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General Studies-2

Smart fencing project along International Border in J&K

Union Home Minister Shri Rajnath Singh inaugurated two pilot projects of smart fencing along the Indo-Pak International Border in Jammu today.

Around a total of 2,026 km border is vulnerable and that the digital fencing technology would be utilised along such long stretches of the borders, he added.

About the Project:

- The smart border fencing projects built under the Comprehensive Integrated Border Management System (CIBMS) programme is the first of its kind in the country.
- The two projects each covering a 5.5 km border stretch along the International Border have got hitech surveillance system that would create an invisible electronic barrier on land, water and even in air and underground and would help the BSF detect and foil infiltration bids in most difficult terrains.
- The CIBMS is designed to guard stretches where physical surveillance is not possible either due to inhospitable terrain or riverine borders.
- The smart fencing at the borders is a technological solution devised to address the security issues in the border states and the two projects in five kilometres areas each have been installed along the Indo-Pak International Border in Jammu on a pilot basis.
- The number of casualties of our jawans on borders would get minimised and the stress level among the jawans would also reduce to a large extent.

About CIBMS:

- CIBMS uses a number of different devices for surveillance, communication and data storage.
- Sensors like Thermal Imager, UGS, Fiber Optical Sensors, Radar, Sonar have been mounted on different platforms like Aerostat, tower, poles etc.
- A comprehensive integration of such sensors and other technical systems of communication and data processing have been achieved in the CIBMS project.



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- The signals reach the Unified Command and Control Centre where the BSF can monitor the border on real-time basis.
- The CIBMS enables round-the-clock surveillance on border and under different weather conditions be it in dust storm, fog or rain.

SECURITY UPGRADE		PRESENT STATUS
		<ul style="list-style-type: none"> ➤ Though CCTV cameras, night thermal imagers and sensors are used in sensitive areas, technology used is not superior. More than 150,000 flood lights have been installed on 50,000 poles by govt on border to track movement using binoculars ➤ There were 222 infiltration attempts from Pakistan in 2014; 100 in 2015 ➤ At any given time, 70 battalions of BSF are posted on the border from Kutch to Kashmir. 1/3rd of them not on border
<ul style="list-style-type: none"> ➤ Any person trying to enter India from Gujarat to J&K can be tracked by multiple technologies like CCTV cameras, thermal image devices, night vision devices, surveillance radar, underground monitoring sensors & laser barriers ➤ All unfenced 130 riverine sections on 2,900-km-long border will be covered using laser barriers ➤ The project will cost govt Rs 1cr 	<p style="text-align: center; background-color: black; color: white; padding: 2px;">PLANNED</p> <ul style="list-style-type: none"> ➤ per km. Two pilot projects in Jammu & Punjab are already on ➤ The entire border will be covered with hi-tech systems in two years and 50-60 private companies are expected to take up projects ➤ A control room will be set up after every 5-6 km where any activity will be noticed and BSF men will be alerted. If one device is not working, others will alert jawans 	

General Studies-3

World Ozone Day

Stressing upon the need to strengthen active collaboration between the government, industries, industry associations and all stakeholders, Union Minister for Environment, Forest and Climate Change, Dr. Harsh Vardhan has said that the World Ozone Day offers an opportunity to focus global attention and action on the vital environmental issue of protection of the ozone Layer.



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About World ozone Day:

- This special day is held on September 16th to mark the day back in 1987 when the Montreal Protocol was signed.
- World Ozone Day has been celebrated since 1994 and was established by the United Nations General Assembly.
- The day is mainly intended to spread awareness of the depletion of the Ozone Layer and search for solutions to preserve it..
- World Ozone Day is also celebrated all around the world.
- Educators usually set aside this day to teach their students about the Ozone layer and many schools organize special events and activities to raise awareness. This is one event that everyone can experience and enjoy together.

Theme of WOD:

"Keep Cool and Carry on" : The Montreal Protocol is the theme of 24th World Ozone Day celebrations.

About Montreal Protocol:

- The Montreal Protocol is the only environmental treaty which enjoys universal ratification of 197 UN numbers countries.
- The Montreal Protocol on Substances that Deplete the Ozone Layer has been recognized as the most successful international environment treaty in history.
- Its implementation has not only led to the phase-out of around 98% of ozone depleting chemicals, but also averted more than 135 billion tonnes of carbon dioxide equivalent emissions.
- Nearly 2 million cases of skin cancer per year have been averted globally.

Hydrogen-powered train:

Why in News?



