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## Prelim Bits 30-08-2023 | UPSC Daily Current Affairs

### Electrified Flex Fuel Vehicle (EFFV)

*Union Minister for Road Transport and Highways launched the world's first prototype of the BS 6 Stage II 'Electrified Flex Fuel Vehicle'.*

- **Flex-fuel vehicles (FFV)** - They have engines that can run on flexible fuel, a combination of petrol and ethanol, which can include up to 100% ethanol.
- **Flex Fuel Strong Hybrid Electric Vehicles (FFV-SHEV)** - When FFV is integrated along with strong hybrid electric technology, it is referred as FFV-SHEVs.
- **Strong hybrid** - It is another term for full hybrid vehicles, which have the capability to run solely on either electric or petrol modes.
- **Mild hybrid** - They cannot run purely on one of these modes and use the secondary mode merely as a supplement to the main mode of propulsion.
- **EEFV** - It is a 100% ethanol-fueled variant.
- It is being seen as a broader push by the government for using alternative fuels like hydrogen, flex-fuel, biofuel etc.
- The move aims to reduce carbon footprint and decrease the country's dependency on traditional fuel sources.
- This car will be the world's first BS-VI (Stage-II), which would also generate 40% electricity bringing the effective price of ethanol much lower.
- **Challenges** - The challenge with flex fuel vehicles, which allows an engine to run on more than 20% ethanol blended petrol, is that the lower fuel efficiency of ethanol due to its lower energy density.
- Globally, electrified flex-fuel vehicles are being introduced as an advanced green technology that has both a flex fuel engine as well as an electric powertrain to meet this challenge.

*The Toyota Mirai EV launched last year as a pilot project aimed at creating a Green Hydrogen based ecosystem in India by creating awareness about the utility of Green Hydrogen and Fuel Cell Electric Vehicle (FCEV) technology.*

### References

1. [PIB - BS 6 Stage II 'Electrified Flex Fuel Vehicle'](#)
2. [Times of India - World's first BS-6 compliant electric flex fuel vehicle](#)

## **Laser-Induced Breakdown Spectroscopy (LIBS) Technique**

*Pragyan rover confirms Sulphur at moon's South Pole.*

- The LIBS instrument onboard the Chandrayaan-3's rover has made the first-ever in-situ measurements on the elemental composition of the lunar surface near the South Pole.
- The LIBS instrument on the rover, developed by ISRO's Laboratory for Electro-Optics Systems (LEOS), uses a high-energy pulsar to generate plasma from rocks or soil.
- The other instrument on the rover, called Alpha Particle X-Ray Spectrometer, is also meant to study the elemental composition of the lunar surface.

## **Laser pulse technique**

- The LIBS is a scientific technique that analyses the composition of materials by exposing them to intense laser pulses.
- A high-energy laser pulse is focused onto the surface of a material, such as a rock or soil, and generates an extremely hot and localized plasma.
- The collected plasma light is spectrally resolved and detected by charge coupled devices.
- Since each element emits a characteristic set of wavelengths of light when in a plasma state, the elemental composition of the material can be determined in this way.

## **Elements on the moon**

- Preliminary analyses, graphically represented, have unveiled the presence of Aluminum (Al), Sulphur (S), Calcium (Ca), Iron (Fe), Chromium (Cr), and Titanium (Ti) on the lunar surface.
- Further measurements have revealed the presence of manganese (Mn), silicon (Si), and oxygen (O).
- **Sulphur** - Evidence of the presence of Sulphur can reveal insights on the formation and evolution of the Moon.
- Sulphur usually originates in volcanic activities, and its presence on the Moon can offer indications about the Moon's history and composition.
- Thorough investigation regarding the presence of Hydrogen is underway.

## **References**

1. [The Hindu - Pragyan rover confirms Sulphur at moon's South Pole](#)
2. [The Indian Express - Chandrayaan 3 rover detects Sulphur on Moon](#)

## **Wrestling Federation of India (WFI)**

*United World Wrestling (UWW), the world governing body for the sport, has provisionally suspended the Wrestling Federation of India (WFI) primarily for not conducting its elections on time.*

## **United World Wrestling (UWW)**

- It is the international governing body for the sport of amateur wrestling; its duties

include overseeing wrestling at the Olympics.

