



News Analysis (24 Apr, 2021)

 drishtias.com/current-affairs-news-analysis-editorials/news-analysis/24-04-2021/print

Leaders' Summit on Climate

Why in News

Recently, the **Leaders' Summit on Climate** was convened by the US President virtually.

- 40 world leaders, including the **Prime Minister of India**, were invited to the event **to underscore the urgency of stronger climate action**.
- This summit is seen as a key milestone on the road to the **United Nations Climate Change Conference, Conference of the Parties 26 (COP 26)** in November 2021 in Glasgow, Scotland.

Key Points

- **India-US Clean Energy Agenda 2030 Partnership:**
 - **About:**
 - It is a **joint climate and clean energy initiative of India** with the US.
 - It will demonstrate **how the world can align swift climate action with inclusive and resilient economic development**, taking into account national circumstances and sustainable development priorities.
 - **Objective:**

Mobilise investments, demonstrate **clean technologies and enable green collaborations** in India that could also create templates of **sustainable development** for other developing countries.
 - **Two Main Tracks of the Initiative:**
 - The Strategic Clean Energy Partnership.
 - The Climate Action and Finance Mobilization Dialogue.

- **US' Stand:**
 - **Pledged:**
 - To **cut the US's GreenHouse Gas (GHG) in half by the year 2030** and called upon other nations to “**set higher climate ambitions**” that will create jobs at home, advance innovative technologies and help countries vulnerable to the impact of climate change.
 - To double its **public climate financing to developing countries** and triple public financing for climate adaptation in developing countries by 2024.
 - **NDC:**

It submitted a new **Nationally Determined Contribution (NDC)** target that aims to reduce its **GHG** emissions by 50-52% below 2005 levels.

The US has rejoined the **Paris Agreement**.
 - **Applauded:**

India for **stepping up its climate change commitment including the partnership with the US** to deploy 450 gigawatts of renewable power to meet the ambitious 2030 target for climate action and clean energy.
- **China's Stand:**
 - **Carbon Neutrality:**

Its carbon emissions will peak before 2030 and the country will achieve **carbon neutrality by 2060**.

Promoted its **green Belt and Road Initiative** and announced efforts to “**strictly control coal-fired power generation projects**” and phase down coal consumption.
 - **Common but Differentiated Responsibilities:**

It also emphasised on **the principle of common but differentiated responsibilities**, which argues for long-time polluters such as developed countries to do more to fight the climate crisis.
- **India's Stand :**
 - **Emissions:**

India was already doing its part and that the country's per capita **carbon emissions** are 60% lower than the global average.
 - **Commitment:**
 - India's ambitious **renewable energy** target of **450 GW by 2030**.
 - Despite its development challenges, India has taken many bold steps on clean energy, energy efficiency, **afforestation** and biodiversity. India is among few countries whose NDCs are **2°C** compatible.
 - **Emphasis:**

Emphasised its **encouragement of global initiatives** such as the **International Solar Alliance** and the **Coalition for Disaster Resilience Infrastructure**.

-
- There is an **urgent need** for every country, city, business and financial institution to **adopt concrete plans for transitioning to net-zero**.
 - Even more urgent is for governments to **match this long-term ambition with concrete actions now**, as trillions of dollars are mobilised to overcome the **Covid-19 pandemic**. **Revitalising economies is our chance to re-engineer our future**.
 - The **G7 Summit** in June 2021 offers the opportunity for the world's wealthiest countries to step up and provide the necessary financial commitments that will **ensure the success of COP26**.

Source: IE

Climate Change: Impact on Children

Why in News

A recent analysis, based on **Notre Dame Global Adaptation Initiative (ND-GAIN)** index, has shown the impact of climate change on children across the world.

The analysis was done by **Save the Children International**, a **child rights** non-profit organisation.

