Prelim Bits 29-04-2024 | UPSC Daily Current Affairs

Army Tactical Missile System

The United States has confirmed providing long-range Army Tactical Missile Systems (ATACMS) to Ukraine to aid its war effort against Russia.

- **Long range precision**- It is a conventional *surface-to-surface* artillery weapon system capable of striking targets well beyond the range of existing Army cannons, rockets and other missiles.
- **Maximum range**- *300 km*.
- **Maximum speed**- Supersonic (It exceeds Mach 3)
- **Origin-** It is first used in 1986 to attack high-value targets like airfields, artillery and missile forces, supply areas and command groups. ATACMS helped the United States and its allies to quick victory in *Operations Desert Shield and Desert Storm*.

  Operation Desert Shield and Desert Storm are the 42 country coalition led by the United States against Iraq

- **Versatility-** The missiles can be launched from platforms such as the High Mobility Artillery Rocket System (HIMARS) and Multiple Launch Rocket System (MLRS) M270, both of which have been provided to Ukraine by the US and the United Kingdom.
- **Precision targeting**- ATACMS is known for its precision targeting capabilities, allowing for accurate strikes on specific military targets or critical infrastructure.
- **Cluster munitions**- When fired, they would open in the air and release hundreds of "bomblets" rather than a single warhead.

  Cluster munitions as per Convention on Cluster Munitions means a "conventional munition that is designed to disperse or release explosive submunitions each weighing less than 20 kilograms, and includes those explosive submunitions".

- **Russia-Ukraine war**- Ukraine has requested ATACMS since early stages of the war, in 2023 US delivered ATACMS to Ukraine.
- The use of these missiles threatened the entirety of the Russian land corridor in southern Ukraine

Reference

Indian Express- What is Army Tactical Missile System

Global Alliance of National Human Rights Institutions

The Geneva based UN body will review India's human rights accreditation status

- **Launch year-** In 1993 at Tunis, Tunisia as the International Coordinating Committee of National Human Rights Institutions, it later got changed to GANHRI in 2016.
- **Headquarters-** *Geneva, Switzerland*.
- **Vision-** A world where everyone and everywhere fully enjoy their human rights.
- **Tripartite partnership-** ***GANHRI-UNDP-OHCHR*** (Office of the United Nations High Commissioner for Human Rights) aims to strengthen NHRIs in their capacity to promote and protect human rights, individually and through their regional and global networks resulting in increased fulfilment of human rights for all people.
- **Members-** 115 National Human Rights Institutions (NHRIs) from all regions of the globe and provides leadership and support in the promotion and protection of human rights.
- **Unique-** It is the *only non-UN body* whose internal accreditation system is based on compliance with the 1993 Paris Principles that grants access to UN committees.
- **Paris Principles, 1993**- It is the set of international standards which frame and guide the work of NHRIs, it was adopted by UN General Assembly (UNGA).
- **Rating**- The rating is based on the subcommittee consisting of one *A status NHRI representative* from each of the regional networks.
- **Sub-Committee on Accreditation**- It is a peer review process for initial accreditation, and re-accreditation *every five years* is managed by the subcommittee.

Status	About
A status	• It is granted to NHRIs that are in *full compliance* with the Paris Principles • They are entitled to *vote or hold office* in the GANHRI or its regional groups
B status	• It is given to NHRIs that *partially comply* with the Paris Principles. • Institutions with B status can participate in GANHRI meetings but are *unable to vote* or hold governance positions

- **India-** National Human Rights Commission has been granted "A" status by GANHRI.

  India being accredited in 1999 had retained its A ranking in 2006 and 2011, while its status was deferred in 2016 and restored after a year

- **Review status**- The NHRC's ratings were put on hold in 2023 over concerns on its composition procedure, the presence of police personnel in human rights investigations, and the lack of gender and minority representation.
- **Impact**- The accreditation status would affect its ability to vote at the UN Human Rights Council and some UNGA bodies.

References

1. The Hindu- GANHRI to review India's human rights status
2. GANHRI- History of GANHRI

Biohacking

Biohacking is picking up in India, with followers trying everything from cryotherapy to IV therapy.

- It is the practice of using methods from various fields to enhance *physical or mental performance*, health and well-being.
- **Nootropics-** It is a popular form of biohacking that includes a group of substances called nootropics, or “smart drugs. It consists of
    - **Prescription nootropics**- It consists of medicines prescribed by doctor and
    - **Non-prescription nootropics-** It consists of tablets, supplements, drinks, and foods.
- **Wearable technology**-Fitness tracker, smart watches etc., play a key role in providing real-time data on various aspects of health, which can then be used to make adjustments to lifestyle and behaviour.
- **DIY biohacking**- It involves experts in scientific fields sharing biohacking techniques and information with people who are not experts, this allows more people to conduct experiments on themselves outside of a constrained environment.
- **Nutrigenomics-** It focuses on how food interacts with people’s genes, it also how a person’s genes affect their body’s response to food.
- **Grinders**- They are biohackers who consider themselves pioneers of human augmentation, it typically involves devices implanted under the skin and the use of technology to perform body modifications.

