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1. Greenbone Report

Why in News?

- Greenbone sustainable Resilience, a German cybersecurity firm has recently published a report on leaks in medical data.
- According to this report; medical details of over 120 million Indian patients have been leaked and made freely available on the Internet.

Key Points

- The report classifies countries in the “good”, “bad” and “ugly” categories based on the action taken by their governments after the first report was published in October, 2019.
- India ranks second in the “ugly” category, after the U.S.
- Maharashtra is at the top of the states affected by the global medical data leak followed by Karnataka
- The data which is leaked, includes images of CT scans, X-rays, MRIs and even pictures of the patients.
- The leak was facilitated by the Picture Archiving and Communications Systems (PACS) servers, where medical details of patients are stored.
 - PACS are not secured and linked to the public Internet without any protection.

2. Soil Health Card Scheme

Why in News?

A study conducted by the National Productivity Council (NPC) states that the application of Soil Health Card recommendations has led to a decline of 8-10% in use of chemical fertilizers and raised productivity of soil by 5-6%.

Key Points

- In Phase-I (Years 2015 to 2017) of Soil Health Card scheme 10.74 crore cards were distributed, while under the Phase-II (2017-19) 11.69 crore cards have been distributed.
- As part of pilot project “Development of Model Villages” scheme 13.53 lakh Soil Health Cards have been distributed during the year 2019-20.
 - Under which the sampling and testing of cultivable soil is being encouraged in partnership with the farmers.
- Under the scheme village youth and farmers up to 40 years of age are eligible to set up Soil Health Laboratories and undertake testing. A laboratory costs up to Rupees Five Lakhs, 75% of which can be funded by the Central and State Governments.

Soil Health Card (SHC)

- Soil Health Card (SHC) is a printed report which contains nutrient status of soil with respect to 12 nutrients:

- **Physical Parameters**
 - pH
 - Electrical Conductivity
 - Organic Carbon
- **Macronutrients**
 - Nitrogen
 - Phosphorus
 - Potassium
- **Secondary Nutrients**
 - Sulphur
- **Micronutrients**
 - Zinc
 - Boron
 - Iron
 - Manganese
 - Copper
- The Ministry of Agriculture and Farmers' Welfare launched it in 2015.
- The samples will be collected every 2 years and the soil health card will be issued to farmers once in three years.
- The data will be used to make nutrient maps which can be drilled down to the block/village level.
- **Objectives**
 - Improve productivity by maintaining soil health.
 - Employment generation for rural youth.
 - To update information on soil analysis.
 - Promote judicious use of fertilisers and thus reduce the cost of cultivation.
 - To provide soil testing facilities to farmers at their doorstep

National Productivity Council

- It is an autonomous, non-profit organization established by the Ministry of Commerce and Industry in 1958.
- It aims to bring national level organization to promote productivity culture in India.

3. Classical Swine Fever Vaccine

The **live attenuated Classical Swine Fever (CSF)** Vaccine technology developed by the Indian Veterinary Research Institute (IVRI) has been released recently.

- Live Attenuated Vaccines (LAV) are vaccines prepared from living **microorganisms (viruses, bacteria) that have been weakened under laboratory conditions.**

Key Points

- CSF is one of the **diseases of pigs** causing **high mortality** with annual loss of approximately Rs.4.299 billion.
- A **lapinized CSF vaccine** (uses Weybridge strain, UK) has been used in India since 1964 for controlling the disease.
 - The **vaccine is produced by sacrificing large numbers of rabbits** for each batch.
- In order to do away with sacrificing rabbits and increase productivity, IVRI had earlier developed a cell culture CSF vaccine by **adapting the lapinized vaccine virus in cell culture**.
 - Cell culture refers to the maintenance and growth of the cells of multicellular organisms outside the body in specially designed containers and under precise conditions of **temperature, humidity, nutrition, and freedom from contamination**.
- The country's total requirements is 22 million doses per year.
 - However, hardly 1.2 million doses are produced per year by the lapinized vaccine.
- Since the cell culture vaccine is from a **foreign strain** (Weybridge Strain, UK), IVRI has further developed a new CSF Cell Culture Vaccine by attenuating an indigenous virulent CSF virus in cell culture.
 - Due to the very high titre (concentration) of vaccine virus and lakhs of doses can be produced very easily this vaccine would be the most economical CSF vaccine.
 - This vaccine would be the best choice for use in the CSF Control Programme (CSF-CP) already launched by the Department of Animal Husbandry and Dairying(DAHD).
- The vaccine will be a part of the Government's One Health One Health Initiative.
- Besides, the new vaccine **gives immunity for two years** as compared to 3 to 6 months' protection under the vaccines currently being used.

Indian Veterinary Research Institute

- IVRI is the **Indian Council of Agricultural Research (ICAR)** institute.
- Established in 1889, IVRI is one of the premier research institutions dedicated to livestock research and development of the region.

4. Vikram Sarabhai Centenary Programme

Why in News?

Indian Space Research Organisation (ISRO) and **Department of Atomic Energy (DAE)** are conducting various events at national level in a year-long programme to commemorate the 100th birth anniversary of Dr. Vikram Sarabhai.

Key Points

- The celebrations began on 12 August, 2019 in Ahmedabad, where Sarabhai was born on the same day in 1919.
- The celebrations would conclude exactly a year later, i.e. on 12 August, 2020 in Thiruvananthapuram, Kerala where he had set up the first rocket launching station of India.
- ISRO has recently announced the '**Vikram Sarabhai Journalism Award** in Space Science, Technology and Research', as part of the centenary year celebrations of Dr. Vikram Sarabhai.

