Prelim Bits 10-11-2021 | UPSC Daily Current Affairs

Stubble Burning & Reduced Lung Function

A study, correlating the effect of air pollution on health, says that air pollution from stubble burning significantly reduced lung function and was particularly harmful to women in rural Punjab.

- The study found that the PM2.5 concentrations was found to increase more than twice between the two phases, from 100 g/m3 to 250 g/m3.
- [PM2.5 is the category of unburnt carbon particles considered most harmful to respiratory health.]
- These concentrations are around 10-15 times the WHO prescribed air quality standards though the permissible standards by India's Central Pollution Control Board (CPCB) are higher.
- **More symptoms** - During the crop residue burning period, a 2 to 3-fold increase was noted in most of the respiratory symptoms across all age groups (10-60 years).
    - The highest number of respiratory complaints were reported by the elderly population (>40-60)
    - The lowest number of respiratory complaints were reported in the younger age group (>10-18).
- There was decline in lung function with increase in PM2.5 concentration across all age groups even after controlling for several other variables, such the influence of cooking fuel, ventilation, distance from road etc.
- The study reported a 10-14% decline in lung function in men and nearly 15-18% decline in women across all age categories.

Yamuna River Frothing

A layer of froth was seen floating over parts of the Yamuna River near Kalindi Kunj. This has become a repeat occurrence in the city.

- **Froth formation** is a phenomenon that takes place on many lakes and streams. The froth is a sign of a polluted river.
- Foam bubbles are produced when organic matter decomposes.
    - These foam-producing molecules have two ends to repel and attract water, which work to reduce the surface tension on the water surface.
- These foam bubbles are lighter than water, so they float on the surface as a thin film that gradually accumulates.
- **Causes** - Release of untreated or poorly treated effluents, which may contain soap-detergent particles could lead to frothing.
- Surfactants & phosphates from detergents in households and industrial laundry find their way into the river, as all the sewage is not treated.
    - These Phosphates persist in water, which leads to eutrophication. This lowers the oxygen content, killing off marine life that is essential to maintain the quality of water.
- Other sources are industrial effluents, organic matter from decomposing vegetation and

presence of filamentous bacteria.
- The pollution from sugar and paper industries also causes pollution.
- The water falls from a height, so the untreated waste turns into foam.
- **Health hazards** - Short-term exposure can lead to skin irritation and allergies. If ingested, these chemicals may cause gastrointestinal problems and diseases like typhoid.
- Long term exposure to heavy metals in industrial pollutants can cause neurological issues and hormonal imbalances.

India's Submarine Strength

The CBI filed charges against some naval officers for allegedly sharing details of the ongoing modernisation project of India's Kilo Class submarines (imported submarines that are being retrofitted).

- India has 15 conventional diesel-electric submarines, classified as SSKs, and one nuclear ballistic submarine, classified as SSBN.
- India is building at least two larger SSBNs that will have bigger missiles, called S4 & S4 projects. The 4 SSBNs may be commissioned before 2030.

SSKs	
4 Shishumar Class	Bought and then built in India in collaboration with the Germans in 1980s
8 Kilo Class or Sindhughosh Class	Bought from Russia (including erstwhile USSR) between 1984 and 2000
3 Kalvari Class Scorpene submarines	Built at India's Mazagon Dock in partnership with France's Naval Group
SSBN	
INS Arihant	Indigenously-built nuclear-powered ballistic missile submarine
INS Arighat	An upgraded version of Arihant (Yet to be commissioned)

- **History** - India got its first submarine, INS Kalvari of the Foxtrot Class, from the USSR in December 1967. By 1969, it had four of those.
- Between 1971 and 1974, India bought 4 more Foxtrot Class submarines.
- In 1981, it signed a contract to buy two Type 209 submarines from West Germany, while two others were to be assembled at Mazgaon Dock.
- These formed the Shishumar Class.
- Parallelly, Russia offered India its Kilo Class submarines.
- Between 1986 and 1992, India got 8 submarines from the USSR and 2 from Germany.
- India bought 2 more Kilo Class submarines from Russia in 1999 and 2000, taking the total submarine fleet to around 20.
- Soon after, the older Foxtrots started getting decommissioned.
- Of the 10 Kilo Class submarines, INS Sindhurakshak sank off Mumbai after explosions caused by fire. India gifted INS Sindhuvir to Myanmar.

30-year Construction Plan

- The 30-year plan (2000-30) for indigenous submarine construction envisaged 2 production lines of 6 submarines each, built in India in partnership with a foreign Original Equipment Manufacturer (OEM).
    - The projects were called P-75 and P-75I.

- The plan anticipated that India would get 12 new submarines by 2012-15.
- Subsequently, India would make 12 of its own by 2030, taking the fleet size to 24, with the older submarines getting decommissioned.
- But the contract for P-75 was signed only by 2005, with France's DCNS, now the Naval Group.
- INS Kalvari, built in India in partnership with France's Naval Group.

Suffering from 'Climate Change'

A Canadian woman becomes world's first patient to be diagnosed with breathing trouble as suffering from 'climate change'.

- She was struggling to breathe after the recent wildfires in Kootenays region in the British Columbia province worsened her asthma.
- In this diagnosis, the doctor linked mortality or severe illness to heat waves or air pollution.
- If we're not looking at the underlying cause (climate change), and we're just treating the symptoms, we're just gonna keep falling further behind.

Reduction in Import of Non Coking Coal

In the Financial Year 2021-22 (upto August), the import of all varieties of Non-Coking Coal has reduced from 84.44 MT to 70.85 MT during the corresponding months of the FY 2019-20 - a decline of about 16.09%.

- India has been importing coal to bridge the gap between the requirement of coal and the domestic production in the country.
- The dependence on imports for Coking Coal mainly used in the steel sector has been predominantly due to very limited domestic availability.
- Even though the import of Coking Coal is non-substitutable, the imports of various grades of Non Coking Coal have reduced substantially. This includes,
    1. High calorific value (GCV) thermal coal used for industrial purpose
    2. Low GCV that goes for power generation.
- Reduction of coal import has resulted in huge financial savings in the current FY as coal prices are going up sharply in international market.
- Total domestic dispatch of coal has gone up by 9.44% to 317.69 MT in the current FY upto August as compared to that of the same period of FY 2019-20.
- The government is continuing all efforts to further enhance the domestic coal production and dispatch.

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