The* **southern African region** *is battling with drought at present.*
- *This is the result of El Niño, a natural climate cycle characterised by changes in Pacific Ocean temperatures.*
- *The drought has hit the region's agricultural productivity hard.*

About

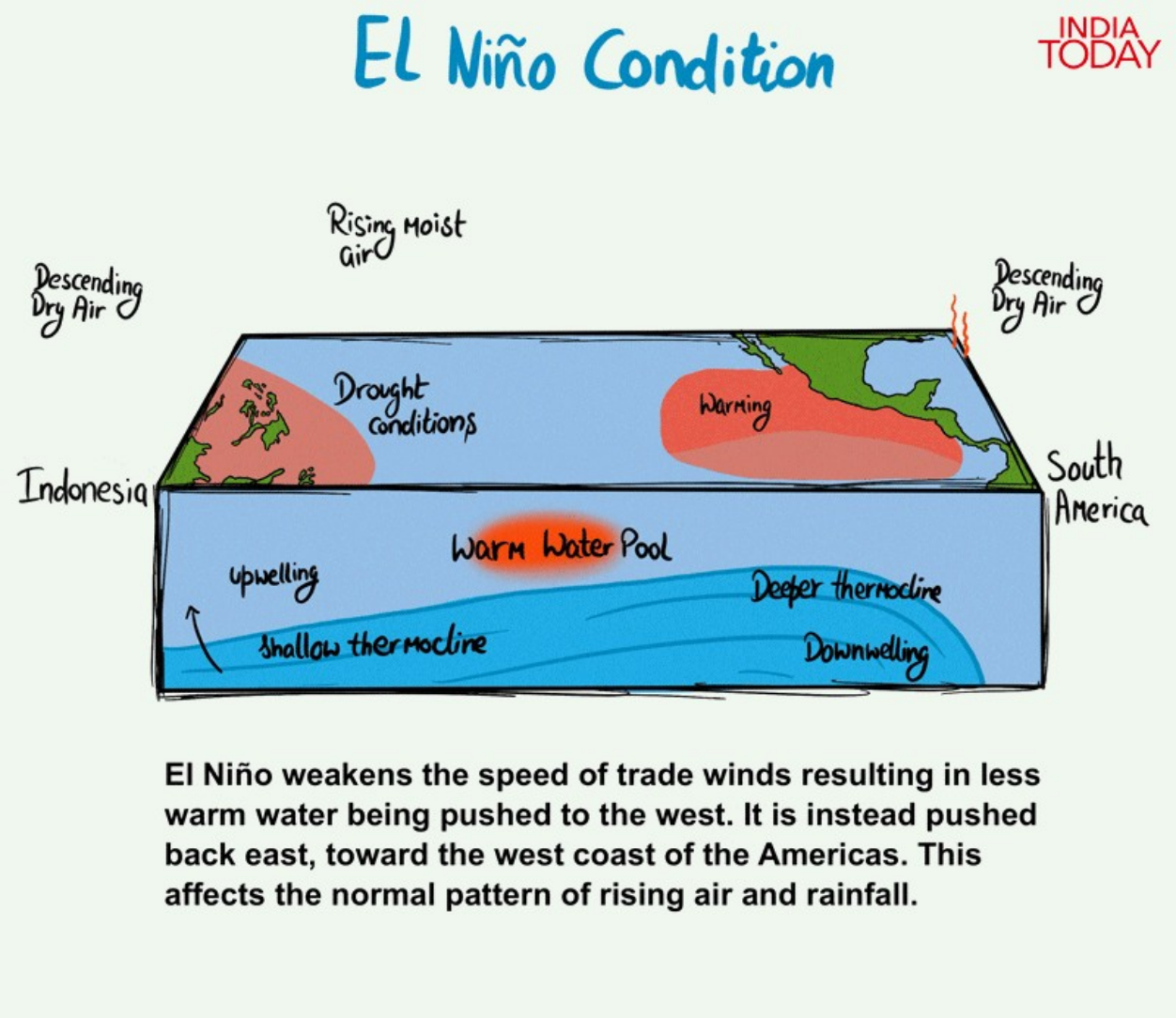
- *Sweet sorghum or sorgo is any of the many varieties of the sorghum grass whose* **stalks have a high sugar content**.
- *Sweet sorghum thrives better under drier and warmer conditions than many other crops and is grown primarily for forage, silage, and syrup production.*
- *Sweet sorghum syrup is known as sorghum molasses in some regions of the United States, though in most of the U.S. the term molasses refers to a* **sweet syrupy byproduct of sugarcane or sugar beet sugar extraction.**
- *The sweet juice in the crop's stalks is what's used to* **create bioethanol.**
- *Sweet sorghum contains sucrose, glucose and fructose, which are essential for bioethanol production.*
- *These are crops rich in starch, sugar or oils that can be converted into bioethanol directly or through a fermentation process.*

