



Natural Farming

For Prelims: Natural Farming, Zero-Budget Natural Farming (ZBNF), Bhartiya Prakritik Krishi Paddhati Programme (BPKP), Paramparagat Krishi Vikas Yojana (PKVY), Carbon Sequestration, National Mission on Sustainable Agriculture

For Mains: Natural Farming - Significance and Associated Issues, Methods to Promote Natural Farming

Why in News?

Recently, Prime Minister Addressed a Natural Farming Conclave, where he urged farmers to take up [Natural Farming](#).

What is Natural Farming?

- It is defined as a **“chemical- free farming and livestock based”**.
- Soundly grounded in agro-ecology, it is **a diversified farming system that integrates crops, trees and livestock, allowing the optimum use of functional biodiversity**.
- It holds the **promise of enhancing farmers’ income while delivering many other benefits**, such as restoration of soil fertility and environmental health, and mitigating and/or reducing greenhouse gas emissions.
 - This farming approach was **introduced by Masanobu Fukuoka, a Japanese farmer and philosopher**, in his 1975 book The One-Straw Revolution.
- Internationally, Natural Farming is considered a form of regenerative agriculture—a prominent strategy to save the planet.
- In India, Natural farming is promoted as Bhartiya Prakritik Krishi Paddhati Programme (BPKP) under [Paramparagat Krishi Vikas Yojana \(PKVY\)](#).
 - BPKP is aimed at promoting traditional indigenous practices which reduce externally purchased inputs.

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COMPONENTS OF NATURAL FARMING



Beejamrit

The process includes treatment of seed using cow dung, urine and lime based formulations.

Whapasa

The process involves activating earthworms in the soil in order to create water vapor condensation.



Jivamrit

The process enhances the fertility of soil using cow urine, dung, flour of pulses and jaggery concoction.

Mulching

The process involves creating micro climate using different mulches with trees, crop biomass to conserve soil moisture.

Plant Protection

The process involves spraying of biological concoctions which prevents pest, disease and weed problems and protects the plant and improves their soil fertility.

What is the Significance of Natural Farming?

- **Minimized Cost of Production:**
 - It is **considered as a cost- effective farming practice** with scope for raising employment and rural development.
- **Ensures Better Health:**
 - As Natural Farming does not use any synthetic chemicals, **health risks and hazards are eliminated.** The food has higher nutrition density and therefore offers better health benefits.
- **Employment Generation:**
 - It generates **employment on account of natural farming input enterprises**, value addition, marketing in local areas, etc. The surplus from natural farming is invested in the village itself.
 - As it has the potential to generate employment, thereby stemming the migration of rural youth.
- **Environment Conservation:**
 - It ensures **better soil biology, improved agrobiodiversity and a more judicious usage of water** with much smaller carbon and nitrogen footprints.
- **Livestock Sustainability:**
 - The integration **of livestock in the farming system plays an important role in Natural farming and helps in restoring the ecosystem.** Eco Friendly bio-inputs, such as Jivamrit and Beejamrit, are prepared from cow dung and urine, and other natural

products.

- **Resilience:**

- The changes in soil structure with the help of organic carbon, no/low tillage and plant diversity are supporting plant growth even under extreme situations like severe [droughts and withstanding severe flood](#) and wind damage during [cyclones](#).
- NF impacts many farmers positively by imparting resilience to the crops against weather extremities.

What are the Issues Related to Natural Farming?

- **Decline in Yields:**

- **Sikkim (India's first organic state)**, has seen some **decline in yields** following conversion to organic farming.
- Many farmers have reverted to conventional farming after seeing their [ZBNF \(Zero-Budget Natural Farming\)](#) returns drop after a few years.

- **Unable to Boost Productivity and Income:**

- While ZBNF has definitely helped preserve soil fertility, **its role in boosting productivity and farmers' income isn't conclusive yet.**

- **Lack of Availability of Natural Inputs:**

- An often-cited barrier by farmers in transitioning to chemical-free agriculture is the lack of readily available natural inputs. Not every farmer has the time, patience, or labour to develop their own inputs.

- **Nutrient Deficiencies:**

- A study in Nature Sustainability states that while the nutrient value of the natural inputs is similar to the chemical ones used in low-input farms (farms using lower quantities of fertilisers and pesticides), **it is less in high-input farms.**
- When **such nutrient deficiencies are aggregated at a large scale, it might hamper the yield over the years**, potentially leading to **food security concerns.**

What are the Related Initiatives?