Benefits	Challenges
• **Personal empowerment**- Biohacking empowers individuals to take control of their own health and well-being by experimenting with different lifestyle choices and interventions. • **Healthcare innovation**- It fosters a DIY (do-it-yourself) approach to health and wellness, which can lead to the development of new technologies, treatments, and interventions that may not be explored within traditional medical research settings. • **Personalisation**- It promotes the idea of personalized medicine and interventions tailored to an individual's specific needs, genetics, and lifestyle factors. • **Explore human potential**- Biohacking pushes the boundaries of human potential by exploring ways to enhance physical and cognitive capabilities beyond what is considered "normal”. • **Community collaboration**- Biohacking has fostered a community of like-minded individuals who share knowledge, experiences, and resources.	• **Safety risks**- DIY genetic engineering or self-experimentation with untested substances, carry inherent safety risks without proper oversight and regulation. • **Ethical concerns**- It raises ethical questions regarding the boundaries of self-experimentation, the potential consequences of altering human biology, and the equitable distribution of access to emerging technologies and interventions. • **Regulatory challenges**- The rapidly evolving nature of biohacking poses challenges for regulatory agencies tasked with overseeing the safety and efficacy of medical treatments and interventions • **Growing inequality-** Accessibility to afford advanced biohacking tools and interventions may gain disproportionate advantages in terms of health and performance, widening the gap between the haves and have-nots. • **Privacy concerns**- Biohacking technologies, such as wearable devices and implantable sensors, raise concerns about data security and privacy as they are vulnerable to hacking or unauthorized access leading to potential privacy breaches or misuse of sensitive data.

References

1. The Hindu- Biohacking and the race to become superhuman

2. Vox- What is biohacking?

Nilgiri Tahr Survey

India's first synchronised census of endangered Nilgiri Tahr will be conducted under Project Nilgiri Tahr by Tamil Nadu and Kerala.

- **Scientific name** - *Nilgiritragus hylocrius*
- **Taxonomy-**- It is a congener of the
    - Himalayan tahr (Hemitragus jemlahicus), found in Kashmir and Bhutan and
    - Arabian tahr (Arabitragus jayakari), found in Oman and United Arab Emirates.
- **Uniqueness**- It is the only mountain ungulate (large mammals with hooves) in southern India amongst the 12 species present in India.
- **Population estimates** - 3,122 individuals in the wild (as per a report released by WWF India in 2015)
- **Habitat-** It is a sure-footed (not likely to slip) ungulate that inhabits the open montane grassland habitats at elevations from 1200 to 2600 m of the South Western Ghats.
- **Distribution-** It is *endemic to Western Ghats* but currently large populations are found only in Nilgiris and Anamalais.
- Palani hills, Srivilliputtur, and the Meghamalai and Agasthiyar ranges holds smaller population.
- **Eravikulam National Park**- It is in Kerala which is the home to the largest population of the Nilgiri tahr, with more than 700 individuals.

  Every 12 years, this place will be carpeted with blue due to the mass flowering of Neelakurinji flowers

- **Anamalai Tiger Reserve**- It is estimated to be the *second biggest habitat* for the Tahr after Eravikulam National Park, the Grass Hills National Park is the home to the largest population believed to be over 200 individuals.
- **Threat** – Habitat loss and occasional hunting for its meat and skin.
- **Conservation status**
    - IUCN status – Endangered
    - Wildlife (Protection) Act of India, 1972 - Schedule I
- **State animal of Tamil Nadu-** The State celebrates ***October 7*** as ***Nilgiri Tahr Day*** to honour hunter-turned-conservationist ERC Davidar.

Project Nilgiri Tahr

- **Initiative by**- Tamil Nadu
- **Launch year**- 2022
- **Aim-** To protect and conserve Nilgiri Thar
- **Objectives-**
    - To develop a better understanding of the Nilgiri Tahr population through surveys and radio telemetry studies
    - Reintroduce the Tahr to their historical habitat.
    - Address proximate threats.
    - Increase public awareness of the species.

