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Nanobodies

- The University of Bonn has developed novel antibody fragments (nanobodies) against SARS-CoV-2.
- Nanobodies are antibody fragments that are so simple that they can be produced by bacteria or yeast, which is less expensive.
- They are recombinant, antigen-specific and have a single variable domain on a heavy chain, called VHH domains. They lack VL domains.
- They are much smaller than classic antibodies. So, they penetrate the tissue better and can be produced more easily in larger quantities.
- The nanobodies have been combined into potentially effective molecules, which attack different parts of the virus simultaneously.

Akash-NG Missile

- Defence Research and Development Organisation (DRDO) conducted the successful launch of Akash-NG (New Generation) Missile.
- Akash-NG is a new generation **Surface to Air Missile** meant for use by Indian Air Force.
- It aims at intercepting high maneuvering low RCS aerial threats.
- It has a Command and Control system, onboard avionics and aerodynamic configuration.
- It has been developed with better deployability compared to other similar systems with canisterized launcher and much smaller ground system footprint.
- The Multi Function Radar was tested for its capability of integration with the Akash-NG system.

Climate Adaptation Summit 2021

- The summit was hosted online by the **Netherlands** government.
- It will have a focus on securing new investments to ensure that millions of smallholder farmers can adapt to the stresses of climate on food production.
- It launched an **Adaptation Action Agenda** that sets out clear commitments to deliver concrete new endeavours and partnerships to make our world more resilient to the effects of climate change.

Treaty on the Prohibition of Nuclear Weapons

- Adopted in 2017, the legally binding United Nations (UN) Treaty on the Prohibition of Nuclear Weapons (TPNW) is entering into force now.
- India reiterated that it is neither party to nor bound by any obligations of this international pact.
- TPNW includes a comprehensive set of prohibitions on participating in any nuclear weapon activities.
- These include undertakings not to develop, test, produce, acquire, possess, stockpile, use or threaten to use nuclear weapons.
- The Treaty also prohibits the deployment of nuclear weapons on national territory and assistance to any State in conduct of prohibited activities.
- States parties will be obliged to prevent and suppress any activity prohibited under the TPNW.
- It obliges States parties to provide adequate assistance to individuals affected by the use or testing of nuclear weapons.
- It also obliges them to take necessary measure of environmental remediation in areas under its jurisdiction or control contaminated due to the use of nuclear weapons.

National Baseline Geoscience Data Generation Programmes

- To expedite exploration activities in the country, Geological Survey of India (GSI), has embarked upon an ambitious scheme to complete some major National level surveys by 2024:
    1. National Geochemical Mapping (NGCM),
    2. National Geophysical Mapping (NGPM),
    3. National Aero Geophysical Mapping Program (NAGMP).
- GSI would adopt deep penetration geophysical techniques such as Magneto-Telluric Surveys and Deep Seismic Reflection Surveys (DSRS).
- It has also initiated the National Geoscience Data Repository (NGDR).

National Geochemical Mapping (NGCM)

- It is an all India program to cover the entire surface area of India by geochemical sampling.
- It will generate distribution pattern of 62 elements (samples collected at 1km x 1km grid) for managing and developing natural resources, etc.

National Geophysical Mapping (NGPM)

- The Program has been systematically generating basic and derived maps of Bouguer (Gravity) Anomaly and IGRF corrected magnetic total field maps of the country.

- For this, it conducts ground gravity and magnetic surveys in 1: 50,000 scale with an observation density of one station in 2.5 sq. Km., to cover the entire country with preference to Obvious Geological Province areas.

National Aero Geophysical Mapping Program (NAGMP)

- Its objectives are to delineate concealed, deep seated structure/ litho-units capable of hosting mineralization, etc.
- It is for the first time that the multi-sensor aero-geophysical surveys (magnetic gradiometry and spectrometric) are being carried out.
- It is done by adopting such large regional scale survey parameters of 300 m traverse line spacing with aircraft flown at 80 m above ground level.

National Geoscience Data Repository (NGDR)

- GSI is in consultation with BISAG-N, a national institute under Ministry of Information & Technology for development of NGDR.
- [BISAG-N - Bhaskaracharya Institute for Space Applications and Geoinformatics]
- NGDR is a flagship initiative for collation of all the geoscience data of the country involving GSI, other national organizations, private sector agencies working in the domain and other stakeholders.
- It will integrate the collected data by GSI and the similar organizations to build a repository on the digital medium entailing multiple user access.
- It is planned that all the stakeholders from India and across the globe who are willing to participate in the current auction regime for allocation of mineral acreages will be able to use the NGDR.
- The planned Baseline Geoscience Data Collection campaign would lead to a database, which will be the input for future exploration programs.

FIST Scheme

- The Fund for Improvement of Science and Technology (FIST) Advisory Board (FISTAB) meeting was held recently.
- The FIST Scheme was launched in 2000 to strengthen the Science and Technology (S&T) infrastructure.
- It has played a pivotal role in the strengthening of both the teaching and research infrastructure in different academic and research institutions.
- It is considered as complimentary support for enabling Departments/ Centres/ Schools/ Colleges to pursue research activities more effectively.
- The duration of support for each project will be for a period not exceeding 5 years.

Source: PIB, The Indian Express, The Wire, Outlook India

