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MINISTRY OF SCIENCE AND TECHNOLOGY

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THE HINDU Page 12

CERVICAL CANCER
(Syllabus: GS Paper 3 - Sci & Tech)

Girls aged 9 to 14 to get cervical cancer jabs through schools

The Hindu Bureau
NEW DELHI

The preventable and curable cervical cancer is the second most common cancer in Indian women

The government will roll out vaccination against cervical cancer for girls aged between nine and 14 through schools.

The decision was based on the National Technical Advisory Group for Immunisation (NTAGI) recommendation to introduce the human papillomavirus (HPV) vaccine in the Universal Immunisation Programme.

India is expected to roll out the indigenously developed CERVAVAC vaccine by mid-2023. The vaccine has received the Drugs Controller General of India's approval and has been cleared by the government advisory panel NTAGI for use in the public health programme.

A one-time catch-up vaccine will be provided for adolescent girls in the 9-14 age group. Subsequently, it will be introduced at the age of nine.

The vaccination will be provided primarily through schools because of the high enrolment of girls. Those girls who are unable to attend school on the day the vaccination campaign is organised will be provided the vaccine at a health facility. Out-of-school girls will be reached through community outreach and mobile teams, according to a statement from the Education Ministry.

In a joint letter, the Union Education Secretary Sanjay Kumar and Union Health Secretary Rajesh Bhushan have requested the States and Union Territories to issue appropriate directions for organising HPV vaccination centres in schools.

Cervical cancer is the fourth most common cancer in women globally. In India, cervical cancer is the second most common cancer in women. India contributes the largest share of the global cervical cancer burden.

According to a recent study published in *The Lancet*, India accounted for nearly one in every four deaths globally due to cervical cancer.

Context: The government will provide **vaccines for the prevention of cervical cancer** to girls aged between 9 and 14 years through their schools.

- The decision was based on the National Technical Advisory Group for Immunisation (NTAGI) recommendation to introduce the Human Papillomavirus (HPV) Vaccine in the Universal Immunisation Programme.

Cervical Cancer

- **About**: A prevalent **sexually transmitted infection**.
- **Cause**: It is mostly caused by long-term infection with particular forms of **Human Papilloma Virus (HPV)**.
- **Infected organ:** It's a type of cancer that **occurs in the cells of the cervix,** the lower part of the uterus that connects to the vagina.
- **Treatment**: Preventable and curable disease, as long as it is detected early and managed effectively.
  - The **HPV vaccine can prevent** most cases of cervical cancer if the vaccine is given before girls or women are exposed to the virus.
- **Vaccines**: Existing **Two vaccines** licensed globally are available in India - **a quadrivalent vaccine** (Gardasil, from Merck) and **a bivalent vaccine** (Cervarix, from GlaxoSmithKline) and are costly and none of them are included in the national immunization program.
  - India is expected to roll out the **indigenously developed CERVAVAC vaccine** by mid-2023.
    - A quadrivalent vaccine is a vaccine that works by stimulating an immune response against four different antigens, such as four different viruses or other microorganisms.
- **Prevalence**: It is the **fourth most common cancer** in women globally.
  - In India, It is the **second most common cancer** in women.
  - India contributes the **largest share of the global cervical cancer burden.**
  - According to a recent study published in The Lancet, India accounted for nearly **one in every four deaths** globally due to cervical cancer.

Indigenously developed CERVAVAC vaccine

- **About**: It is India's **first Quadrivalent Human Papillomavirus Vaccination (qHPV)** designed to protect women from cervical cancer.
  - The vaccine has received the **Drugs Controller General of India's approval** and has been cleared by the government advisory panel NTAGI for use in the public health programme.
- **Developed by**: Serum Institute of India (SII).
- **Potential**: It's based on **VLP (Virus-Like Particles),** similar to the Hepatitis B vaccination, and gives protection by producing antibodies against the HPV virus' L1 protein.
  - It is said to be **effective against four strains** of the virus - Type 6, Type 11, Type 16 and Type 18.

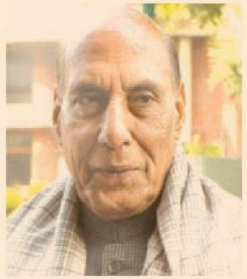
BUSINESS STANDARD

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DEFENCE ACQUISITION COUNCIL

(Syllabus: GS Paper 3 - Defence Sector)

Defence purchase plan worth ₹84K cr cleared



The plan was cleared by the Defence Acquisition Council, headed by Rajnath Singh

STRENGTH BOOSTER

- 24 capital acquisition proposals get acceptance of necessity
- 10 for Navy, including naval anti-ship missiles, multi-purpose vessels, and high endurance autonomous vehicles
- 6 for Army, including futuristic infantry combat vehicles, light tanks, and mounted gun system
- 6 for Air Force, including new range of missile system, long-range guided bombs, and advanced surveillance systems
- 2 for Coast Guard, including next-gen offshore patrol vessels
- 21 proposals, worth ₹82,127 crore, are approved for procurement from indigenous sources

PRESS TRUST OF INDIA
New Delhi, 22 December

The defence ministry on Thursday approved the procurement of a number of military platforms and weapons, including light tanks, anti-ship missiles, and long-range guided bombs at a cost of ₹84,328 crore to boost combat capabilities of the armed forces.

