



## Prelim Bits 14-05-2018

### Development and upgradation of Botanic Garden in Noida

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- Union Minister for Environment, Forest and Climate Change laid the foundation-stone for the development and up gradation of the Botanic Garden of Indian Republic (BGIR) at Noida recently.

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- The Garden is being developed and upgraded with the objectives of collection of plant species, research, training, environment education, public awareness, aesthetics and entertainment through the protection of plant biodiversity

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- It is to be developed as a centre of excellence in the preservation of Rare, Endangered and Threatened (RET) and local plant species.

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- A gene bank, seed bank, herbarium unit, orchid house, cactus house, nursery, plant biodiversity, research facility, education and maintenance will be developed in the Botanic Garden.

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- At present, more than 10,500 individuals of about 900 plant species brought from 23 states of the country have been conserved in the garden.

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- They are conserved under various sections/areas like Economic Plant, Green Belt/Woodland, Fruit, Medicinal Plant, Cactus & Succulents, Nurseries and Water bodies.

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### Anandibai Gopalrao Joshi

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- At a time when the British ruled India, Anandibai Gopalrao Joshi became

India's first woman doctor.

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- Joshi was born as Yamuna in Kalyan (in present-day Maharashtra) on March 31, 1865.

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- At the age of nine, she was married to Gopalrao Joshi, who renamed her as Anandi.

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- Her husband supported education for women and he encouraged Joshi to pursue education.

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- Anandibai Joshi from India, Kei Okami from Japan, and Tabat M. Islambooly from Ottomon/Syria were students in Woman's Medical College of Pennsylvania.

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- All three were the first woman from their respective countries to obtain a degree in Western medicine.

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## A green alternative

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- Scientists at the Indian Space Research Organization (ISRO) have reported progress in the development of an environment-friendly propellant to power satellites and spacecraft.

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- The effort is to replace the conventional hydrazine rocket fuel, a highly toxic and carcinogenic chemical, with a greener propellant for future missions.

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**A greener alternative**

Is hydrazine, the much-used monopropellant, on its way out?

- Hydrazine has one of the highest specific impulses (kilograms of thrust obtained by the consumption of one kilogram of propellant in one second). Thus, despite its hazardous nature, it is preferred as a propellant

**Drawbacks of hydrazine:**

- Highly corrosive
- Carcinogenic and toxic
- Storage, handling issues

**Replacing Hydrazine:**

- ISRO is working on a hydroxylammonium nitrate-based monopropellant (HAN) to replace hydrazine

**Low toxicity:** HAN is less toxic than hydrazine

**Performance:** HAN has a density of 1.4 to 1.5 g/cm<sup>3</sup>, much higher than 1.0 g/cm<sup>3</sup> of hydrazine propellants

**Safety:** HAN is known to not be combustible, thus is a safer alternative

Source: ISRO, NASA

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- Hydrazine is used as space propellant for the past 6 decades despite its environment and health hazards and the challenges faced in its manufacturing, storage, ground handling and transportation.
- The main reason of it being still used is due to its high performance.
- The formulation is a HAN based monopropellant and it consists of Hydroxylammonium Nitrate (HAN), ammonium nitrate, methanol and water.
- A monopropellant is a chemical propulsion fuel which does not require a separate oxidizer.
- It is used extensively in satellite thrusters for orbital correction and orientation control.

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## **Petcoke**

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- Government of India is planning to propose a ban over burning petroleum coke as a fuel nationwide to comply with a Supreme Court request.
- It is seen as a part of a long-running case to clean the country's air.
- Petroleum coke or petcoke is an oil refinery by-product.
- It is used as a fuel because of its higher energy content than coal.
- It releases larger amounts of carbon dioxide and sulphur dioxide, which can cause lung disease and acid rain.
- Government may allow petcoke to be used in the limestone and cement industries.
- More than half of India's petcoke demand of 27 million tones is imported, mostly from the United States.
- India is the world's biggest consumer of petcoke.

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## Sleep Paralysis

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- The prevalence of sleep paralysis in India is unknown, as sleep medicine is an under-researched faculty in India.

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- Sleep paralysis is defined as a disturbing temporary inability to perform voluntary movements at sleep-wake transitions.

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- Despite being awake and conscious of the sleeping environment, it is impossible for subjects to move their limbs or even open their eyes.

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- Sleep paralysis is thought to occur due to a Rapid Eye Movement -intrusion into wakefulness, i.e. the body is still in REM sleep, while the brain has woken up.

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- REM sleep is the stage in which dreams occur which is characterized by a complete paralysis of the voluntary muscles of the body.

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- This prevalence appears to be higher among students, and those with psychiatric illness.

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## Kangara fort

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- The Kangara fort is located on a steep hill about 20 km from Dharamsala in Himachal Pradesh.

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- It occupies a narrow strip of land between the the Banganga and Majhi river.

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- The kot (fort) was earlier called Nagarkot or fort of the city or Kot Kangra.

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- It was built by the royal Rajput family of Kangra State (the Katoch dynasty).

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- The highest point in the fort is occupied by the palace courtyard.

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- Below the palace courtyard there is a large courtyard containing the stone carved temples of Laxmi Narayan, Ambika Devi and the Jain Temple.

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**Source: PIB, The Hindu, Business Standard**

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