Notre Dame Global Adaptation Initiative

- ND-GAIN is **part of the Climate Change Adaptation Program of the University of Notre Dame's Environmental Change initiative (ND-ECI)**.
- **ND-GAIN's Country Index** shows which countries are best prepared to deal with global changes brought about by overcrowding, resource-constraints and climate disruption.
- The Country Index uses **20 years** of data to **rank more than 180 countries** annually based on their vulnerability and, uniquely, how ready they are to adapt.
 - **Vulnerability is considered in six life-supporting sectors** – food, water, health, ecosystem service, human habitat and infrastructure.
 - Overall **readiness is measured by considering three components** – economic readiness, governance readiness and social readiness.
- According to the scores for **2018, India ranked 122** and is the **48th most vulnerable country** and the **70th least ready country**.

Key Points

- **From the Analysis:**

- **Countries with Highest Climate Risk:**

- **Sub-Saharan Africa** has **35 of the 45 countries** globally at highest climate risk.

Climate risk can be defined as a combination of hazard exposure, sensitivity to impact, and adaptive capacity.

- **Chad, Somalia, Central African Republic, Eritrea and Democratic Republic of the Congo** are the **least capable of adapting to the impact of climate change.**

- **Around 490 million children** under the age of 18 in 35 African countries are at the **highest risk of suffering** the impact of climate change.

- **Situation in South Asian Region:**

Of the **750 million** children in **45 countries** likely to be most affected by climate risk, 210 million are in three South Asian nations — **Pakistan, Bangladesh and Afghanistan.**

- **Impact of Climate Change on Children:**

- **Floods, droughts, hurricanes and other extreme weather events** will have a deep impact on vulnerable children and their families.

- Malaria and dengue fever already plague children in the Democratic Republic of Congo.

- Increasing extreme weather events can lead to new health risks while the health system is already limited.

- **Around 9.8 million people were displaced due to the disasters** caused by climate change during the **first half of 2020.**

Most of them were in South and South-East Asia and the Horn of Africa, confirmed the World Meteorological Organisation in its flagship State of the Global Climate report.

- Children will be **impacted by food shortages, diseases and other health threats, water scarcity, or be at risk from rising water levels** – or a combination of these factors.

- There is enough evidence that establishes the **impact of “climate crisis on food production”**. Hence, this will lead to **local food scarcity and price hikes.**

Climate change can disrupt food availability, reduce access to food, and affect food quality.

- Children of the poorest households will be the most-affected. In fact, there has been scientific evidence of the **link between obesity, under-nutrition and climate change.**

- **India's Scenario:**
 - **Findings from 2020 PwC Report:**
 - **Disadvantaged and vulnerable populations (including children), indigenous people and local communities dependent on agricultural or coastal livelihoods are at a disproportionately higher risk of adverse consequences** due to climate change.

Children bear the brunt of climate change as it affects their fundamental rights of survival, protection, development and participation.
 - Other **potential effects of climate change on children** are orphanhood, trafficking, child labour, loss of education and development opportunities, separation from family, homelessness, begging, trauma, emotional disruption, illnesses, etc.
 - **India's Performance in Other Related Indices:**
 - **Climate Change Performance Index:**

India ranked 10th in CCPI 2021, released by Germanwatch, the New Climate Institute and the Climate Action Network.
 - **World Risk Index 2020:** India has ranked 89th among 181 countries on the WRI 2020 and is fourth-most-at-risk in South Asia, after Bangladesh, Afghanistan and Pakistan.

It is released by the United Nations University Institute for Environment and Human Security (UNU-EHS), Bündnis Entwicklung Hilft and the University of Stuttgart in Germany.
 - **Assessment of Climate Change over the Indian Region: MoES:**

It is India's first-ever national forecast on the impact of global warming on the subcontinent in the coming century, published by the Ministry of Earth Sciences (MoES).
 - **National Climate Vulnerability Assessment Report:** Released by the Department of Science and Technology, it identified Jharkhand, Mizoram, Orissa, Chhattisgarh, Assam, Bihar, Arunachal Pradesh, and West Bengal as states highly vulnerable to climate change.
- **Some of the Indian Initiatives to Fight Climate Change:**
 - Shift from **Bharat Stage-IV (BS-IV) to Bharat Stage-VI (BS-VI) emission norms,**
 - **National Clean Air Programme (NCAP),**
 - **UJALA scheme,**
 - **National Action Plan on Climate Change (NAPCC),** etc.