- **Head**- By a Project Director
- **Members**- The project will be assisted by a team which includes Assistant Director, senior scientists, research fellows and field staffs.
- **Time frame**- *5 year period* from 2022 to 2027.
- **Fund-** By Tamil Nadu Pollution Control Board

First synchronised survey

- **Methodology**-It is a 3-day census that would be done based on bounded count and double observer methods would be used to estimate the population of the species.
- **Collaborative efforts-** It is a joint task by the Forest Departments of *Tamil Nadu (Project Nilgiri Tahr) and Kerala* focusing in both states.
- **Scientific approach-** It is supported by WWF- India, Wildlife Institute of India and Nature Conservation Foundation to ensure accurate population.

References

1. The Hindu- First synchronised survey of Nilgiri Tahr
2. WWF- About Nilgiri Tahr

Plastic Polymers

Between 2021 and 2024, the number of chemicals reported to be used by the plastic industry has gone up from around 10,000 to 16,000

- **Plastics-** They are a group of materials, either synthetic or naturally occurring, that may be shaped when soft and then hardened to retain the given shape.
- **Plastic polymers**- Plastics are based on polymers, which are large molecules formed by joining monomers.

  Common plastics like PET bottles are made from Purified Teraphthalic Acid (PTA) and Monoethylene Glycol (MEG) both of which are high volume products made in the petrochemical industry.

POLYMER TYPES	EXAMPLES OF APPLICATIONS	SYMBOLS
Polyethylene Terephthalate (PET)	Fizzy drink and water bottles. Salad trays.	1 PET
High Density Polyethylene (HDPE)	Milk bottles, bleach, cleaners and most shampoo bottles.	2 HDPE
Polyvinyl Chloride (PVC)	Pipes, fittings, window and door frames (rigid PVC). Thermal insulation (PVC foam) and automotive parts.	3 PVC
Low Density Polyethylene (LDPE)	Carrier bags, bin liners and packaging films.	4 LDPE
Polypropylene (PP)	Margarine tubs, microwaveable meal trays, also produced as fibres and filaments for carpets, wall coverings and vehicle upholstery.	5 PP
Polystyrene (PS)	Yoghurt pots, foam hamburger boxes, plastic cutlery, protective packaging for electronic goods and toys. Insulating material in the building and construction industry.	6 PS
Unallocated references	Any other plastics that do not fall into any of the above categories - for example polycarbonate which is often used in glazing for the aircraft industry.	7 O

- **Category**-
  - **Thermoplastics-** They are defined as polymers that can be melted and recast almost indefinitely.
  - **Thermosets-** It is a polymer that irreversibly becomes rigid when heated.
- **Chemicals in plastics**- With more than 98% manufactured from the fossil fuel industry, plastics comprise of a carbon-based backbone.

  As per Environmental Science and Research over 10,500 chemicals are used in making plastics including monomers, processing aids and additives, these chemicals determine properties like durability and flexibility.

- **Composition of chemicals**- 55% of the substances identified are categorised as plastics additives, 39% as processing aids, and 24% as monomers, with significant overlaps between these three categories. 30% of these substances remain non-categorisable due to lack of information.

- **Additive chemicals**- Additional chemicals used in polymerisation processes include initiators, catalysts, and solvents.
- **Virgin plastics**- They are typically produced in granular or pellet form, also called '***nurdles***'. Other forms of virgin polymers may include powder and flakes.
- **Impact of chemicals-** The chemicals used in the plastics are toxic as they contain carcinogen and endocrine disruptors, they can leach out and enter the human body posing health risks.
- **Regulation-** Only 6% of the plastic chemicals are regulated internationally under the multilateral agreements, and there's a call for labelling systems to inform about the impact of these chemicals.

Environmental convention	About
Rotterdam convention	It mandates a *Prior Informed Consent* (PIC) on trading of some chemicals
Stockholm convention	To protect human health and the environment from *Persistent Organic Pollutants.*
Montreal protocol	It led to freeze the production and consumption of *ozone-depleting substances* including CFCs. -depleting substances

REACH

- Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH) is a comprehensive regulatory framework.
- **Implemented by**- ***European Union (EU)***
- **Aim-** To ensure the safe use of chemicals and to protect human health and the environment.
- **Evaluation-** Companies must register chemicals with the European Chemicals Agency (ECHA), which assess the information and the substances of very high concern may require authorization for use.
- **Restriction-** EU may restrict or phase out chemicals that pose significant risks.

India's initiative

- **MSICH Rules, 1989**- Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules regulates the manufacture, storage, import and export of hazardous chemicals in India.
- **Bureau of Indian Standards (BIS)**- It sets standards for various products including chemicals, to ensure their quality, safety, and performance, BIS standards may not directly mirror the scope of REACH, they contribute to chemical safety and regulatory compliance in India

References

1. Down To Earth- What are polymers?
2. Down To Earth- Major countries steps taken for polymers