Dr. Vikram Sarabhai & His Contribution

- Vikram Ambalal Sarabhai, (born August 12, 1919, Ahmedabad—died December 30, 1971, Kovalam), is an Indian physicist and industrialist who initiated space research and helped develop nuclear power in India.
- He led the establishment of the Physical Research Laboratory (PRL) in the city in 1947.
- In 1962, he established Indian National Committee for Space Research, which was restructured and renamed as Indian Space Research Organization (ISRO) in 1969.
- He is known as the **founding father of the Indian space programme**.
- After the death of physicist Homi Bhabha in 1966, Sarabhai was appointed the chairman of the Atomic Energy Commission of India.
- Sarabhai was awarded two of India's highest honours, the Padma Bhushan (1966) and the Padma Vibhushan (awarded posthumously in 1972).
- He facilitated the building of India's first satellite, Aryabhata launched in 1975.

Vikram Sarabhai Journalism Award

- The award has been announced to recognize and reward journalists who have actively contributed towards the field of space science, applications, and research.
- The articles published from 2019 to 2020 will be considered for the award.
- The names of the selected candidates will be announced on August 1st, 2020.

Department of Atomic Energy

- The Indian Atomic Energy Commission was first set up in August 1948 in the Department of Scientific Research.
- The Department of Atomic Energy (DAE) was set up on August 3, 1954, under the direct charge of the Prime Minister.

- Subsequently, the Atomic Energy Commission (AEC) was brought under the Department of Atomic Energy.
- The Secretary to the Government of India in the Department of Atomic Energy is ex-officio Chairman of the Commission.
- DAE has been engaged in the development of nuclear power technology, applications of radiation technologies in the fields of agriculture, medicine, industry and basic research.

5. INS KARANJ

Why in News?

The third Scorpene submarine, Karanj, will be delivered to the Indian Navy by December and all six submarine deliveries would be completed by 2022.

- INS Karanj is part of Project-75 and was launched in January 2018.

Scorpene Class Submarines

- The submarines in the **Project-75** Scorpene Class are powered by conventional diesel-electric propulsion systems.
- Scorpene is one of the most sophisticated submarines
- It is capable of
 - Undertaking multifarious missions including anti-surface ship warfare
 - Anti-submarine warfare
 - Intelligence gathering
 - Mine laying
 - Area surveillance

Project-75

- 'Project-75' is a programme by the Indian Navy that entails building six Scorpene Class attack submarines.
- Under it, six new-generation conventional diesel-electric submarines will be constructed.
- They will have advanced Air-independent propulsion (AIP) systems
 - It will enable them to stay submerged for longer duration and substantially increase their operational range.
- They will have a vertical launch system (VLS) to enable them to carry multiple Brahmos supersonic cruise missiles, making them capable of anti-surface and anti-ship warfare missions.
- P75I was first cleared in 2007.
- It is part of a 30-year submarine building plan that ends in 2030.
- The first submarine 'INS Kalvari' under this project was commissioned into the Navy on December 14, 2017.
- The second 'Khanderi' will be commissioned by the end of the year 2018.

- The fourth Scorpene 'Vela' is yet to be launched.
- They will feature advanced stealth capabilities such as a greater ability to suppress noise and acoustic signatures.

Air-independent propulsion (AIP)

- AIP is any marine propulsion technology that allows a non-nuclear submarine to operate without access to atmospheric oxygen.
- It can augment or replace the diesel-electric propulsion system of non-nuclear vessels.

6. Purified Terephthalic Acid (PTA)

Why in News?

- The Government has abolished anti-dumping duty on imports of **Purified Terephthalic Acid (PTA)** in public interest in the recent budget.
 - An **anti-dumping duty** is a protectionist tariff that a domestic government imposes on foreign imports that it believes are priced below fair market value.
- The removal of the anti-dumping duty, would help India enhance its global competitiveness, boost exports and also enable the domestic producers to compete with cheaper imports.

Purified Terephthalic Acid (PTA)

- It is a raw material which is used in the production of high-performance multipurpose plastics like polybutylene terephthalate (PBT), polyethylene terephthalate (PET), polytrimethylene terephthalate (PTT).
- **Properties**
 - Resistance towards chemicals & stains
 - Hard & Flexible
 - Good glass transition temperature range
 - Efficient powder flow & fluidizing characteristics
- **Applications**

It is used in manufacture of -

◦ Polyester fabrics	◦ Home textiles
◦ Food and beverages	◦ Carpets
◦ Electronics	◦ Industrial fibre
◦ Apparel	

7. International Space Station

Why in News?

- NASA astronaut Christina Koch **returned to Earth** from the International Space Station, where she set the record of 328 days for the longest single spaceflight in history by a woman.

- The previous longest single space-flight was by Peggy Whitson was of 289 who set a record in 2017.

Significance:

- The mission provided researchers the opportunity to observe the effects of long-duration spaceflight on a woman.
 - It showed how the human body adjusts to weightlessness, isolation, radiation and the stress of long-duration spaceflight.
- One particular research project Christina Koch participated in is the '**vertebral strength investigation**', which better defines the extent of spaceflight-induced bone and muscle degradation of the spine, and the associated risk for broken vertebrae.
 - It will provide insight into the development of future countermeasures, such as preventative medicine or exercise.

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