Way Forward

- Scale up **adaptive and shock-responsive social protection systems** – such as grants for pregnant mothers and children - to address the increasing impacts of climate change on children and their families.

- More countries **need to work towards their commitment in the Convention on the Rights of the Child** to ensure every child is protected from poverty, for example by providing universal child benefits to improve children's well-being and build resilience.

Source: DTE

National Panchayati Raj Day

Why in News

India commemorates the **12th National Panchayati Raj day** on **24th April 2021**.

The Prime Minister has launched the distribution of **e-property cards** under the **SWAMITVA** scheme on the Day.

Key Points

- **About:**
 - **Background:** The first **National Panchayati Raj Day** was celebrated in **2010**. Since then, the National Panchayati Raj Day is celebrated on **24th April** every year in India.
 - **Awards Presented on the Day:**
 - The **Ministry of Panchayati Raj** has been awarding the best performing **Panchayats/States/UTs** across the country in recognition of their good work.
 - Awards are given **under various categories** namely,
 - Deen Dayal Upadhyay Panchayat Sashaktikaran Puraskar,
 - Nanaji Deshmukh Rashtriya Gaurav Gram Sabha Puraskar,
 - Child-friendly Gram Panchayat Award,
 - Gram Panchayat Development Plan Award and
 - e-Panchayat Puraskar (given to States/UTs only).
 - **For the first time**, the Prime Minister will transfer the award money (as Grants-in-Aid) directly to the bank account of the Panchayats concerned in real time.

- **Panchayati Raj:**

- After the Constitution came into force, **Article 40** made a mention of panchayats and **Article 246** empowered the state legislature to legislate with respect to any subject relating to local self-government.
- **Panchayati Raj Institution (PRI)** was constitutionalized through the **73rd Constitutional Amendment Act, 1992** to build democracy at the grass roots level and was entrusted with the task of rural development in the country.
- **PRI** is a system of **rural local self-government** in India.
 - Local Self Government is the management of local affairs by such local bodies who have been elected by the local people.
- To **strengthen e-Governance in Panchayati Raj Institutions (PRIs)** across the country, Ministry of Panchayati Raj (MoPR) has launched **eGramSwaraj**, a user friendly web-based portal.
 - It unifies the planning, accounting and monitoring functions of Gram Panchayats. It's combination with the Area Profiler application, Local Government Directory (LGD) and the **Public Financial Management System (PFMS)** renders easier reporting and tracking of Gram Panchayat's activities.

- **About SVAMITVA Scheme:**

- **SVAMITVA (Survey of Villages and Mapping with Improved Technology in Village Areas)** scheme is a collaborative effort of the **Ministry of Panchayati Raj, State Panchayati Raj Departments, State Revenue Departments and Survey of India.**
- **Aim:** To provide an integrated property validation solution for rural India.
 - It is a scheme for mapping the land parcels in rural inhabited areas using drone technology and Continuously Operating Reference Station (CORS).
 - The mapping will be done across the country in a phase-wise manner over a period of four years - from **2020 to 2024.**

Salient Features of the 73rd Constitutional Amendment

- The 73rd Constitutional Amendment **added Part IX titled “The Panchayats”** to the Constitution.
- Basic unit of democratic system-**Gram Sabhas (villages)** comprising all the adult members registered as voters.
- **Three-tier system of panchayats** at village, intermediate block/taluk/mandal and district levels except in States with population is below 20 lakhs (Article 243B).
- Seats at all levels **to be filled by direct elections** (Article 243C (2)).

