NATIONAL DISASTER RESPONSE FUND (NDRF)

The Central Government recently approved the release of Rs 200 crore from the National Disaster Response Fund as advance assistance to Himachal Pradesh.

About National Disaster Response Fund (NDRF):

- It is **defined in Section 46 of the Disaster Management Act, 2005.**

- It is a fund **managed by the Central Government** to meet **the expenses for emergency response, relief and rehabilitation** due to any threatening **disaster situation or disaster.**

- It is **placed in the "Public Account" of GOI** under "reserve funds not bearing interest".

- NDRF is **constituted to supplement the funds of the State Disaster Response Funds (SDRF),** in case of a disaster of severe nature, provided adequate funds are not available in SDRF.

- **Eligibility:**

  o NDRF guidelines state that **natural calamities of cyclones, drought, earthquake**, fire, flood, tsunami, hailstorm, landslide, avalanche, cloud burst, pest attack and cold wave and frost **considered to be of severe nature by Government of India (GoI)** and requiring expenditures by a state government in excess of the balances available in its own SDRF **will qualify for immediate relief assistance from NDRF**.

- The **National Executive Committee (NEC) of the National Disaster Management Authority takes decisions** on the expenses from National Disaster Response Fund.

Key Facts about National Disaster Management Authority (NDMA):

- It is the **apex body for Disaster Management in India.**

- It was **established through the Disaster Management Act** enacted by the Government of India in 2005.

- It has the **responsibility for laying down the policies, plans and guidelines for disaster management** for ensuring timely and effective response to disasters in the country.

- Besides **approving the National Disaster Management Plan (NDMP),** the Authority **approves the plans of different Ministries and Departments of Government** of

India, and **lays down guidelines to be followed by State Disaster Management Authoritie**s for preparing their disaster management plans.

- NDMA coordinates the implementation of disaster management policy and plan.
- **Organisational Structure:**
  o It consists of **Prime Minister of India as its Chairman**-; **a Vice Chairman with the status of Cabinet Minister, and eight members** with the status of Ministers of State.
  o The **NDMA Secretariat,** he**aded by a Secretary, is responsible for providing secretarial support** and continuity.

TAPAS UAV

Recently, a Tapas unmanned aerial vehicle (UAV) of the Defence Research and Development Organisation (DRDO) crashed in agriculture fields near a village in Karnataka's Chitradurga.

About TAPAS UAV:

- **The Tactical Airborne Platform for Aerial Surveillance-Beyond Horizon-201** or Tapas BH-201 is a long-endurance **unmanned aerial vehicle.**
- It was previously used to be referred **as Rustom-II.**

Features

o Formerly known as the Rustom-2, the drone has a 20.6-meter wingspan and a maximum speed of 225 kmph.

o It can cover a **range of 250+ km using the C Band** frequency data link developed by Defence Electronics Application Laboratory (DEAL) at DRDO.

o It can also cover 1000+ km via SATCOM using the K_u Band frequency and GAGAN system.

o The **medium-altitude, long-endurance drone** has an impressive flight endurance of several hours and successfully completed its maiden flight in November 2016.

o Its **compact, lightweight design makes** it easily transportable and deployable to remote locations.

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o Its real-time data collection and transmission **provide valuable intelligence for decision-making.**

o It has a range of over 18 hours and altitude **capabilities of up to 28,000 feet.**

o It has already completed more than 180 flights and will be live-streaming aerial and static displays at Aero India 2023.

- It is being developed in India by **Aeronautical Development Establishment**.

ANTI-RAGGING LAWS OR POLICIES IN INDIA

Why in News?

- An 18-year-old undergraduate student died after falling from the 2nd floor of his hostel in the Jadavpur University campus in Kolkata last week.

- As the family of the student has alleged that he was being ragged on campus, the article highlights how the Indian laws/ policies deal with ragging.

The Supreme Court of India on Ragging:

- **Meaning:** The Court in a 2001 (Vishwa Jagriti Mission) case, defined ragging as:

o Any disorderly conduct (by words spoken or written or by an act), which has the effect of causing annoyance, hardship or psychological harm/ shame or embarrassment in a fresher or a junior student, adversely affecting their physique or psyche.