- It presides over international competitions for various forms of wrestling.
- The flagship event of UWW is the Wrestling World Championships.
- It was formerly known as the FILA having assumed its current name in September 2014.
- UWW was created during the IOC Olympic Congress in Lausanne in 1921, its headquarters are in Lausanne, Switzerland.
- The International Testing Agency (ITA) is supporting UWW with the delivery of their anti-doping program since January 2019.

### **Wrestling Federation of India (WFI)**

- It was founded in 1958 and is based in New Delhi.
- It is the governing body for wrestling in India.
- The WFI is the apex body for wrestling in India and it organizes all national and international wrestling events in India.
- It promotes wrestling players for the Olympics, Asian Games, National Wrestling Championships, and World Wrestling Championships.
- The suspension means that Indian wrestlers cannot represent India at any global wrestling events until the WFI is restored.

### **References**

1. [The Hindu - Why was the WFI suspended by United World Wrestling](#)
2. [UWW - History of Wrestling & UWW](#)
3. [WFI - Wrestling Federation of India](#)

### **Red Sand Boa**

*A report by the Wildlife Conservation Society (WCS)-India has pointed out 172 incidents of seizures of red sand boa (Eryx johnii) between the years 2016-2021.*

- The report, compiled by the Counter Wildlife Trafficking unit of WCS-India, and titled Illegal Trade of Red Sand Boa in India 2016-2021 collates information from media reports on the seizures.

*The red sand boa is now acknowledged as one of the most traded reptile species in the illegal trade market, due to its demand in the pet trade, as well as for use in black magic.*

### **Red Sand Boa**

- Red Sand Boa (*Eryx johnii*), commonly called the Indian Sand Boa, is a non-venomous species found throughout the dry parts of the Indian subcontinent.
- It is a primarily reddish-brown and thick-set snake that grows to an average length of 75 cm.
- Unlike most snakes, the tail is almost as thick as the body and gives the reptile the appearance of being double-headed.

- They are the largest of the sand boas in the world.

*The sand boa is a small burrowing snake, of the genus Eryx, belonging to the boa family Boidae. The nine species inhabit arid lands in Africa, southeastern Europe, the Middle East, and India.*

- They are ovoviviparous and nocturnal and spends the majority of its time under the ground.

*Ovoviviparous species are the once that hatch eggs. Nocturnal species are the species that sleep during the day and stay active at night.*

- **Protection status** - Wildlife (Protection) Act, 1972 – Schedule IV; CITES – Appendix II; IUCN Status – Near Threatened.



## References

1. [The Hindu - 172 incidents of seizures of red sand boa](#)
2. [WWF - Red Sand Boa](#)

## Kampala Ministerial Declaration on Migration, Environment and Climate Change (KDMECC)

*A total of 48 African countries have agreed to adopt the KDMECC to address the nexus of human mobility and climate change in the continent.*

- The agreement was signed at the conference hosted by the Governments of Kenya and Uganda.
- The conference was supported by International Organization for Migration (IOM) and the United Nations Framework Convention on Climate Change (UNFCCC).
- It also enabled the African States to develop a common position ahead of the Africa Climate Summit and the Conference of Parties (COP 28).

## KDMECC

- KDMECC was originally signed and agreed upon by 15 African states in Kampala,

Uganda in July 2022.

- The KDMECC-AFRICA is expected to be signed by Member States during the Africa Climate Summit in Nairobi in September 2023.
- The Declaration is the first comprehensive, action-oriented framework led by Member States to address climate-induced mobility in a practical and effective manner.

### **International Organization for Migration (IOM)**

- Established in 1951, IOM is the leading intergovernmental organization in the field of migration and works closely with governmental, intergovernmental and non-governmental partners.
- With 175 member states, a further 8 states holding observer status and offices in over 100 countries, IOM is dedicated to promoting humane and orderly migration for the benefit of all.
- It does so by providing services and advice to governments and migrants.
- **India** - India was granted an observer's status to IOM in the year 1991 and became a member state in 2008.

### **References**

1. [Down To Earth - Kampala Declaration on climate change](#)
2. [UNFCCC - Kampala Ministerial Declaration on Migration](#)
3. [IOM - International Organization for Migration \(IOM\)](#)



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