- **Reservation of Seats:**
 - Seats reserved for **Scheduled Castes (SCs) and Scheduled Tribes (STs)** and the chairpersons of the Panchayats at all levels also shall be reserved for SCs and STs in proportion to their population.
 - One-third of the total number of seats to be **reserved for women**.
 - One-third offices of chairpersons at all levels reserved for women (Article 243D).
- **Duration:**
 - **Uniform five year term** and elections to constitute new bodies to be completed before the expiry of the term.
 - In the event of dissolution, elections compulsorily within six months (Article 243E).
- **Independent Election Commission in each State** for superintendence, direction and control of the electoral rolls (Article 243K).
- **Power of Panchayats:** Panchayats have been authorised to prepare plans for economic development and social justice in respect of subjects illustrated in Eleventh Schedule (Article 243G).
- **Source of Revenue (Article 243H):** State legislature may authorise the Panchayats with
 - Budgetary allocation from State Revenue.
 - Share of revenue of certain taxes.
 - Collection and retention of the revenue it raises.
- **Establish a Finance Commission in each State** to determine the principles on the basis of which adequate financial resources would be ensured for panchayats and municipalities (Article 243I).
- **Exemptions:**
 - The Act does not apply to the states of Nagaland, Meghalaya and Mizoram and certain other areas because of socio-cultural and administrative considerations. These areas include:
 - the Scheduled areas and the tribal areas (under **Schedule VI** of the Constitution) in the states.
 - the hill areas of Manipur for which district councils exist,
 - Darjeeling district of West Bengal for which Darjeeling Gorkha Hill Council exists.
 - However, the Parliament has extended the provisions of Part IX to **Vth schedule** areas through an Act called the **Provisions of Panchayats (Extension to the Scheduled Areas) Act, 1996**.
At present, **10 States** namely **Andhra Pradesh, Chhattisgarh, Gujarat, Himachal Pradesh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Rajasthan and Telangana** have **Fifth Schedule** Area.

Source:PIB

Microfinance Institutions

Why in News

Microfinance institutions (MFIs) have urged the Centre to consider prioritising vaccinations for their employees and **self-help group** workers.

This request is in order to **ensure that lines of credit remain open for the poor** amidst the rising second wave of **Covid-19 infections**.

Key Points

- **About:**

- MFI is an organization that **offers financial services to low income populations.**

These services include **microloans, microsavings and microinsurance.**

- MFIs are **financial companies** that provide **small loans to people who do not have any access to banking facilities.**

The definition of “small loans” varies between countries. **In India, all loans that are below Rs.1 lakh can be considered as microloans.**

- In most cases the so-called **interest rates are lower than those charged by normal banks**, certain rivals of this concept accuse microfinance entities of creating gain by manipulating the poor people’s money.
- Microfinance sector has **grown rapidly over the past few decades** and currently it is serving around **102 million accounts** (including banks and **small finance banks**) of the poor population of India.
- **Different types of financial services providers for poor people** have emerged - non-government organizations (NGOs); cooperatives; community-based development institutions like self-help groups and credit unions; commercial and state banks; insurance and credit card companies; telecommunications and wire services; post offices; and other points of sale - offering new possibilities.
- **Non Banking Finance Company** (NBFC)-MFIs in India are regulated by **The Non-Banking Financial Company -Micro Finance Institutions (Reserve Bank) Directions, 2011** of the **Reserve Bank of India** (RBI).

- **Major Business Models:**

- **Joint Liability Group:**

- This is usually an informal group that consists of **4-10 individuals who seek loans against mutual guarantee.**
- The loans are usually taken for **agricultural purposes or associated activities.**

- **Self Help Group:**

- It is a group of individuals with similar socio-economic backgrounds.
- These small entrepreneurs come together for a short duration and create a common fund for their business needs. These groups are classified as non-profit organisations.