- [Rainfed Area Development](#)
- [Sub-mission on Agro Forestry](#)
- [National Mission on Sustainable Agriculture](#)
- [Pradhan Mantri Krishi Sinchayee Yojana \(PMKSY\)](#)
- [Green India Mission](#)

Way Forward

- There is a need to Focus on promoting **natural farming in rainfed areas beyond the Gangetic basin.**
 - Rainfed regions use **only a third of the fertilisers per hectare compared** to the areas where irrigation is prevalent.
- Microenterprises **that produce inputs for chemical-free agriculture shall be provided support** from the government **to address the challenge of unavailability of readily available natural inputs**, the promotion of natural farming needs to be combined with the setting up of village-level input preparation and sales shops.
- The **government should facilitate an ecosystem in which farmers learn from and support each other** while making the transition.
- Beyond evolving the curriculum in agricultural universities, there is a **need to upskill the agriculture extension workers on sustainable agriculture practices.**

[Source: TH](#)

NFSA Ranking 2022

For Prelims: National Food and Security Act, State Ranking Index, One Nation, One Ration Card (ONORC)

For Mains: Importance of NFSA Index Ranking, National Food and Security Act, 2013 , Buffer Stocks & Food Security, Government Policies & Interventions

Why in News?

Recently, the **first edition** of the **State Ranking Index** for [National Food Security Act \(NFSA\), 2013](#) was released.

What is the Index all About?

▪ About:

- The index **seeks to document the status and progress of the implementation of NFSA** across the country and various reform initiatives after consultation with the states.
- It **highlights the reforms undertaken by the States and Union Territories** and creates a cross-learning environment and scale-up reform measures by all the States and Union Territories.
- The current index is **largely focused on NFSA distribution** and will include future buyouts, [PMKGAY \(Pradhan Mantri Garib Kalyan Anna Yojana\)](#) distributions.

▪ Basis of the Assessment:

- The index for ranking of States and UTs is **built on three key pillars**, which cover end-to-end implementation of NFSA through [Targeted Public Distribution System \(TPDS\)](#). These pillars are-
 - NFSA- coverage, targeting and provisions of the Act
 - Delivery platforms and
 - Nutrition initiatives

In what ways did the states Perform?

▪ General Category States:

- **Odisha is ranked first followed** by Uttar Pradesh and Andhra Pradesh in second and third position.

▪ Special Category States:

- **Tripura ranks top among the special category states** (the North-eastern States, Himalayan States, and Island States).
- Himachal Pradesh and Sikkim are in second and third place, respectively.

▪ Worst Performers:

- Punjab, Haryana and Delhi are among the states at the bottom five.

IMPLEMENTING FOOD SECURITY

How the 20 'general category' states ranked in terms of NFSA implementation

TOP THREE

Rank	State	Index score
1	Odisha	0.836
2	Uttar Pradesh	0.797
3	Andhra Pradesh	0.794

BOTTOM THREE

18	Delhi	0.658
19	Chhattisgarh	0.654
20	Goa	0.631

What is the significance of the Index?

- The findings from the exercise **revealed that most states and union territories have fared well in digitization**, Aadhaar seeding, and ePoS installation, which reiterates the strength and scale of the reforms.
 - However, **states and union territories can improve their performance in a few areas**. Exercises, such as conducting and documenting social audits thoroughly and operationalizing functions of state food commissions across states and union territories, will further bolster the true spirit of the Act.
- It will lead to **healthy competition among States** to further their enhance performance.

What are the Issues Related to the Index?

- It excludes projects and schemes carried out by other ministries and departments within the NFSA.
- The Index merely indicates the efficiency of TPDS operations; it does not reflect the level of **hunger, malnutrition**, or both in a certain state or union area.

Why Odisha Ranking Matter?

- Odisha has followed the adoption of the NFSA in the state in 2015 with **robust end-to-end computerization of Targeted Public Distribution System (TPDS) operations**.
- A **3.25 crore digitized beneficiaries database has been hosted in the public domain** and is dynamically updated at 378 **ration card management system (RCMS) centers**, one in **each of 314 blocks and 64 urban local bodies (ULBs)**.
- Furthermore, the **Food Supplies and Consumer Welfare Department's** 152 food storage facilities have been **totally automated, with real-time electronic recording of 1.87 lakh MT foodgrains sent to 12,133 fair pricing stores across the State**.
- From July 2021, the **One Nation, One Ration Card (ONORC)** programme was introduced across the state.
 - After its implementation, PDS **beneficiaries can now choose any fair pricing retailer of their choice and convenience to get their monthly benefits**.
 - Every month, approximately **1.10 lakh families receive rations through the intra-state facility** and 533 families through the inter-state programme.

What is NFSA?