The procurement proposals were cleared by the Defence Acquisition Council (DAC) headed by Defence Minister Rajnath Singh. The Acceptance of Necessity (AoN) for the procurement came amid a spike in tensions between India and China after troops from the two sides were engaged in a clash along the Line of Actual Control (LAC) at Yangtse in the Tawang sector of Arunachal Pradesh.

The defence ministry said the DAC accorded approval for 24 capital acquisition proposals — six for Indian Army, six for Indian Air Force, 10 for the Indian Navy and two for Indian Coast Guard — adding total value of the procurement would be ₹84,328 crore. It said the proposals include procurement of futuristic infantry combat vehicles, light tanks, naval anti-ship missiles, multi-purpose vessels, new range of missile systems, long range guided bombs and next generation offshore patrol vessels. The ministry said 21 proposals worth ₹82,127 crore, will be procured from indigenous sources.

This initiative of the DAC will not only modernise the Armed Forces but also provide substantial boost to the defence industry to achieve the goal of 'Aatmanirbhar Bharat

"This unprecedented initiative of tge DAC will not only modernise the Armed Forces but also provide substantial boost to the defence industry to achieve the goal of 'Aatmanirbhar Bharat'," the ministry said in a release.

No breakthrough in 17th round of India-China talks

Against the backdrop of fresh tensions over the clash between their troops in the Tawang sector, India and China on Tuesday held the 17th round of high-level military talks on the eastern Ladakh border standoff but there was no indication of any forward movement in resolution of the remaining issues. A joint statement released on Thursday said both sides exchanged views in an "open and constructive" manner to resolve the "relevant issues" and that it was agreed to maintain "security and stability" on the ground in the region.

The senior military officers of the two sides held the dialogue at the Chushul-Moldo border meeting point on the Chinese side of the Line of Actual Control (LAC) in eastern Ladakh and it lasted for around 10 hours, people familiar with the matter said. The talks took place 11 days after the clash at Yangtse area along the LAC in the Tawang sector of Arunachal Pradesh.

The statement said the two sides agreed to stay in "close contact", maintain dialogue through military and diplomatic channels and work out a mutually acceptable resolution of the remaining issues at the earliest.

PTI

Context: The defence ministry approved the procurement of a number of military platforms and weapons, including light tanks, anti ship missiles, and long range guided bombs at a cost of ₹ 84,328 crore to boost combat capabilities of the armed forces.

- The procurement proposals were cleared by the **Defence Acquisition Council (DAC)** headed by Defence Minister.

Defence Acquisition Council (DAC)

- **About:** The **highest decision-making body** in the Defence Ministry.
- **Origin**: The Defence Acquisition Council (DAC) was formed after the Group of Minister's recommendations on '**Reforming the National Security System**', in 2001, post-Kargil War (1999).
  - It was constituted for overall guidance of the defence procurement planning process.
- **Mandate**: To ensure expeditious **procurement of the approved requirements of the Armed Forces** in terms of capabilities sought, and time frame prescribed, by optimally utilizing the allocated budgetary resources.
- **Key function**: The Defence Acquisition Council (DAC) is entrusted with **deciding on new policies** and capital acquisitions for:
  - The three services (Army, Navy and Air Force) and
  - The Indian Coast Guard.
- **Composition of the DAC:**
  - **Chairman:** Defence Minister.
  - **Other members:** Minister of State for Defence, Chief of Army Staff, Chief of Naval Staff, Chief of Air Staff, Defence Secretary, Secretary Defence Research & Development, Secretary Defence Production, Chief of Integrated Staff Committees HQ IDS, Director General (Acquisition).
  - **Staff Member Secretary**: Chief of Integrated Defence.

INDIAN EXPRESS

Page 1

MARITAL RAPE

(Syllabus: GS Paper 1 - Issue related to Women)

Back HC nod for marital rape trial: Karnataka to top court

ANANTHAKRISHNAN G
NEW DELHI, DECEMBER 22

AT A time when the BJP-led government at the Centre is still to formulate its stand on petitions to recognise and criminalise marital rape, the party's government in Karnataka has come out in support of a state High Court order which gave the go-ahead for prosecution of a man over allegations of rape levelled by his wife.