The National Bank for Agriculture and Rural Development (NABARD) SHG linkage programme is noteworthy in this regard, as several Self Help Groups are able to borrow money from banks if they are able to present a track record of diligent repayments.

- **Grameen Model Bank:**

- It was the brainchild of **Nobel Laureate Prof. Muhammad Yunus in Bangladesh in the 1970s.**
- It has inspired the creation of Regional Rural Banks (RRBs) in India. The primary motive of this system is the end-to-end development of the rural economy.

- **Rural Cooperatives:**

- They were established in India at the time of Indian independence.
- However, this system **had complex monitoring structures and was beneficial only to the creditworthy borrowers** in rural India. Hence, this system **did not find the success that it sought initially.**

- **Benefits:**

- They provide **easy credit** and offer small loans to customers, without any collateral.
- It makes **more money available to the poor** sections of the economy, leading to **increased income and employment** of poor households.
- **Serving the under-financed section** such as **women, unemployed people** and those with **disabilities.**
- It helps the poor and marginalised section of the society by making them **aware of the financial instruments available for their help and also helps in developing a culture of saving.**
- Families benefiting from microloans are more likely **to provide better and continued education for their children.**

- **Challenges:**

- **Fragmented Data:**

While overall loan accounts have been increasing, **the actual impact of these loans on the poverty-level of clients is not clear** as data on the relative poverty-level improvement of MFI clients is fragmented.

- **Impact of Covid-19:**

It has impacted the MFI sector, with collections having taken an initial hit and disbursements yet to observe any meaningful thrust.

- **Social Objective Overlooked:**

In their **quest for growth and profitability**, the social objective of MFIs—to bring in improvement in the lives of the marginalized sections of the society—seems to have been gradually eroding.

- **Loans for Non-income Generating Purposes:**

- The proportion of loans utilized for **non-income generating purposes** could be much higher than what is stipulated by the RBI which is 30% of the total loans of the MFI.
- These loans are short-tenured and given the economic profile of the customers, it is likely that they soon find themselves in the **vicious debt trap of having to take another loan to pay off the first.**

Way Forward

- MFIs need to **focus on creating a sustainable and scalable microfinance model** with a mandate that is unequivocal about both economic and social good.
- MFIs should **ensure that the ‘stated purpose of the loan’ that is often asked from customers at the loan-application stage is verified** at the end of the tenure of the loan.
- **RBI** should encourage all institutions to monitor their impact on society by means of a ‘social impact scorecard’.

Source: TH

Crew-2 Mission

Why in News

Four astronauts were launched to the **International Space Station (ISS)** from Florida as part of a collaboration between **NASA and SpaceX** under the **Commercial Crew Program**. The mission is called **Crew-2**.

Key Points

About the Commercial Crew Program:

- NASA's Commercial Crew Program is a **partnership between NASA and private industry** to carry astronauts to and from the International Space Station.
- Unlike previous human spaceflight programs, NASA is a customer buying flights from commercial providers. The agency **does not own or operate the spacecraft.**
- The program is **helping to lower the cost of spaceflight** and potentially **create a new commercial market** for humans in space.
- By encouraging private companies to provide crew transportation services to and from low-Earth orbit, **NASA can focus on building spacecraft and rockets meant for deep space exploration missions.**
- **Boeing and SpaceX were selected by NASA in September 2014** to develop transportation systems meant to transfer crew from the US to the ISS.

Note

Recently, the Indian government had announced the opening up of the space sector to private players with the inception of **Indian National Space Promotion and Authorisation Centre (IN-SPACe)**.

• NASA's Partnership with SpaceX:

- In May 2020, **NASA's SpaceX Demo-2** test flight lifted off for the ISS carrying two astronauts.
 - The aim of this test flight was to see if SpaceX capsules could be used on a regular basis to ferry astronauts to and from the ISS.
- Demo-2 was followed by the **Crew-1 mission in November**, which was the first of six crewed missions between NASA and SpaceX marking the beginning of a new era for space travel.
- **Crew-1 was the first operational flight of the SpaceX Crew Dragon spacecraft** on a Falcon 9 rocket to the ISS.
- Crew-1 team members **joined members of Expedition 64** and conducted microgravity studies at the ISS.