- **Notified on:** 10th September, 2013.
- **Objective:** To provide [for food and nutritional security](#) in the human life cycle approach, by ensuring access to adequate quantities of quality food at affordable prices to people to live a life with dignity.
- **Coverage:** 75% of the rural population and upto 50% of the urban population for receiving subsidized foodgrains under [Targeted Public Distribution System \(TPDS\)](#).
 - Overall, NFSA caters to 67% of the total population.
- **Eligibility:**
 - Priority Households to be covered under TPDS, according to guidelines by the State government.
 - Households covered under existing Antyodaya Anna Yojana.
- **Provisions:**
 - **5 Kgs of foodgrains per person** per month at Rs. 3/2/1 per Kg for rice/wheat/coarse grains.
 - The existing AAY household will **continue to receive 35 Kgs of foodgrains per household per month.**
 - **Meal and maternity benefit** of not less than Rs. 6,000 to pregnant women and lactating mothers during pregnancy and six months after the child birth.
 - **Meals for children upto 14 years of age.**
 - **Food security allowance** to beneficiaries in case of non-supply of entitled foodgrains or meals.
 - **Setting up of grievance redressal mechanisms** at the district and state level.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Q. With reference to the provisions made under the National Food Security Act, 2013, consider the following statements: (2018)

1. The families coming under the category of 'below poverty line (BPL)' only are eligible to receive subsidised food grains
2. The eldest woman in a household, of age 18 years or above, shall be the head of the household for the purpose of issuance of a ration card.
3. Pregnant women and lactating mothers are entitled to a 'take-home ration' of 1600 calories per day during pregnancy and for six months thereafter.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 only
- (c) 1 and 3 only
- (d) 3 only

Ans: (b)

Exp:

- **Issue of food security has been addressed by the Government through the Public Distribution System and the Targeted Public Distribution System (TPDS). The National Food Security Act (NFSA) enacted on July 5, 2013 marked a shift in the approach to food security from welfare to rights-based approach.**
- **Salient features of National Food Security Act (NFSA), 2013**
 - Upto 75% of the rural population and 50% of the urban population will be covered under TPDS with a uniform entitlement of 5 kg per person per month.
 - Pregnant women, lactating mothers and children in the age group of 6 months to 14 years will be entitled to meals as per prescribed nutritional norms under Integrated Child Development Services (ICDS) and Mid-Day Meal (MDM) Schemes. Higher nutritional norms

- have been prescribed for malnourished children upto 6 years of age.
- Pregnant women and lactating mothers will also be entitled to receive maternity benefit of not less than ₹6,000.
 - Prior to the implementation of the NFSA, there were mainly three types of ration cards issued by State Governments such as Above Poverty Line (APL), Below Poverty Line (BPL), and Antyodaya (AAY) ration cards distinguished by different colours o p t e d by the concerned State Government. According to NFSA 2013, APL and BPL groups have been re-classified into two categories – Non-Priority and Priority. **Hence, statement 1 is not correct.**
 - Eldest woman of the household of age 18 years or above is to be the head of the household for the purpose of issuing of ration cards. **Hence, statement 2 is correct.**
 - Pregnant Women and Lactating Mothers are entitled to food supplement of 600 calories of energy and 18-20 gms of protein per day in the form of Micronutrient Fortified Food and/or energy-dense food as take away home ration. Hence, statement 3 is not correct. **Therefore, option (b) is the correct answer.**

[Source: BS](#)

22nd National Fish Farmers Day

For Prelims: National Fish Farmers Day, NFDB, Initiatives to Promote Fisheries

For Mains: Significance of Fisheries

Why in News?

[National Fisheries Development Board \(NFDB\)](#) and the Ministry of Fisheries, Animal Husbandry and Dairying celebrated the 22nd **National Fish Farmers Day (10th July 2022)** to demonstrate solidarity with all fisher folk, fish farmers and concerned stakeholders throughout the country.

What is National Fisheries Development Board?

- It was established in **2006** as an **autonomous organization** under the administrative control of the Ministry of Agriculture and Farmers Welfare.
 - Now, it works under the Ministry of Fisheries, Animal Husbandry and Dairying.
- It aims to enhance fish production and productivity in the country and to coordinate fishery development in an integrated and holistic manner.

What are the Key Points?

- **About:**
 - National Fish Farmers Day is celebrated in the **memory of scientists Dr K. H. Alikunhi and Dr H. L. Chaudhury.**
 - Both of them successfully demonstrated Hypophysation (technology of induced breeding) in Indian Major Carps (common name for several species of fish) on 10th

July 1957.