In an affidavit filed last month in the Supreme Court in response to a plea by the husband who has challenged the HC order, the state said the "High Court of Karnataka has considered all the questions of law involved in the present petition and it does not require any interference by" the Supreme Court.

It said the HC had concluded that the "charge framed against" him "for alleged offence punishable under section 376 of IPC for alleged rape of his wife, in the peculiar facts of this case, does not warrant any interference" and "it is a matter of trial".

Context: The Karnataka government has come out in support of a state High Court order which gave the go-ahead for **prosecution of a man over allegations of rape levelled by his wife.**

Marital Rape

- **About**: **Section 375** defines rape and lists seven notions of consent which, if vitiated, would constitute the offence of rape by a man.
  - However, the provision contains a **crucial exemption:** "Sexual intercourse or sexual acts by a man with his own wife, the wife not being under eighteen years of age, is not rape."
  - This **exemption essentially allows a marital right** to a husband who can with legal sanction exercise his right to consensual or non-consensual sex with his wife.
  - It also mentions that **medical procedures or interventions** shall not constitute rape.
- **Views on Marital Rape:**
  - **Law Commission of India:** The need to remove this marital rape exception was **rejected by the Law Commission of India in 2000,** while considering several proposals to reform India's laws on sexual violence.
  - **Justice JS Verma Committee:** In 2012, the Justice JS Verma Committee was tasked with proposing amendments to India's rape laws.
    - While some of its recommendations helped shape the Criminal Law (Amendment) Act passed in 2013, **some suggestions, including that on marital rape, were not acted on.**
  - **Parliament**: Upon being questioned in a Parliament session in 2015, the **idea of criminalising marital rape was dismissed** with the view that "marital rape cannot be applied in the country since marriage was treated as a sacrament or sacred in the Indian society".
  - **SC**: The **Doctrine of Coverture** found a mention during the hearing when the Supreme Court of India struck down adultery as a criminal offence in 2018.
    - According to the Doctrine of Coverture, a woman has no individual legal identity after marriage.
    - It was held that Section 497, that classified adultery as a crime, is based on the Doctrine of Coverture.
    - This doctrine, **although not recognised by the Constitution,** holds that a woman loses her identity and legal rights with marriage, is violative of her fundamental rights.
  - **Government Stand:** The Centre told the court that it was reviewing the law, and that "**wider deliberations are required on the issue**".

LIVEMINT Page 9

COVID-19 VACCINE COVOVAX
(Syllabus: GS Paper 3 - Sci & Tech)

Context: The **Serum Institute of India (SII)** has sought for approval for market authorisation for its **COVID-19 vaccine Covovax** to be administered as booster dose for those who for those aged 18 years and above and have been administered two doses of Covishield or Covaxin.

SII seeks nod for Covovax booster

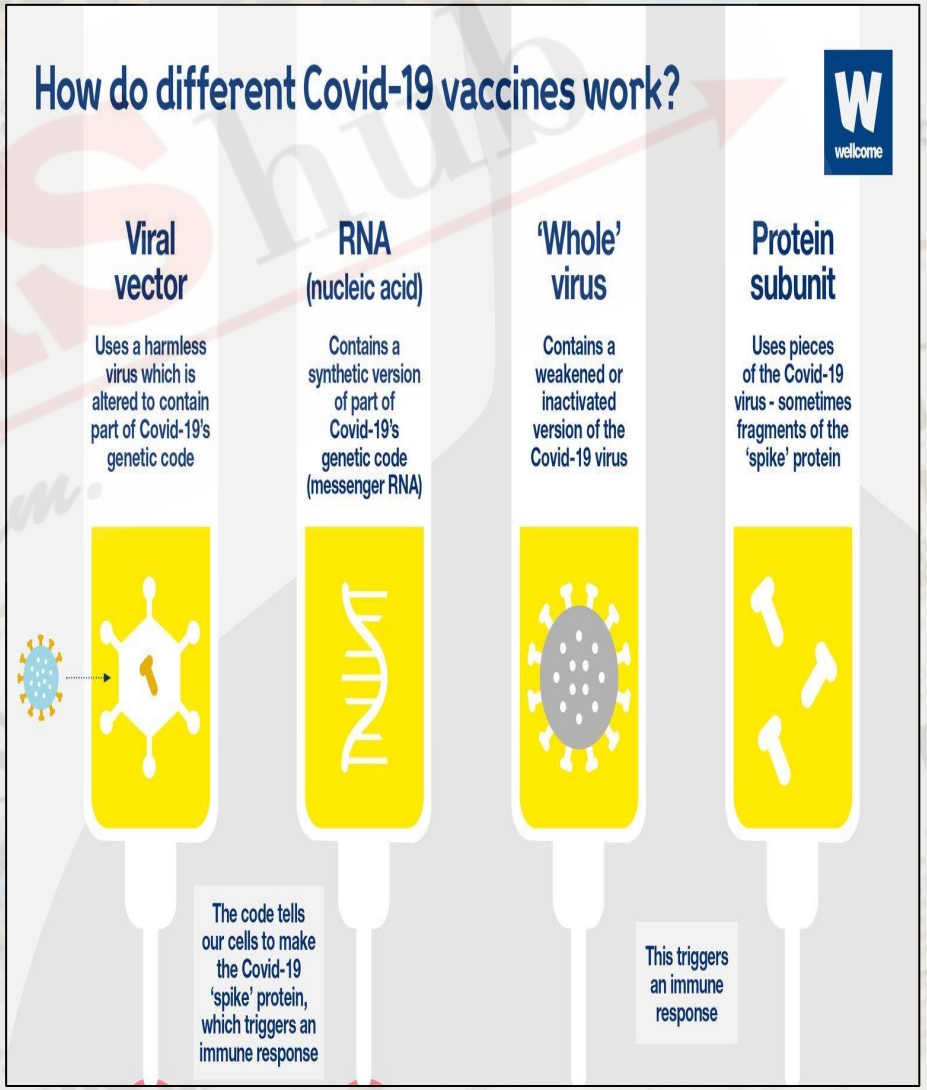
The Serum Institute of India (SII) has sought the drugs controller general of India (DCGI)'s approval for market authorization of its covid-19 vaccine Covovax as a booster dose for those aged 18 years and above who have been administered two doses of Covishield or Covaxin, official sources said on Thursday.