- **About the Crew-2 Mission:**

- It is the second crew rotation of the **SpaceX Crew Dragon** and the first with international partners.
- Out of the four astronauts, two are from **NASA** and two are from the **Japan Aerospace Exploration Agency (JAXA)** and the **European Space Agency (ESA)**.
- Crew-2 astronauts **will join the members of Expedition 65** (65th long duration expedition to the International Space Station).
 - They will stay aboard the ISS for six months during which time they will conduct science experiments in **low-Earth orbit**.
- Their central focus during this time will be **to continue a series of Tissue Chips in Space studies**.

- **Tissue Chips:**

- Tissue Chips are **small models of human organs** that contain multiple cell types that behave similarly to the human body.
- According to NASA, these chips **can potentially speed up the process of identifying safe and effective drugs and vaccines**.
- Scientists can use these tissue chips in space **to study diseases that affect specific human organs**, which would take months or years to develop on Earth.

International Space Station

- ISS is **a habitable artificial satellite** - the single largest man-made structure in low earth orbit. Its **first component was launched into orbit in 1998**.
- It circles the Earth in roughly 92 minutes and completes 15.5 orbits per day.
- The ISS programme is **a joint project between five participating space agencies**: NASA (United States), Roscosmos (Russia), JAXA (Japan), ESA (Europe), and CSA (Canada) but its ownership and use has been established by intergovernmental treaties and agreements.
- It serves as a microgravity and space environment research laboratory in which crew members conduct experiments in biology, human biology, physics, astronomy, meteorology, and other fields.
- Continuous presence at ISS has resulted in the longest continuous human presence in the low earth orbit.
- It is **expected to operate until 2030**.

Source: IE

World Malaria Day 2021

Why in News

The report, titled '**Zeroing in on malaria elimination**', was released by the **World Health Organization (WHO)** ahead of **World Malaria Day 2021**.

- World Malaria Day is observed on **25th April every year**. The 2021 theme is "Reaching the Zero Malaria target".
- The WHO has also identified 25 countries with the potential to eradicate malaria by 2025 under its '**E-2025 Initiative**'.

Key Points

- **Malaria:**
 - **About:**
 - **Malaria** is a life threatening **mosquito borne blood disease caused by plasmodium parasites**. It is **predominantly found in the tropical and subtropical areas** of Africa, South America as well as Asia.
 - The parasites **spread through the bites of infected female Anopheles mosquitoes**.

After entering the human body, parasites initially multiply within the liver cells and then **attack the Red Blood Cells (RBCs)** resulting in their rupture.
 - There are **5 parasite species** that cause malaria in humans, and 2 of these species – **Plasmodium falciparum and Plasmodium vivax** – pose the greatest threat.
 - **Symptoms** of malaria include **fever** and **flu-like** illness, including shaking **chills, headache**, muscle aches, and tiredness.
 - It is **preventable as well as curable**.
 - **Malaria Vaccine:**
 - Known by its lab initials as **RTS,S** but branded as Mosquirix, the vaccine has passed lengthy scientific trials that found it to be safe and **reducing the risk of malaria by nearly 40%**, the best ever recorded.
 - It was developed by GlaxoSmithKline (GSK) company and **approved by the European Medicines Agency in 2015**.
 - The RTS,S vaccine **trains the immune system to attack the malaria parasite** (Plasmodium (P.) falciparum, the most deadly species of the malaria parasite).