Bioethanol

- *Bioethanol, a type of ethanol produced from* **biological or plant based sources**, *emits fewer greenhouse gases compared to fossil fuels like petroleum, natural gas and coal.*

- *Commonly used biofuel crops include* **sugarcane, maize, grain sorghum, sugar beet, rapeseeds and sunflower.**

El Niño



Mangrove Ecosystem

Syllabus: GS – 3; Conservation of Environment

Context

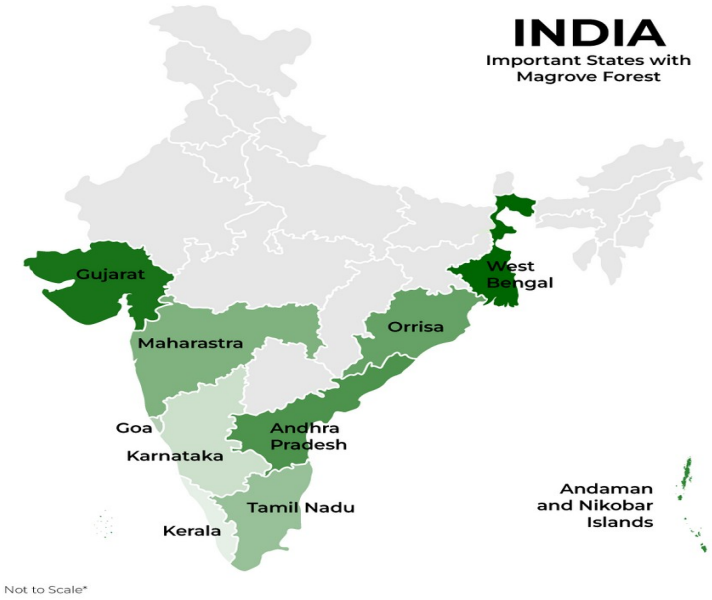
- *Air pollution is threatening the Sundarbans, a critical mangrove ecosystem in Bengal, at an alarming rate, a recent study has revealed.*

- *Researchers have laid bare how vast quantities of pollutants primarily laden with black carbon or soot particles, originating not only from just Kolkata but the entire Indo-Gangetic Plain region, are significantly deteriorating air quality in the Sundarbans, thus affecting its delicate ecosystem.*

Mangrove Ecosystem :

- *Mangroves,* **the resilient coastal ecosystems**, *stand as emblematic symbols of the intricate balance between land and sea.*
- *In India, these lush green swathes of vegetation, adorned with tangled roots and thriving biodiversity, play a pivotal role in* **safeguarding coastal regions** *against erosion, tidal surges, and cyclonic storms.*
- *Mangrove plants employ impermeable roots that function as an* **ultra-filtration system,** *excluding salt and effectively reducing the plant's salt content by 90%–97% , following this process, the plant sheds its older leaves, which carry concentrated salt collected in the shoot.*
- *In addition, some mangrove species feature* **cell vacuoles** *capable of storing salt.*
- *Alternatively, certain species possess leaves with specialized glands actively releasing salt, resulting in visible salt crystals on the upper surface of the leaf.*
- *Airborne roots, known as* **pneumatophores,** *are prevalent in many mangrove trees.*
- *These roots, emerging above the soil, draw oxygen from the air to sustain the roots, especially in regions where the soil is frequently flooded during high tides in shallow mangrove forests.*
- *Mangrove plants exhibit a* **unique reproductive strategy**.
- *Mangrove seeds initiate growth while still connected to the parent plant, evolving into propagules that develop roots while attached.*