Prakash Kumar Singh, director, government and regulatory affairs, SII, submitted a market authorization application for the heterologous booster dose of Covovax to DCGI on 17 October. It has been learnt that the DCGI's office had raised a few queries, after which Singh submitted a reply, mentioning about the current emerging situation caused by a new coronavirus variant.

Covovax was approved by the DCGI for a restricted emergency use in children aged seven to 11 years in June. PTI

Covovax

- **About**: This is **SII's version of NVX-CoV2373**, the protein-based Covid-19 vaccine developed by Novavax, headquartered in USA.
  - In August 2020, the two companies announced an agreement under which **Novavax had given SII the licence** to manufacture and supply the vaccine in low- and middle-income countries as well as India.
  - It was granted **emergency-use listing** by the World Health Organization (WHO) in 2020.
  - **Covovax was approved by the DCGI** for a restricted emergency use in children aged seven to 11 years in 2022.
- **Working Mechanism**: Like several other Covid-19 vaccines, Covovax **targets the spike protein on the surface of the SARS-CoV-2 coronavirus** - the protein that allows the virus to penetrate the human cell.
  - Modified spike genes are placed in a baculovirus, which is known to infect insects.
  - Novavax has achieved this is by engineering copies of the spike protein in the lab using the cells of a moth.
- **Efficacy of Covovax**: The vaccine showed an **efficacy of 96.4% against mild to severe disease c**aused by the original strain of SARS-CoV-2 from ongoing late-stage global trials.



ECONOMIC TIMES

Page 2

MAHARASHTRA-KARNATAKA BORDER DISPUTE

(Syllabus: GS Paper 3 - Internal Security)

ASSEMBLY UNANIMOUSLY ADOPTS RESOLUTION

Border Disputes Created by Maharashtra People: Resolution Moved by K'taka CM Bommai

Says 'it's the will of the people of Karnataka not to let go even an inch of state's land'

Press Trust Of India

Belagavi: Karnataka assembly on Thursday unanimously passed a resolution on the border row with Maharashtra, resolving to protect the state's interests. The unanimous resolution condemned the border dispute "created" by Maharashtra.

The resolution moved by Karnataka chief minister Basavaraj Bommai was adopted by a voice-vote.

"There is no compromise on the matters relating to Karnataka's land, water, language and Kannadiga's interest. The feelings of Karnataka's people and members (of assembly) is one of this subject, and if it is affected, we are all committed to unitedly take constitutional and legal measures to protect the interest of the state. Condemning border disputes created by Maharashtra people unnecessarily, this house unanimously passes a resolution that it is committed to protect the interest of the state," the resolution moved by Bommai read.

Earlier while replying to the debate on the border issue in the House, the CM said that it is the will of the people of Karnataka, not to let go even an inch of the state's land. "We will do everything to protect it, we will take all the measures required in this direction," he said.



Bommai threatens 'legal action against Maha leaders', says Raut a 'traitor', an 'agent of China'

Condemning Maharashtra's political leaders' "conduct" on the border issue, Bommai said, "if they continue like this, we will take legal action." He also called Shiv Sena (UBT) leader Sanjay Raut an "agent of China" and "traitor", hitting back at his statement that -they will enter Karnataka the way China has "invaded" Indian territory.

