# Prelim Bits 09-02-2023 | UPSC Daily Current Affairs

## Operation Dost

*So far, six planes from India carrying rescue personnel, essentials, and medical equipment for earthquake relief efforts has reached Turkey.*

- Turkey and Syria witnessed the deadliest earthquakes in over a decade.
- India has launched Operation Dost after Turkey - Syria earthquake to help those in need by earthquake-hit countries.
- Under 'Operation Dost', India is sending a massive amount of humanitarian aid for Turkey and Syria.
- The Indian Government has sent tons of relief material to both Syria and Turkey in collaboration with the Indian Army as part of Operation.
- Under this, India sent to Turkey relief materials, a mobile hospital, and specialised search and rescue teams.
- It also sent 6 tonnes of relief materials, including life-saving medicines and medical items.
- **Syria -** India has sent emergency medicines and equipment including portable ECG machines, patient monitors, and other essential medical items to Syria.

### India's other relief operations

- **USA -** An Indian Air Force aircraft delivered 25 tonnes of relief supplies for the Hurricane Katrina victims in USA.
- **Maldives -** Under "***Operation Castor***", 4 aircraft and 2 Naval ships were engaged in relief operations, after the 2004 Tsunami.
- **Sri Lanka -** India sent its forces to carry out rescue operations, called "***Operation Rainbow***", in Sri Lanka hours after the 2004 Tsunami.
- **Myanmar -** When cyclone Nargis hit Myanmar in 2008, India sent relief material and among the first countries to send aid.
- **Japan -** India sent 46 members of NDRF for rescue operations, after 2011 Tsunami, apart from providing relief materials.
- **Nepal -** In the aftermath of the 2015 earthquakes, the NDRF deployed 16 rescue teams and sent tonnes of relief materials to Nepal.

### References

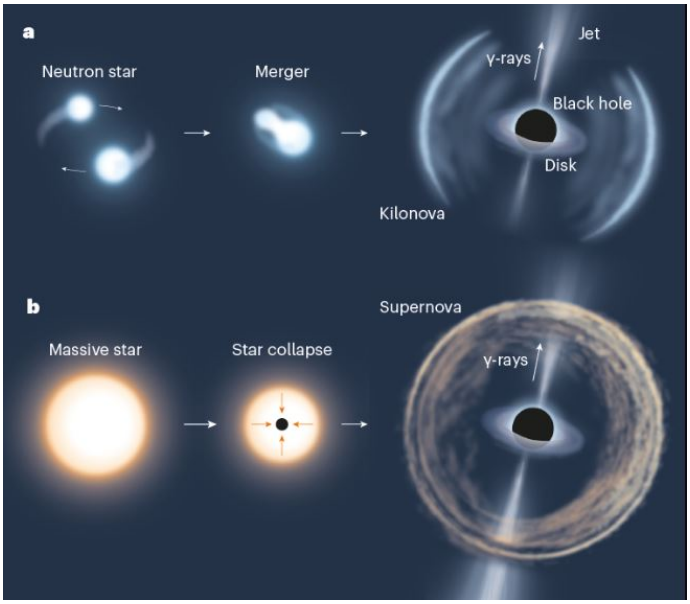

1. The Hindu - Operation Dost

2. Business Standard - Operation Dost

## Kilonova

*Researchers have confirmed the detection of a star system that will one day end in a kilonova.*

- Supernova is the explosive demise of heavy stars when they run out of fuel for nuclear fusion.
- Neutron stars are formed when the cores of a supernova implode, crushing their constituent protons and electrons together into a super-dense ball of neutrons.
- A kilonova is a similar cosmic event that occurs when a neutron star smashes into another neutron star or a black hole.
- A kilonova releases heavy metals like gold, silver, and selenium into outer space at tremendous velocities, as well as radiation.
- A kilonova radiation also accompanies a gamma-ray burst, one of the most energetic cosmic events ever known.




***(a) Kilonova (b) Supernova***

*Astronomers first detected a kilonova in 2017, when they recorded gravitational waves from such an event.*

- The newfound star system has been labelled CPD-29 2176, and is located about 11,400 light-years from the earth.
- CPD-29 2176 is currently a neutron star and a star orbiting each other.
- The star is expected to become a neutron star and the 2 neutron stars are expected to collide with each other later.
- It is extremely rare that only 10 star systems that exist in the Milky Way will end in kilonovae.

