Indian navy's green initiatives

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Why is in news? Indian Navy's Green Initiatives imbibing Green Technologies

- The Navy, as a **self-driven and environmentally responsible force**, has always been committed towards environment protection and green initiatives.
- As guardian of the seas, the Navy employs a number of ships, submarines and aircraft that have high energy intensity, thus increased energy efficiency is paramount in every operation and process the Navy undertakes.
- Indian Navy has commissioned solar power with cumulative capacity of 15.87MW which is in line with the Navy's objective of fulfilling Govt of India's '**Jawaharlal Nehru National Solar Mission (JNNSM)' mission**. These plants are **grid-connected utilising single-axis sun tracking technology** with computerised monitoring & control. Additionally, 16 MW capacity of SPVs are at various stages of execution.
- As a **maiden initiative**, an **indigenous make and patented retrofit device** developed by M/s Chakr Innovations for **reducing diesel engine emissions** was installed on a shore-based Diesel Generator for long-term trials.
- Trials have **indicated 70% reduction in Hydrocarbon, Carbon Monoxide, and Particulate Matter** in the engine's exhaust emissions.
- The retrofit device for diesel engine exhaust emission reduction is being inducted in a phased manner on all land-based Diesel Gensets, and once inducted, it would go a long way in enabling the Navy towards reducing the emissions levels further.
- **Towards combating oil spills at Naval harbours**, **eco-friendly marine bio-remedial agents** have been indigenously developed through Naval Material Research Laboratory. The state-of-the-art technology is unique in the maritime domain.
- The product consists of a **combination of micro-organisms and their growth stimulant**, which consume various types of oils such as diesel, lubricating, dirty oils etc, thus cleaning the seawater from any oil contamination and its consequent damage to the marine ecosystem.
- Indian Navy in collaboration with IISc (Bengaluru) has operationalized a **'first of its kind'** 100KW capacity **AC plant in the country based on the natural refrigerant Carbon dioxide**.
- This is a significant step **towards reducing use of conventional HCFCs** with high Global Warming Potential (GWP) by employing a natural refrigerant with GWP of 1 and is in line with Kigali Agreement of 2016 ratified by India.
- The plant has been installed at the Centre of Excellence (Marine Engineering), **INS Shivaji** for trials and exploitation. Till now, the plant has clocked 850 hrs of operation successfully.
- **Utilisation of Hydrogen** as a potential alternate source of fuel is also being pursued by the Indian Navy, successful shore trials of **Hydrogen Aspirated Diesel Engine** have been completed which has **enhanced clean combustion, thus reducing carbonmonoxide emissions significantly**.
- The device has now been fitted onboard a ship for pilot trials. Further, in line with GoI initiative of Make in India, a developmental project on **hydrogen fuel cell-powered ferry craft** is also being pursued with shipyards.
- The use of alternate fuels, such as **Used Cooking Oil-based biodiesel** has also progressed in the last year to reduce vehicular emissions. A total of 192KL of B-7 blend biodiesel has been used in motor transport vehicles of the Navy.
- To reduce the overall carbon footprint and enhance environmental sustainability, Indian Navy is '**Geared Up and Committed'** to march towards pursuance of Green Initiatives, realizing the national aim, to ensure a

‘Greener and Cleaner future for our next generations’.