Context: Karnataka assembly unanimously passed a resolution on the **border row with Maharashtra**, resolving to protect the state's interests.

- The unanimous resolution condemned the border dispute "created" by Maharashtra.

Maharashtra-Karnataka border dispute

- **About**: Maharashtra and Karnataka have sparred over the inclusion of some towns and villages along the state border ever since the **State Reorganisation Act was passed by the Parliament in 1956.**
  - The Act was based on the findings of the **Justice Fazal Ali Commission**, which was appointed in 1953 and submitted its report two years later.
- **Maharashtra's demand:** Since its creation on May 1, 1960, **Maharashtra has claimed that 865 villages,** including Belagavi (then Belgaum), Carvar and Nipani, should be merged into Maharashtra.
  - The claim of the **pro-Marathi groups** is that Belagavi is a largely Marathi-speaking region with many parts being exclusively Marathi speaking.
  - It claims that the region should be a part of Maharashtra instead of Karnataka which is a Kannada-speaking state.
  - The **MES (Maharashtra Ekikaran Samiti)** came into existence in 1948. It had the **sole aim of pushing for integration of Belgaum** with Maharashtra during the reorganization of states.
- **Karnataka's stand**: Karnataka has **refused to part with its territory.**
- **Mahajan Commission**: In October 1966, the Centre constituted the **Mahajan Commission** headed by the then Supreme Court Chief Justice Meher Chand Mahajan, at the insistence of Maharashtra.
  - **Recommendations of the commission:**
    - While **rejecting Maharashtra's claim over Belagavi** (then Belgaum), the commission recommended 247 villages/places, including Jatt, Akkalkote and Solapur, to be made part of Karnataka.
    - It also declared 264 villages /places, including Nippani, Khanapur and Nandagad, to be made part of Maharashtra.
  - **Rejection by Maharashtra**: The commission's report was **outrightly rejected by Maharashtra.**
    - Successive governments in Maharashtra maintained that the commission had not adequately addressed its concerns, Karnataka saw the commission ruling in its favour.
- **Current status:** Maharashtra approached the Supreme Court in 2004, c**hallenging the State Reorganisation Act.**
  - It **demanded 865 villages** and towns from five Karnataka districts to be merged with the state.
  - The five districts are Belagavi, Karwar, Vijayapura, Kalaburagi and Bidar.
  - However, almost two decades after the petition, its **maintainability remains challenged.**
  - Karnataka has resorted to **Article 3 of the Indian Constitution** to argue that the Supreme Court does not have the jurisdiction to decide the borders of states, and only Parliament has the power to do so.
  - Maharashtra has referred to **Article 131 of the Constitution,** which says that the Supreme Court has jurisdiction in cases related to disputes between the Union government and states.

TIMES OF INDIA

Page 9

PRASHASHT MOBILE APP

(Syllabus: GS Paper 2 - Social Justice)

NCERT app to help identify kids with disabilities

TIMES NEWS NETWORK

New Delhi: The Prashasht mobile app developed by NCERT has been aiding schools to identify children with several disabilities. For 3,562 students of Delhi government schools with suspected disabilities, a detailed assessment is to be conducted. The assessment will be conducted at 14 district resource centres.

Around 5,000 government school students with suspected disabilities will also be assessed at district-level camps. Even private schools have been asked to conduct an assessment of students with suspected disabilities through the parents.

Prashasht is divided into two parts. Part 1 is for use by regular teachers for first-level screening. It contains objective-type items that need to be tick marked, and the resulting data of all the students is to be handed over to the school head.

Even private schools have been asked to conduct an assessment of students with suspected disabilities through the parents

The questions include if the student has difficulty in walking or needs support to walk/climb stairs, the student has slurred (unclear) speech or drooling, the student faces difficulties while reading such as misplacing the line or skips lines in between, omitting words, adds words, moves the head along the text among others. Depending on the series of questions answered, the disabilities are identified and categorised.

Part 2 is for use by special educators/counsellors/school heads for second-level screening and tentative listing of disabilities in accordance with the 21 categories of disability conditions recognised by RPwD Act 2016. This part of the app has questions depending on the disability the student has been identified with.

Once the process of assessment is completed, schools have specific tasks to perform. "Applying UDID card for students and confirmation as children with special needs," said the circular issued by Himanshu Gupta, director, Directorate of Education.

The next process is the preparation and implementation of a suitable intervention or remedial plan through the special education teacher concerned.

