Prelim Bits 23-03-2022 | Daily UPSC Current Affairs

Arsenic Pollution

Under Jal Jeevan Mission (JJM), while allocating the funds to States/ UTs, 10% weightage is given to the population residing in habitations affected by chemical contaminants including Arsenic.

- Arsenic is a natural semi-metallic chemical component of the earth's crust. It is widely distributed throughout the environment in the air, water and land.
- Inorganic arsenic compounds are more harmful than organic ones.
- **Source** - More than 90% of arsenic pollution is inferred to be geogenic.
- Alluvial sediments are the major source for arsenic contamination in groundwater and there is a relation with plate tectonic processes, mountain building, erosion and sedimentation.
- The groundwater extracted from unconsolidated sedimentary aquifers, particularly those which are located within the younger orogenic belts of the world, are the worst affected.
- **Impacts** - Arsenic poisoning is caused by the ingestion, absorption, or inhalation of dangerous amounts of arsenic.
- Long-term exposure to arsenic-contaminated groundwater results in severe health issues like skin, lung, kidney and bladder cancer; coronary heart disease; bronchiectasis; hyperkeratosis and arsenicosis.
- [Treatment involves bowel irrigation, medication and chelation therapy.]
- **Remedial Measures** are to be designed based on the source mineral, climatological and hydrogeological scenario of the affected region.
- The corrective measures available include
    1. Substituting high-arsenic sources, such as groundwater, with low-arsenic, microbiologically safe sources such as rain water and treated surface water.
    2. Removing arsenic from groundwater using filters,
    3. Exploring deeper or alternative aquifers,
    4. Treatment of the aquifer itself,
    5. Dilution method by artificial recharge to groundwater,
    6. Conjunctive use, and
    7. Installation of nano-filter, among other procedures.
- To know more about Arsenic Pollution, click here.

Reference

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Hypersonic Missiles

The Russian Ministry of Defence announced that it had used a hypersonic aeroballistic missile for the first time in the war with Ukraine.

- A hypersonic missile is a weapon system that flies above the speed of Mach 5 i.e. five times the speed of sound. That's about 6,100 kmph.
- Hypersonic missile are manoeuvrable, unlike the ballistic missiles that follows a set course or a ballistic trajectory.

Types of Hypersonic Weapons Systems	
Hypersonic Glide Vehicles (HGV)	Launched from a rocket before gliding to the intended target.
Hypersonic Cruise Missiles	Powered by air breathing high speed engines or 'scramjets' after acquiring their target.

- **Advantages -** Hypersonic weapons can enable responsive, long range strike options against distant, defended or time critical threats when other forces are unavailable, denied access or not preferred.
- They use only kinetic energy i.e. energy derived from motion, to destroy unhardened targets or even underground facilities.
- **Detection -** Hypersonic weapons could challenge detection and defence due to their speed, manoeuvrability and low altitude of flight.
- The ground based radars or terrestrial radars **cannot detect** hypersonic missiles **until late in the flight** of the weapon.
- This delayed detection makes it difficult for the responders to the missile attack to assess their options and to attempt to intercept the missile.
- **Countries** - While the US, Russia and China are in advanced stages of hypersonic missile programmes, India, France, Germany, Japan and Australia too are developing hypersonic weapons.

Kinzhal Hypersonic Missile

- The Kh-47M2 Kinzhal is Russia's first operational conventionally armed hypersonic weapon. It is designed to be carried by MiG fighter jets.
- Kinzhal (or Dagger) is a hypersonic aeroballistic air-to-surface missile. It is said to be a **modification of its Iskander missile**.
- Russia claims that Kinzhal has a range of more than 2,000 km, and a speed of Mach 10.

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BS-VI

The Supreme Court permitted the registration of BS-VI (BS6) light and heavy diesel vehicles used for public utility and essential services.