- **E-2025 Initiative:**

- In **2017**, WHO launched the **E-2020 initiative** to support a group of countries to achieve zero indigenous cases of malaria by 2020.
 - Some **21 countries across five regions** were identified as having the potential to reach the milestone of eliminating malaria.
 - The report '**Zeroing in on malaria elimination**' brings out the progress made through the E-2020 initiative of WHO.
- Building on the successes of the E-2020, **WHO has identified a new group of 25 countries** that have the potential to stamp out malaria within a 5-year timeline.
- The E-2025 countries **will receive technical and on-the-ground support by WHO** and its partners. In return, they are expected to audit their elimination programmes annually, participate in elimination forums, conduct surveillance assessments, and share malaria case data periodically.
- The **new countries were selected based on four criteria:**
 - The establishment of a government-endorsed elimination plan;
 - Meeting the threshold of malaria case reductions in recent years;
 - Having the capacity of malaria surveillance and a designated governmental agency responsible for malaria elimination; and
 - Being selected by the WHO Malaria Elimination Oversight Committee.

- **India's Scenario:**

- **Malaria Burden:** The **World Malaria Report (WMR) 2020** released by WHO, which gives the estimated cases for malaria across the world, indicates that India has made considerable progress in reducing its malaria burden.

India is the only high endemic country which has reported a decline of 17.6% in 2019 as compared to 2018.
- **Initiatives Taken:**
 - In 2017, India launched its 5-year **National Strategic Plan for Malaria Elimination** that shifted focus from Malaria control to elimination and provided a roadmap to end malaria in 571 districts out of India's 678 districts by 2022.
 - Indian Council of Medical Research (ICMR) has recently established '**Malaria Elimination Research Alliance-India (MERA-India)**' which is a conglomeration of partners working on malaria control.

Source: DTE

CSF and Sheep Pox Vaccine

Why in News

The **ICAR-Indian Veterinary Research Institute (IVRI)** has transferred the technology for **Classical Swine Fever (CSF) & Sheep Pox Vaccines** to an animal healthcare company Hester Biosciences.

The technology was **transferred through state-owned Agrinnovate India (AgIn)**, which aims to work on the strengths of the Indian Council of Agricultural Research (ICAR).

AgIn promotes the development and spread of R&D outcomes through **IPR (Intellectual Property Right)** protection, commercialization and forging partnerships both in the country and outside for the public benefit.

Key Points

- **Classical Swine Fever (CSF):**
 - **About the Disease:**
 - **CSF**, also known as **hog cholera**, is an important **disease of pigs**.
 - It is **one of the most economically-damaging pandemic viral diseases of pigs** in the world.
 - It is caused by a virus of the **genus Pestivirus** of the **family Flaviviridae**, which is closely related to the viruses that cause **bovine viral diarrhoea in cattle** and **border disease in sheep**.
 - **Mortality is 100%**.
 - **About the Vaccine Developed in India:**
 - In India, the disease is controlled by a **lapinized CSF vaccine** (Weybridge Strain, UK) produced by **killing large numbers of rabbits**.
Lapinization means serial passage of a virus or vaccine through rabbits to modify its characteristics.
 - To avoid this, the **ICAR-IVRI developed a Cell Culture CSF Vaccine** (live attenuated) using the Lapinized Vaccine Virus from foreign strain.
 - The **new vaccine has been found to induce protective immunity** from **day 14** of the Vaccination **till 18 Months**.

- **Sheep Pox:**
 - **About the Disease:**
 - It is a **severe viral disease** in Sheep and its virus is **closely related to the Goat (capripoxviruses)**.
 - The virus is **also related to the virus of lumpy skin disease**.
 - The disease is very serious, often fatal, characterized by widespread **skin eruption**.
 - It is **confined to parts of southeastern Europe, Africa, and Asia**.
 - **About the Vaccine Developed in India:**
 - A **live attenuated Sheep Pox Vaccine using indigenous strain** was developed by the **ICAR-IVRI** for preventive vaccination in the sheep population.
 - The developed Vaccine uses **indigenous Sheep Pox Virus Strain (SPPV Srin 38/00)** and is adapted to grow in the **Vero cell** line which makes the Vaccine production to be easily scalable.
 - It is potent and immunogenic for sheep aged **more than 6 months** of age. It protects the Vaccinated animals for a **period of 40 months**.