Context: The Prashasht mobile app developed by NCERT has been aiding schools to **identify children with several disabilities.**

PRASHASHT (Pre Assessment Holistic Screening Tool) App

- **About**: Given the lack of a uniform Disability Screening Checklist for Schools that covers the 21 disabilities as per the **Rights of Persons with Disabilities Act, 2016** and acting on the vision of NEP 2020, **NCERT has developed** the Disability Screening Checklist for Schools and a mobile app PRASHAST i.e. **"Pre Assessment Holistic Screening Tool" for schools.**
- **Significance**: PRASHAST app will **help for school based screening of 21 disability conditions recognized in RPwD Act 2016,** and generate the school-level report, for further sharing with the authorities for initiating the certification process, as per guidelines of Samagra Shiksha.
    - **Samagra Shiksha** is a flagship integrated program for school and teacher education under the Department of School Education and Literacy, Ministry of Education, Government of India.

National Council of Educational Research and Training

- **About**: An autonomous organisation of the Government of India which was established in 1961 as a literary, scientific and **charitable Society under the Societies Registration Act.**
- **Objectives**: With the aim of building a common education system, the NCERT owns the **responsibility of developing and publishing NCERT textbooks.**
    - It also develops educational kits and multimedia digital materials to help students with their studies.
- **Nodal Ministry:** Ministry of Education
- **Logo:** The design of the NCERT logo is taken from an **Ashokan period relic of the 3rd century BCE** which was found in excavations near Maski in Raichur district, Karnataka.
    - The motto has been taken from the **Isha Upanishad** and means 'life eternal through learning'.
    - The **three intertwined swans** symbolize the integration of the three aspects of the work of NCERT, namely research & development, training and extension.

Rights of Persons with Disabilities Act, 2016

- **About**: It is the **disability legislation** passed by the Indian Parliament to fulfill its obligation to the United Nations Convention on the Rights of Persons with Disabilities, which India ratified in 2007.
    - The Act replaced the existing **Persons With Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995.**
- **Key Features:**
    - The Act lays Responsibility on the appropriate governments to take **measures and ensure that PWDs enjoy equal rights.**
    - The types of disabilities have been **increased from 7 to 21.** The Central Government will have the power to add more types of disabilities.
    - **Disability has been defined** based on an evolving and dynamic concept.
    - **Additional benefits** have been provided for persons with benchmark disabilities and those with high support needs.
    - All children with benchmark disabilities between 6 and 18 years shall have the **right to free education.**
    - The act increased the reservation for people with **benchmark disabilities from 3% to 4%** in government jobs and from 3% to 5% in higher education institutes.
    - Stress has been given to **ensure accessibility in public buildings** in a prescribed time frame along with Accessible India Campaign.

PIB

Dec 23

NABH AND NABL ACCREDITATION

(Syllabus: GS Paper 2 - Govt. Policies & Interventions)

NABH and NABL Accreditation to two more Ayush Institutes

Context: Two of the premiere institutes under the C**entral Council for Research in Ayurvedic Sciences (CCRAS) of the Ministry of Ayush namely, Central Ayurveda Research Institute (CARI)**, New Delhi, and Central Ayurveda Research Institute, Jhansi, have been accredited with N**ational Accreditation Board for Hospitals & Healthcare Providers (NABH) and National Accreditation Board for Testing and Calibration Laboratories (NABL)** accreditations, respectively.

- **Central Ayurveda Research Institute,** New Delhi, was established in the year 1979 under the Central Council for Research in Ayurvedic Sciences (CCRAS), Ministry of Ayush, and is dedicated to Clinical Research in Ayurveda.
- **Central Ayurveda Research Institute**, Jhansi (U.P.) is one of the premium institutes of CCRAS, Ministry of Ayush, with state-of-the-art Quality Control Laboratories (Chemistry, Microbiology, Pharmacognosy), Ayurvedic Pharmacy, Central Herbarium and Museum, and National Raw Drugs Repository (NRDR).

Key Points

- **NABL**: NABL is **one of the constituent boards of Quality Council of India (QCI),** an autonomous body under Department for Promotion of Industry & Internal Trade (DPIIT), **Ministry of Commerce and Industry,** Government of India.
  - NABL has been established with the objective to provide Government, Industry Associations and Industry in general with a scheme for third-party **assessment of the quality and technical competence** of testing and calibration laboratories.
  - In order to achieve this objective, NABL provides laboratory accreditation services to laboratories that are performing tests / calibrations in accordance with ISO/IEC 17025:2005 and ISO 15189:2012 for medical laboratories.
  - These services are **offered in a non-discriminatory manner** and are accessible to all testing and calibration laboratories in India and abroad, regardless of their ownership, legal status, size and degree of independence.
- **NABH:** It is a Constituent Board of Quality Council of India which **handles global accreditation in Indian healthcare sector** under **ministry of commerce and industry.**
  - The accreditation focus on patient safety and quality of healthcare based upon national/international standards.
  - Formed in 2005, it is the **principal accreditation for hospitals in India.**