- **The cause of indulging in ragging:** To derive sadistic pleasure (by inflicting pain) or showing off power, authority or superiority by the seniors over their juniors or freshers.

- **What the SC said?** It termed ragging as the "menace pervading the educational institutions of the country."

The UGC Guidelines to Prevent Ragging:

- In 2009, the SC in another case dealt with the ragging issue appointed a committee headed by former CBI Director **RK Raghavan**.

- The recommendations of the committee were subsequently formalised by the University Grants Commission (**UGC**) in the form of **detailed guidelines for universities on anti-ragging**.

- The guidelines [**The Regulations on Curbing the Menace of Ragging in Higher Educational Institutions**] include 9 explanations of what could constitute ragging:
  - Teasing, treating or handling a fellow student with rudeness;
  - Causing physical or psychological harm;
  - Causing or generating a sense of shame;
  - Academic activity of any other student or a fresher;
  - Exploiting a fresher or any other student for completing academic tasks assigned to an Individual or a group of students;
  - Financial extortion or forceful expenditure;
  - Homosexual assaults, stripping, forcing obscene and
  - Lewd acts, gestures, causing bodily harm.
- At an institutional level, the UGC requires universities **to declare its intent publicly to prevent ragging** and **requires students to sign an undertaking** that they will not engage in ragging activities.
- **The institution shall set up appropriate committees**, including the course-incharge, student advisor, Wardens and some senior students as its members, to actively monitor, promote and regulate healthy interaction between the freshers and seniors.
- **If found guilty by the anti-ragging committee**, the UGC guidelines require any member of the committee to "proceed to file a First Information Report (FIR), within 24 hours of receipt of such information.

ACOUSTIC SIDE CHANNEL ATTACK

A research paper titled "A Practical Deep Learning-Based Acoustic Side Channel Attack on Keyboards", revealed that Artificial Intelligence (AI) can be used to decode passwords by analysing the sound produced by keystrokes.

About Acoustic Side Channel Attack:
- This technique uses the **sounds produced by typing on a keyboard** to determine what keys are being pressed.

- By analysing these unique sounds, **hackers equipped with the right tools can decode** the precise letters and numbers being typed.

- Researchers investigated the use of audio recordings taken **from Zoom video conferencing calls, smartphone microphones,** and off-the-shelf equipment and algorithms to launch ASCA attacks.

- The study found that when trained on keystrokes by a nearby phone, the classifier **achieved an accuracy of 95%,** the highest accuracy seen without the use of a language model.

Accuracy

o When a deep learning model was **trained on the data with default values**, the model was able to acquire a **meaningful interpretation of the data**.

o On a MacBook Pro, which features a keyboard identical in switch design to Apple's models from the last two years, the model **was able to achieve state-of-the-art accuracy** with minimal training data.

o Additionally, when **the AI model** was made to recognise keystrokes using audio captured through a smartphone microphone, it was able to **achieve 95% accuracy.**

- **Implications**

o This form of hacking **could expose sensitive information** like passwords and personal messages.

What are Side Channel Attacks (SCAs)?

- These are a method of **hacking a cryptographic algorithm** based on the analysis of auxiliary systems used in the encryption method.

- These can be performed using a collection of signals emitted by devices, including **electromagnetic waves, power consumption, mobile sensors** as well as sound from keyboards and printers to target devices.

- Once collected, these signals are used to interpret signals that can be then used to **compromise the security of a device.**

GENE-EDITED MUSTARD

Recently, Indian scientists developed the first ever Gene edited low-pungent mustard that is pest and disease-resistant.

About Gene-edited Mustard:

- India's most significant domestically-grown oilseed is **rapeseed-mustard.**
- **Issues with Mustard seeds**

o Mustard seeds have high **levels of glucosinolates,** a **group of sulphur and nitrogen-containing compounds** contributing to the characteristic pungency of their oil and meal.

o Rapeseed meal is **unpalatable to poultry and pigs**, while having to be mixed with fodder grass and water for giving to cattle and buffaloes.

o Besides reducing their feed intake, high glucosinolates are also known to cause **goiter (swelling of neck) and internal organ abnormalities in livestock.**

o The dry seeds from the normal mustard (Brassica juncea) cultivated in India **contain 120-130 parts per million** (ppm or mg/kg) of glucosinolates. This is as against the sub-30 ppm levels in canola seeds.