- Bharat stages (BS) **emission standards** are laid down by the central government.
- They regulate the **output of air pollutants** from internal combustion engine and spark-

ignition engine equipment, including motor vehicles.
- The standards and the timeline for implementation are set up by the **Central Pollution Control Board** under the Ministry of Environment, Forest and Climate Change.
- **BS1 to BS6** - The first emission norms, based on European regulations, were introduced in India in 1991 for petrol and in 1992 for diesel vehicles.
- The primary rules BS-I with the soubriquet Asian nation 2000 were introduced in 2000.
- The soubriquet BSII (BS2) and BSIII (BS3) were introduced in 2001 and 2005, respectively. BS4 was introduced in 2017.
- In 2016, the Indian government announced that the country would skip the BS V norms altogether and adopt BS VI norms by 2020.
- The government has mandated that vehicle makers must manufacture, sell and register only BS-VI (BS6) vehicles from April 1, 2020.

Difference Between BS4 and BS6

- Both BS-IV and BS-VI are unit emission norms that set the maximum permissible levels for pollutants that an automotive or a two-wheeler exhaust can emit.
- Compared to the BS4, BS6 emission standards are stricter.
- Whereas makers use this variation to update their vehicles with new options and safety standards, the biggest modification comes in the permissible emission norms.

Mashelkar Committee 2002

- In 2002, the Government had formed the high powered Mashelkar Committee to decide about the National Auto Fuel Policy, 2003.
- It accepted the report submitted by the Mashelkar committee.
- Mashelkar committee proposed a road map for the rollout of Euro-based emission norms in India.
- It also recommended a phased implementation of future norms, with regulations being implemented in major cities first and extended to the rest of the country after a few years.

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Navroz

The Prime Minister of India has greeted the people on the occasion of Navroz or Nowruz (21 March 2022).

- Jamshed-i-Navroz/Jamshed-i-Nouroz or Navroz ['Nav' (new) and 'Roz' (day)] is a **Parsi New Year** believed to be observed by Iranians and Zoroastrians for the past 3,000 years.
- It is celebrated on the first day of the **Farvardin** (first month) of the calendar followed by Zoroastrians.
- It is a day dedicated to the **beginning of the spring** and the renewal of nature.
- It is dedicated to promote peace, solidarity, and friendship among people and different communities.
- **History** - Festival of Navroz is named after the Persian king, Jamshed, who is credited for

creating the Persian or the Shahenshahi calendar.

- **Date** - Though celebrated in March globally, Navroz arrives 200 days late in India and is celebrated in August as the Parsis here follow the Shahenshahi calendar.
- In India, people celebrate it twice a year - first according to the Iranian calendar and the second according to the Shahenshahi calendar which is followed by people here and in Pakistan.

In 2009, Navroj was listed in the list of UNESCO Intangible Cultural Heritage of Humanity of India.

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Kalanamak Rice

- It is named Kalanamak Rice because it has **black husk** (Kala) and it has a **mild salty** (namak) taste.
- It is a **non-basmati scented rice** variety grown primarily in the **tarai region of Uttar Pradesh**.
- It is described as Buddha Prasad (an offering to Buddha).
- It has been rebranded as **Buddha Rice** in order to promote the sale of this **GI-tagged** rice in Buddhist countries.
- **Traits** - Its elongation after cooking - a trait that is the second major determinant of prices in the international market - is also greater.
- In addition, great head rice recovery after polishing (unbroken grains that can then be marketed) adds to its profitability.
- Kalanamak is a successful adapter to ***usar* soils** characterised by higher salt concentration and high pH.
- It is also **highly resistant** to notorious, and in India common, rice **diseases** such as panicle blast, stem rot and brown spot. Bacterial blight is quite rarely observed.
- It is **drought tolerant**. It is normally grown under rain-fed conditions and in uplands. Water requirement is quite low as compared to basmati.
- Kalanamak is traditionally grown using no fertiliser, herbicide and pesticide, which makes it suitable for organic cultivation.

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