PIB

Dec 23

HILL AREA DEVELOPMENT PROGRAMME

(Syllabus: GS Paper 2 - Govt. Policies & Interventions)

Ministry of DoNER has sanctioned 41 projects worth Rs.90.00 crore, under Hill Area Development Programme

Context: Ministry of Development of North Eastern Region has sanctioned 41 projects worth Rs.90.00 crore, under **Hill Area Development Programme.**

Key Points

- Hill Area Development Programme (HADP) of the **Ministry of Development of North Eastern Region** was launched on pilot basis for 2 years viz. 2018-19 and 2019-20 in Tamenglong (now Tamenglong and Noney) district of Manipur.
- Under HADP, Ministry of Development of North Eastern Region has sanctioned 41 projects worth Rs.90.00 crore.
- There is **no plan to expand** the scope of the programme.
- The policy objective of the programme are **catered to under other schemes of the Ministry.**

Hill Area Development Programme (HADP)

- **About**: The Union Minister of State (Independent Charge) for Development of North Eastern Region (DoNER) has launched, "Hill Area Development Programme" (HADP) **for Northeast in Imphal (Manipur) in 2017.**
- **Objectives**: Due to distinct topography, a **wide gap exists between the hill and valley districts** of the states in terms of infrastructure, quality of roads, health and education etc.
  - The Hill Development Programme aims to **address these drawbacks with a serious research and deliberation.**
- **Features**: The mission has implemented on a **pilot basis in the hilly districts of Manipur.**
  - Under this mission, the government adopted a **two-fold approach**:
    - The first approach is to **ensure equitable development of every area**, tribe and every section in the North Eastern Region.
    - The second approach is to **bring the eight North Eastern Region States at par** with the more developed states of India.

Components of Hill Area Development Progarm	
Forestry	Agro forestry, social forestry, plantation program
Horticulture	Development of orchards and tying them up with market
Land use pattern	Rehabilitating Jhumiyas in settled agriculture cultivators like coffee, rubber plantations
Animal Husbandry	Development of organised Animal Husbandry practices of dairy, meat and other animal products
Industries	Pollution free and cold climate attracts high skilled and value based industries like electronics, optical glass, medicine etc.
Preservation of flora and fauna	Integrated strategy for the preservation of flora and fauna through chain of Biosphere reserves, national parks and gene sanctuaries.

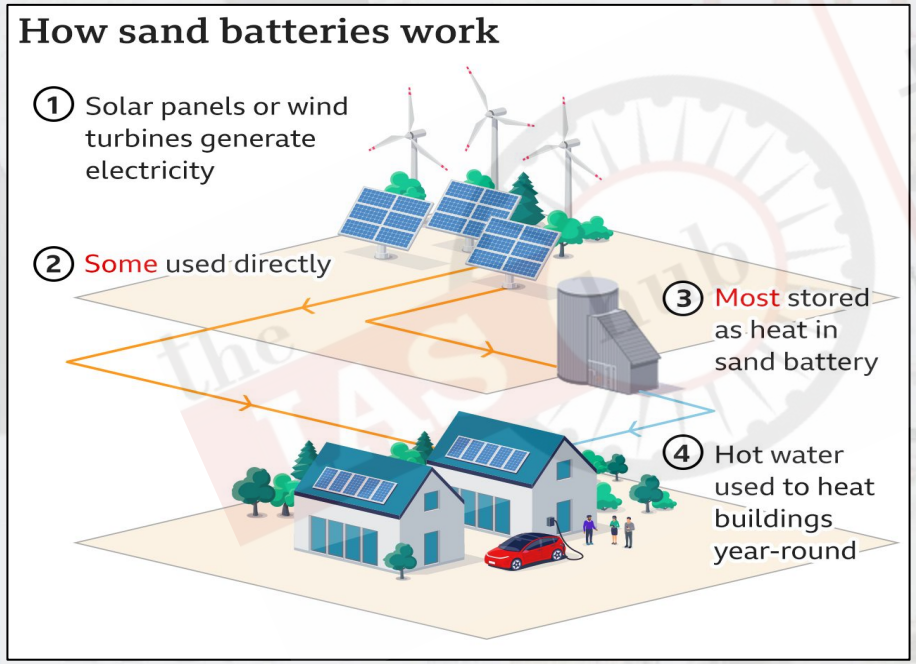
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Dec 23

SAND BATTERY

(Syllabus: GS Paper 3 - Sci & Tech)





Context: A new battery technology by a Finland-based company that **uses sand to store thermal energy** may aid clean energy solutions.