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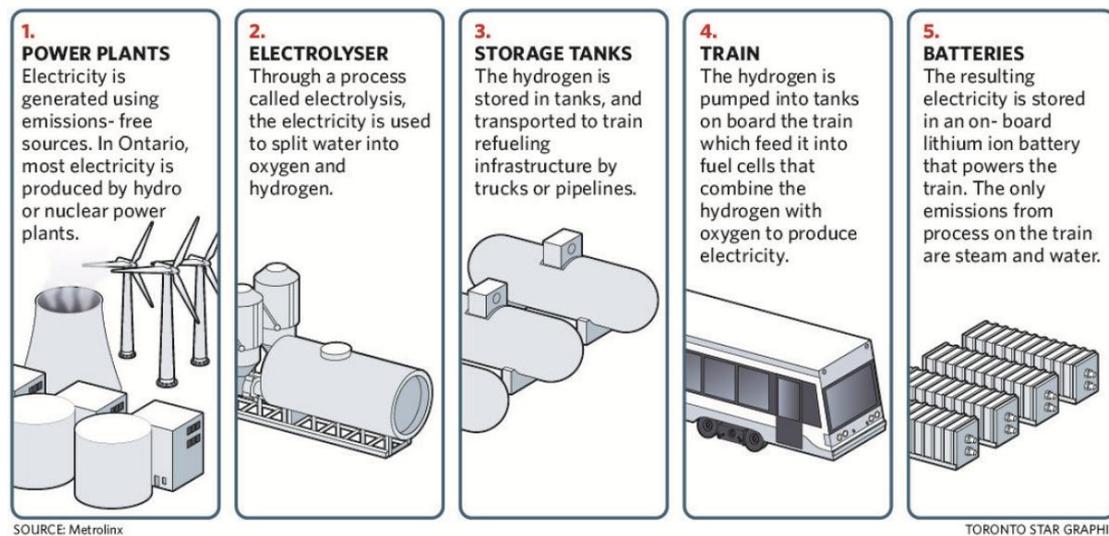
[Germany](#) on Monday rolled out the world's first hydrogen-powered train, signalling the start of a push to challenge the might of polluting diesel trains with costlier but eco-friendly technology.

About the train:

- Hydrogen trains are equipped with fuel cells that produce electricity through a combination of hydrogen and oxygen, a process that leaves steam and water as the only emissions.
- Excess energy is stored in ion lithium batteries on board the train.
- The Coradia iLint trains can run for around 1,000 km on a single tank of hydrogen, similar to the range of diesel trains.
- Alstom is betting on the technology as a greener, quieter alternative to diesel on non-electrified railway lines — an attractive prospect to many German cities scrambling to combat air pollution.

How does it Work?

How hydrogen powered GO trains could work



Hubble Space Telescope:



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Why in News?

The Hubble Space Telescope has started a new mission to study six massive galaxy clusters that may help shed light on how the earliest galaxies evolved in the universe, NASA said.

Initial observations from the Beyond Ultra-deep Frontier Fields And Legacy Observations (BUFFALO) survey show the galaxy cluster Abell 370 and a host of magnified, gravitationally lensed galaxies around it.

Massive galaxy clusters like Abell 370 can help astronomers find more of these distant objects.

What is Gravitational lensing:?

- The immense masses of galaxy clusters make them act as cosmic magnifying glasses.
- A cluster's mass bends and magnifies light from more distant objects behind it, uncovering objects otherwise too faint for even Hubble's sensitive vision.
- Using this cosmological trick — known as strong gravitational lensing — Hubble is able to explore some of the earliest and most distant galaxies in the universe.
- Numerous galaxies are lensed by the mass of Abell 370.

Objective of Mission:

- BUFFALO's main mission is to investigate how and when the most massive and luminous galaxies in the universe formed and how early galaxy formation is linked to dark matter assembly.
- BUFFALO will be able to detect the most distant galaxies approximately ten times more efficiently than its progenitor.
- It will also take advantage of other space telescopes which have already observed the regions around the clusters.

Benefits :



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- This will allow astronomers to determine how rapidly galaxies formed in the first 800 million years after the Big Bang — paving the way for observations with the upcoming James Webb Space Telescope.
- These datasets will be included in the search for the first galaxies.
- The extended fields of view will also allow better 3D mapping of the mass distribution — of both ordinary and dark matter — within each galaxy cluster.
- These maps help astronomers learn more about the evolution of the lensing galaxy clusters and about the nature of dark matter.

Bank Consolidation:

Why in News?

Govt. decided that Bank of Baroda, Vijaya Bank and Dena Bank may consider amalgamation of the three banks.

The envisaged amalgamation will be the First-ever three-way consolidation of banks in India, with a combined business of Rs. 14.82 lakh crore, making it India's Third Largest Bank.

Benefits of Merger:

- The consolidation will help create a strong globally competitive bank with economies of scale and enable realisation of wide-ranging synergies.
- Dena Bank's strength in MSME will further augment the strength of the other two to position the amalgamated bank for being an MSME Udyamimitra
- Capital Adequacy Ratio (CRAR) at 12.25% is significantly above the regulatory norm of 10.875%, and stronger amalgamated bank will be better positioned to tap capital markets
- Significant cost benefits from synergies: Larger distribution network will reduce operating and distribution costs with benefits for the amalgamated bank, its customers and their subsidiaries
- Global network strength of Bank of Baroda will be leveraged to enable customers of Dena Bank and Vijaya Bank to have global access
- Access improvement through amalgamation of networks
- Wider range of products and services through leveraging of bank subsidiaries and leveraging of a larger network for offering more value-added non-banking services and products



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Arguments against consolidation

- Experts argue that consolidation should take place in a positive environment. The present process of consolidation is not driven by the inherent strength of the banking system. It is resorted to escape from the problem of NPAs.
- There are apprehensions among the labour unions that the consolidation will lead to job losses.