Cell Culture

- Cell culture is the **process by which cells are grown under controlled conditions, generally outside their natural environment** in especially designed conditions and precise conditions of temperature, humidity, nutrition, and freedom for contamination.
- Cultured cells are excellent hosts for the propagation of many types of viruses. The ability of cell culture systems to produce large quantities of attenuated viral particles has **served as the basis for the production of both human and veterinary vaccines**.

Vero Cell

- **Vero cells** are **lineages of cells** used in **cell cultures**. The Vero lineage was isolated from kidney epithelial cells extracted from an African green monkey.
- Vero cells are used for many purposes, including,
 - Screening for the toxin of Escherichia coli, first named "Vero toxin".
 - As host cells for growing viruses.
- The Vero cell lineage is **continuous and aneuploid**.
 - A continuous cell lineage can be replicated through many cycles of division and not become senescent (i.e. not deteriorates with age).
 - Aneuploidy is the characteristic of having an abnormal number of chromosomes.

Live-attenuated Vaccines

- **Live vaccines use a weakened (or attenuated)** form of the germ that causes a disease.
- Because these vaccines are so similar to the natural infection that they help prevent, they create a strong and long-lasting immune response.
Just one or two doses of most live vaccines can give one a lifetime of protection against a germ and the disease it causes.
- The limitation of this approach is that these vaccines usually **cannot be given to people with weakened immune systems.**
- Live vaccines are used against: **Measles**, mumps, rubella (MMR combined vaccine), Rotavirus, Smallpox among others.

Source: PIB

Harlequin Ichthyosis: Rare Genetic Disorder

Why in News

Recently, **Odisha reported its first-ever case of a baby born with Harlequin Ichthyosis**, a rare genetic skin condition.

India's first recorded case of a baby born with harlequin ichthyosis **was in 2016**, at a private hospital in Nagpur, Maharashtra.

Key Points

About:

- **Harlequin Ichthyosis** is a rare **genetic skin disorder** to a newborn infant.
- It's a type of ichthyosis, which refers to a group of disorders that cause persistently dry, scaly skin all over the body.
- It is inherited in an **autosomal recessive pattern.**

Autosomal Recessive Pattern

- Autosomal (that means inherited) Recessive Pattern is a way, where **a genetic trait or condition can be passed down from parent to child.**
- A genetic condition **can occur when the child inherits one copy of a mutated (changed) gene from each parent.**
- If an individual receives one normal gene and one abnormal gene for the disease, the person will be **a carrier for the disease.**
- The risk to have a child who is a carrier, like the parents, is 50% with each pregnancy. The chance for a child to receive normal genes from both parents is 25%. The risk is the same for males and females.

- **Causes:**
 - It can be **caused by changes (mutations) in the ABCA12 gene.**
 - **ABCA12 Gene gives instructions for making a protein that is necessary for skin cells to develop normally.**
 - It plays a key role in the transport of fats (lipids) to the most superficial layer of the skin (epidermis), creating an effective skin barrier.
 - When this gene is mutated, the skin barrier is disrupted.
- **Impact:**
 - Newborn infants **are covered with plates of thick skin** that crack and split apart and can **restrict breathing and eating.**
 - Premature birth is typical, leaving the infants at risk for complications from early delivery.
- **Affected Population:**
 - It affects males and females in equal numbers.
 - It affects **approximately one in 5,00,000 persons.**
 - There are around 250 such cases across the world.
- **Treatment:**

A newborn with Harlequin ichthyosis **requires neonatal intensive care,** which may include spending time in a heated incubator with high humidity.
- **Related Disorder:**

Lamellar ichthyosis is an inherited skin disorder characterized by broad, dark, plate-like scales separated by deep cracks.

Its **symptoms are similar to Harlequin Ichthyosis.**

Source DTE