Key points

- Experts generally believe **thermal storage will reduce our reliance on fossil fuels**, provide storage for intermittent renewable energy and help balance the grid. Thermal energy storage is yet to develop as a field in this sense globally fully.
- One such early example is a battery that **uses sand as a medium to store thermal energy.**
- It was **invented by Polar Night Energy**, a company that describes itself as an "innovator of seasonal heat storage".
- The battery has a **four metres wide and seven metres high steel container** with 100 tonnes of recycled sand.
- The **'silo' supplies warm water** to a district heating network connected to both residential and commercial buildings.
- The latest battery model **can store up to 8 megawatt-hours of energy** as heat.
- The **reservoir is so well-insulated from the outer environment** that it can retain temperatures up to 600 degrees Celsius and prevent heat losses over time.
- The **sand at the core is very far from the boundary**, so the heat stored in the core does not easily get lost, even if wait for days or weeks.
- **Sand has a low heat conductivity** and is far enough from the boundary, so the heat is not lost.
- This battery is **located in a town called Kankaanpää, Western Finland**, with just over 11,000 people.
- A district heating system circulates hot water to **keep buildings warm**, industrial processes and public water systems.
- This patented technology is **useful to a country like Finland**, one of the countries closest to the North Pole, where the sun sets at around 3 pm in winter months with temperatures as low as minus 30 degrees Celsius.

DTE

Dec 23

ANTIMICROBIAL FILTERS

(Syllabus: GS Paper 3 - Sci & Tech)

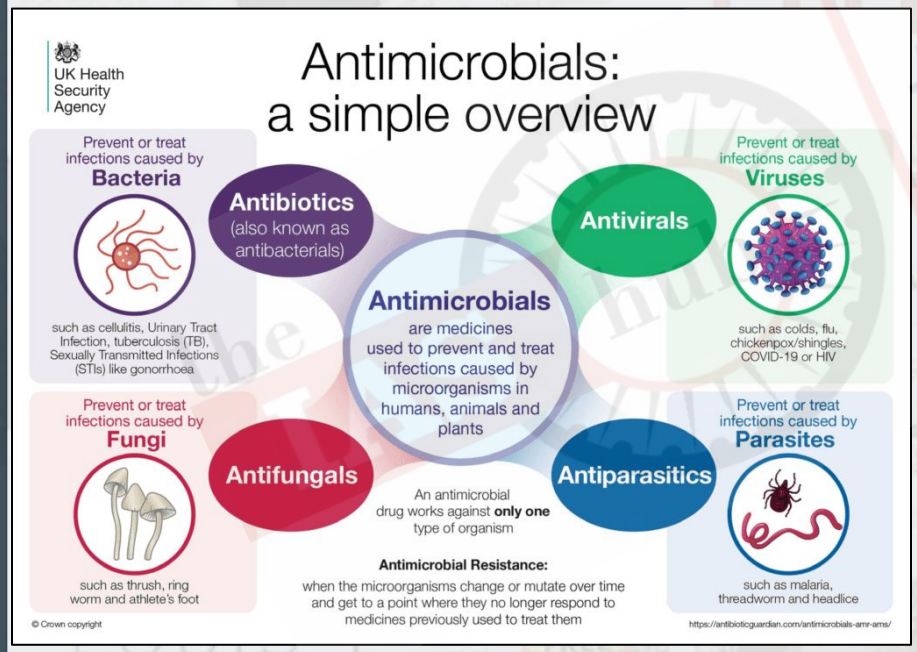


New air filter technology found to deactivate over 99% of SARS-CoV-2 delta variant

Innovative antimicrobial air filter uses ingredients found in green tea

NEXT NEWS >

By Nandita Banerji
Published: Tuesday 20 December 2022



Context: A team of researchers from the Indian Institute of Science (IISc), Bengaluru have developed air filters made of ingredients commonly found in green tea.

- The antimicrobial filters can destroy germs and remove them from their system.

Key points

- The newly developed filters can inactivate germs using ingredients like **polyphenols and polycationic polymers** commonly found in green tea.
  - These **'green' ingredients** can rupture the microbes through site-specific binding.
- Over continuous usage, the existing air filters become a **breeding ground for captured germs.**
  - The growth of these germs **clogs the filter pores**, reducing its life.
  - **Resuspension** of these germs can infect people in the vicinity.
- These **novel antimicrobial filters** in air conditioners, central ducts and air purifiers can play a crucial role in our fight against air pollution and mitigate the spread of air-borne pathogens like coronaviruses.
- The **novel antimicrobial air filters** were tested at an accredited laboratory.
- They were found to deactivate the delta variant of SARS-CoV-2 with an efficiency of 99.24 per cent.
- The innovation holds promise to develop antimicrobial filters that **can prevent epidemics by air-borne pathogens**.
- This technology was **transferred to AIRTH, a startup** that is replacing the existing germ-growing air filters with germ-destroying air filters for commercialisation.

THANK YOU!

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