Mangroves in India



The major mangroves in India are found at:

- *Sundarban Groves*
- *Mahanadi Mangroves*
- *Krishna Godavari Mangroves*
- *Mangroves of Gujarat*
- *Ratnagiri Mangroves*
- *Goa Mangroves*
- *Cauvery Deltaic Mangroves*
- *Krishan-Godavari Mangroves*
- *Andaman Nicobar Mangroves*

Key highlights of the study of 'Mangroves of Sunderbans'

Significant threat to Sunderbans

- *The study is titled "Acidity and oxidative potential of atmospheric aerosols over a remote mangrove ecosystem during the advection of anthropogenic plumes".*
- *The study authored jointly by leading scientists from the Bose Institute, Kolkata, and the Indian Institute of Technology (IIT), Kanpur.*
- *A new study by leading environmental scientists indicates that* **air pollution is a serious threat** *to West Bengal's Sundarbans, a vital mangrove ecosystem that shields the area from severe weather.*

Soot destroying plants

- *The study has shown how huge amounts of pollutants, mainly* **enriched with black carbon or soot particles**, *arriving from not only Kolkata metropolis but the entire Indo-Gangetic Plain region, are significantly deteriorating Sundarbans' air quality, thus affecting its ecosystem.*

Major pollutant and livelihood

- *The study found that one of the main sources of heavy toxic metals in the air was the* **old motors in local boats of Sunderbans**, *the only medium of* **inter-island transport** *in the Sundarbans delta is diesel-driven boats or vessels, most of which run on low-efficiency engines.*
- **Due to the Sunderbans' low per capita income**, *the people there have to continue to rely on* **solid fuels** *like firewood or dung rather than switching to cleaner fuels like liquid piped gas. The* **rampant use of kerosene lamps** *for domestic lighting is also very common in the Sundarbans.*

Saving the ecology

- *The study clearly shows that the transported and regionally emitted air pollutants have a* **significant effect on the ecology and biogeochemistry** *of the pristine environments of the Sundarbans mangrove ecosystem that need to be solved with utmost priority.*

Significance of Mangroves

Biodiversity Conservation

- *Mangroves play a crucial role in preserving biodiversity, offering a unique habitat that serves as breeding, nursery, and feeding grounds for a diverse array of plant and animal species.*
- **Sundarban**, *for instance, is home to the Royal Bengal tiger, Irrawady Dolphin, Rhesus macaque, Leopard cats, and Small Indian civet.*

Coastal Protection

- *Functioning as natural buffers, mangroves provide effective defense against coastal erosion, storm surges, and tsunamis.*
- *Their intricate root systems, particularly the tangled network of prop roots, stabilize shorelines, minimizing the impact of waves and currents.*
- *During hurricanes and cyclones, mangroves absorb and dissipate substantial energy, shielding inland areas and human settlements from severe damage.*

Carbon Sequestration

- *Mangroves act as highly efficient carbon sinks, absorbing significant amounts of carbon dioxide from the atmosphere.*

- *They store this carbon in their biomass and sediments, contributing to climate change mitigation efforts.*

Fisheries and Livelihoods

- *Supporting fisheries by offering nursery areas for fish and shellfish, mangroves enhance fishery productivity.*
- *This, in turn, contributes to livelihoods and local food security for coastal communities.*

Water Quality Improvement

- *Mangroves serve as natural filters, capturing and removing pollutants and excess nutrients from coastal waters before they reach the open ocean.*
- *This purification role contributes to the overall health of marine ecosystems and helps maintain the delicate balance of coastal environments.*