### References

1. The Hindu - What is a Kilonova?
2. Space - 1st twin stars doomed to collide in Kilonova explosion

## Public Float

*The index provider MSCI has announced that it is reviewing the free-float status of Adani group securities.*

- Public float is also known as ***free float*** which refers to the shares of a company that can be publicly traded and are not restricted (held by insiders).
- Free-float are those shares which are readily available for trading in the stock market.
- It generally excludes promoters' holding, government / strategic holding and other locked-in shares, which will not come to the market for trading in the normal course.

**Free Float = Outstanding Shares – Restricted Shares – Closely-held Shares**

- This restricted shares belong strategic investors who do not usually negotiate their holdings.
- **Minimum Public Shareholding (MPS) Norms -** A listed entity must have at least 25% of public shareholding.
- It could be anyone other than a promoter such as an institution or an individual.
- SEBI grants between 3 and 5 years to achieve a 25% public float.

### Free Float Methodology

- The free-float method excludes locked-in shares, such as those held by insiders, promoters, and governments.
- It is used to provide a more accurate reflection of market movements and stocks actively available for trading in the market.
- The free-float methodology has been adopted by many of the world's major indexes.
- MSCI calculates free float-adjusted market-capitalization for each security to calculate the weights of the securities in the MSCI indexes.

### References

1. Business Standard - What is a public float and why is it important?
2. Times of India - What is free float?

## GOBAR Dhan

*Under the GOBAR-Dhan scheme, 500 new 'waste to wealth' plants with a total investment of Rs 10,000 crore was announced in Budget 2023.*

- Of the 500 new 'waste to wealth' plants announced for promoting circular economy,
    1. 200 will be compressed biogas plants (CBG)
    2. 300 will be community or cluster-based plants
- Galvanizing Organic Bio-Agro Resources (GOBAR)-Dhan was launched by the Government of India in 2018.

- GOBAR-Dhan is part of the biodegradable waste management component under the Swachh Bharat Mission-Gramin.
- **Implementation -** Ministry of Drinking Water & Sanitation
- **Aim -** To positively impact village cleanliness and generate wealth and energy from cattle and organic waste.
- **Focus areas -** keep villages clean, increase the income of rural households and generate energy and organic manure from cattle waste.
- **Biogas** is a co-product of the anaerobic digestion of biodegradable waste such as agricultural waste, animal waste like dung.
- Biogas contains about 55-65% methane, 35-44% carbon dioxide and traces of other gases such as hydrogen sulphide, ammonia and nitrogen.
- **CBG -** The purified and upgraded (up to 98%of purity) biogas under high pressure is called compressed biogas (CBG).
- CBG is suitable to be used as a green fuel for transportation or filling of cylinders.

**References**


1. Down To Earth - GOBAR-Dhan Scheme
2. Vikaspedia - GOBAR Dhan Scheme


## Crew Module Recovery Model

*The Indian Space Research Organisation (ISRO), along with the Indian Navy, has conducted an important trial for the Gaganyaan mission.*

- The Gaganyaan project envisages demonstration of human spaceflight capability of India.
- Gaganyaan will be launching a crew of 3 members for a 3 day mission.
- The members will be launched to an orbit of 400 km and bringing them back safely to earth, by landing in Indian sea waters.
- Vikas engine and Launch Vehicle Mark-3 (LVM-3) will be used in this mission.
- Orbital Module (OM) that will be Orbiting Earth comprises of Crew Module (CM) and Service Module (SM).
- The crew module system undergoes several tests before launch and recover the module using new test launch rockets.
- The initial recovery trials of the Crew Module was conducted in the Navy's Water Survival Test Facility (WSTF) in Kochi.
- A Crew Module Recovery Model (CMRM) was used for the trials.
- The CMRM simulates the mass, center of gravity, outer dimensions, and externals of the actual Crew Module at touchdown.
- The sequence of operations required for the recovery of the Crew Module were carried out as part of the trials.
- The safe recovery of the crew is the final step for a successful human spaceflight.
- It has to be carried out with the minimum lapse of time.

*The first trial (uncrewed flight) for Gaganyaan is planned by the end of 2023 or early 2024, followed by sending Vyom Mitra, a humanoid and then with the crew*

*onboard*.

**References**


1. The Hindu - ISRO and Indian Navy conduct key trials
2. ISRO - Recovery trails Gaganyaan Mission