A Gene Editing breakthrough

- The **Glucosinolates** are synthesised in the **leaves and pod walls of mustard plants**.
- Their translocation and accumulation in the seeds happens through the action of **glucosinolate transporter or GTR genes**.
- There are 12 such genes under two distinct classes of GTR1 and GTR2 with six copies each.
- Researchers **edited 10 out of the 12 GTR genes in 'Varuna'**, a high-yielding Indian mustard variety.
- For this, **they used CRISPR/Cas9 – a gene-editing tool deploying an enzyme**, which acts as a "molecular scissors" to cut the DNA at precise targeted locations of the gene, and then letting the natural DNA repair process to take over.
- By doing this, **their encoded proteins**, responsible for transport of the glucosinolates to the seeds, were rendered non-functional.

- By lowering the glucosinolate content to the same dry seed weight concentration, the scientists have bred mustard lines whose oil and meal **match the standard of canola-quality rapeseed (Brassica napus) in terms of pungency.**

- The new GTR genes-edited mustard lines are **transgene-free or non-genetically modified (GM).**

- They contain no foreign genes like those of the Bacillus thuringiensis bacteria in cotton or Bar-Barnase-Barstar (isolated from other soil bacteria) in the GM hybrid mustard (DMH-11).

WHO WAS MADAN LAL DHINGRA?

On the 114th death anniversary of Madan Lal Dhingra, a massive memorial was inaugurated in Amritsar, where he hailed from.

About Madan Lal Dhingra:
- He was an **Indian revolutionary freedom fighter**.
- He was **born on 18 February 1883 in Amritsar**.

- Dhingra **received his early education in Amritsar** and **later moved to England** for further studies. **He enrolled at University College, London,** where he studied engineering.

- **While in England, Dhingra became deeply involved** in the activities of the **Indian independence movement.**

- He **came in contact with the revolutionaries like Vinayak Damodar Savarkar, Shyamji Krishna Varma,** the founder of Indian House, and several others.

Curzon Wyllie's assassination:
o On July 1, 1909, **Madan Lal Dhingra assassinated Sir William Hutt Curzon Wyllie**, a retired British Indian Army officer and a prominent official, **during a public meeting in London's Imperial Institute.**

o **During the trial, he claimed that he had murdered** Curzon-Wyllie **as a patriotic act and in revenge for the inhumane killings of Indians by the British** Government in India.

o **He was found guilty and sentenced to death**.

- o **He was hanged to death on August 17, 1909**, at the **age of only 24**.
- He **was disowned by his family for his anti-British leanings** – so much so that even after his death his family refused to take his body.

KASHMIR STAG

After two years, the unique Kashmir stag (Hangul) the state animal of Jammu and Kashmir, has again shown a marginal increase in its population.

About Kashmir stag:

- It is also called Hangul which is a **subspecies of Central Asian red deer** endemic to Kashmir and surrounding areas.
- It is found in dense riverine forests in the high valleys and mountains of Jammu and Kashmir and northern Himachal Pradesh.
- In Kashmir, it is found primarily in **the Dachigam National Park** where it receives protection.
- A small population has also been witnessed in **Overa-Aru Wildlife Sanctuary** in south Kashmir.

Conservation status

- o **IUCN:** Critically Endangered
- o **CITES :** Appendix I

Key facts about the Dachigam National Park

- The actual beauty of the park lies in the **deep valleys, rocky outcrops, steep wooded** slopes and rolling alpine pastures.
- Being located in a mountainous area, Dachigam National Park faces a huge variation in **altitude** that ranges from **1600 m to 4200 m above sea level.**
- This variation in altitude categorises Dachigam National Park into **two regions- the upper region and the lower region.**

- **Flora:** It is extremely rich in Wild Cherry, Pear, Plum, Peach, Apple, Apricot, Walnut, Chestnut, Oak and Willow etc.

- **Fauna:** Hangul (Kashmir Stag), Musk deer, Brown Bear, Leopards, Jungle Cats, Himalayan black bear, and a few species of wild goats like the markhor and ibex.