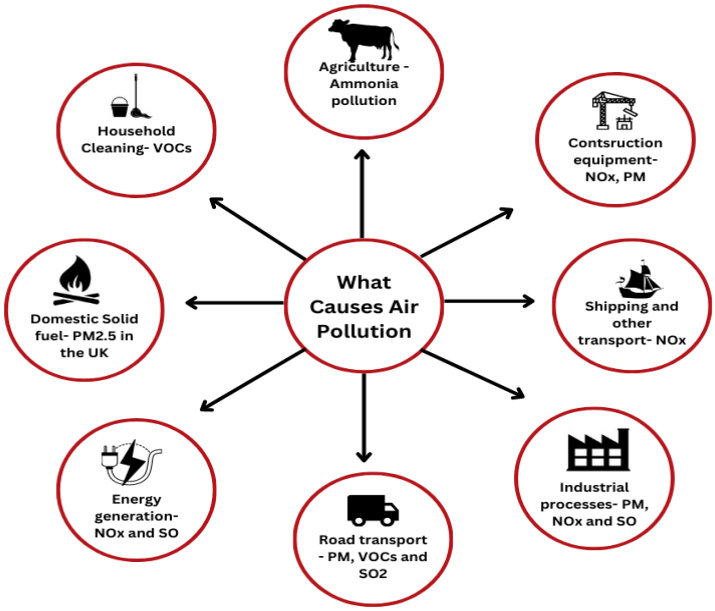
Tourism and Recreation

- *Mangroves provide opportunities for recreational activities such as eco-tourism, birdwatching, kayaking, and other nature-based pursuits.*
- *These activities not only offer enjoyment but also promote sustainable economic growth for local communities.*

Sundarbans

- *The Sundarbans hosts the largest mangrove forests in the world, lying on the delta of the Ganges, Brahmaputra and Meghna rivers on the Bay of Bengal.*
- *The mangrove ecosystem is a specialised environment between the land and the sea in the tropical and subtropical regions.*

Air Pollution



- *Air pollution is the presence of compounds (air pollutants) in the atmosphere that are hazardous to human health and the health of other living things or impair the climate or materials.*

Air pollutants

- *There are many different types of air pollutants, such as gases (such as ammonia, carbon monoxide, sulfur dioxide, nitrous oxides, methane, carbon dioxide, and chlorofluorocarbons), particulates (both organic and inorganic), and biological molecules.*

Air (Prevention and Control of Pollution) Act, 1981

- *The Air (Prevention and Control of Pollution) Act was enacted in 1981 and amended in 1987 to provide for the prevention, control and abatement of air pollution in India.*

Way forward

Recommendations from experts to protect the Sundarbans from Air pollution

- *The study's authors have proposed 10 recommendations to halt the overall ecosystem degradation and deterioration of the air quality in the Sundarbans.*
- *The* **recommendations include :** *encouraging the use of solar and wind energy, promoting electric vehicles, utilising solar energy, regulating tourism, banning diesel generators, banning the shipment of hazardous materials, shutting down polluting factories, regulating the use of land and brick kilns and tightening coastal regulations.*

Armoured Sailfin Catfish

Syllabus: GS-3; Environment and Ecology

Context

- **CSIR-Centre for Cellular and Molecular Biology (CCMB)** *scientists have found out that the invasive armoured sailfin catfish has spread to 60% in the water bodies of* **Eastern Ghats**, *damaging the fishing nets and the eco-system also.*

In news

- *The fish species was once introduced for its unique appearance and its* **ability to clean algal growth** *in tanks and aquaria but its population has grown exponentially and this was realised through a unique '***eDNA-based quantitative PCR assay***' developed by the institute scientists to map the presence and spread of such invasive species.*

eDNA

- *eDNA is environmental DNA collected from water samples and in this case, the scientists looked for the DNA of the catfish specifically through this innovative method.*
- **Invasive species** *when introduced species in a new ecosystem can grow rapidly and often lack predators which threatens the new ecosystem and livelihoods depending on it.*
- *Unlike conventional methods, eDNA approach is reliable, and accurate, can be done a low cost and can be used in a large landscape like Eastern Ghats water bodies within a few months. In a single lab test, about 20 waterbodies can also be tested for the presence of invasive species using the eDNA approach accurately.*

More to know

- **Pterygoplichthysmultiradiatus** *is one of several tropical fish commonly known as Orinoco sailfin catfish, plecostomus (or plecos).*
- *It belongs to the armored catfish family (Loricariidae).*
- *Named for its sail-like dorsal fin, the part of its scientific name multiradiatus means "many-rayed" and refers to the rays of the dorsal fin. P. multiradiatus is one of a number of species commonly referred to as the common pleco by aquarists.*