- **Aim:**
 - To **recognise the accomplishments and contribution of fish farmers, aquapreneurs (entrepreneurs in the water sector) and fisherfolks** in the growth of the fisheries sector in the country.
 - To draw attention **to changing the way the country manages fisheries resources** to ensure sustainable stocks and healthy ecosystems.

What is the Significance of the Fisheries Sector?

- **Sunrise Sector:**
 - The fisheries sector plays a vital role in economic and overall development of the country. Referred to as the **“sunrise sector”**, the fisheries sector is poised to bring in immense potential through equitable and inclusive growth.
 - Fisheries is one of the fastest growing sectors amongst the primary producing sectors.
- **Second Major Producer:**
 - India is the **second major producer of fish through aquaculture** in the world.
 - India is the 4th largest exporter of fish in the world as it contributes 7.7% to the global fish production.
- **Employment Generation:**
 - Currently, this sector provides livelihood to more than 2.8 crore people within the country. Nevertheless, this is a sector with untapped potential.
 - The **Economic Survey of India, 2019-20** estimated that, only 58% of the country's inland potential has been tapped so far.
- **Opportunities for Fishermen and Fish Farmers:**
 - The unrealised potential of the fisheries sector offers varied opportunities for bringing in scalable business solutions and maximizing the benefits for the fishermen and fish farmers.
 - In order to realize the true potential of the fisheries sector, technological breakthroughs are required for enhancing production, productivity and efficiency of the fisheries' value chain.

What are the Related Initiatives?

- **Blue Revolution:**
 - Centrally Sponsored Scheme “Blue Revolution” - Integrated Development and Management of Fisheries was launched in 2016.
- **Pradhan Mantri Matsya Sampada Yojana:**
 - It strives to create direct employment to 15 lakh fishers, fish farmers, etc. and about thrice this number as indirect employment opportunities.
 - It also aims to double the incomes of fishers, fish farmers and fish workers by 2024.
- **Fisheries and Aquaculture Infrastructure Development Fund:**
 - FIDF is created to attract private investment in creation and management of fisheries infrastructure facilities.
- **Marine Products Export Development Authority:**
 - MPEDA is a nodal coordinating, state-owned agency engaged in fishery production and allied activities.
 - It was established in 1972 under the Marine Products Export Development Authority Act (MPEDA), 1972.
- **Seaweed Park:**
 - Multipurpose seaweed park in Tamil Nadu would be the center of production for quality seaweed-based products, developed on a hub and spoke model.
- **Fisheries Startup Grand Challenge:**
 - The challenge has been launched with an objective to provide a platform to start-ups within the country to showcase their innovative solutions within the Fisheries and Aquaculture sector.

Amarnath Flash Flood

For Prelims: Flash Floods, Cloud Bursting, Fundamentals of Physical Geography, Indian Physical Geography, Disaster Management Bodies, NDRF, SDRF

For Mains: Geographical Factors for Flash Floods and Cloud Bursting, Disaster Management Bodies and their role, Fundamentals of Physical Geography, Indian Physical Geography

Why in the News?

Recently, [flash floods](#) caused landslips near the Baltal base camp in central Kashmir's Ganderbal area.

- At least 13 people, mainly Amarnath pilgrims, have died and dozens went missing after flash floods.

What do we Need to know about Amarnath?

- Amarnath Temple is a **Hindu shrine located in Jammu and Kashmir, India**.
- The cave is situated at an altitude of 3,888 m, about 100 km from [Srinagar](#), the summer capital of **Jammu and Kashmir**, reached through Pahalgam town.
- The shrine represents an important part of **Hinduism**.
- The Amarnath yatra resumed after three years this year.
- The annual yatra has twin routes of **Pahalgam in south** and **Sonamarg in central Kashmir** to reach the cave shrine:



What do we know about the Amarnath Flash Flood?

▪ Flash Flood:

- These are **sudden surges** in water levels generally during or following an intense spell of rain.
- These are **highly localised events of short duration** with a very high peak and usually have **less than six hours between the occurrence of the rainfall and peak flood.**
- The flood situation worsens in the presence of **choked drainage lines or encroachments obstructing the natural flow of water.**

▪ Causes:

- It may be caused by **heavy rain** associated with a severe **thunderstorm**, **hurricane**, **tropical storm**, or **meltwater from ice or snow** flowing over ice sheets or snowfields.
- Flash Floods can also occur due to **Dam or Levee Breaks**, and/or **Mudslides** (Debris Flow).
- In areas on or near **volcanoes**, flash floods have also occurred after eruptions, when glaciers have been melted by the intense heat.
- The intensity of the rainfall, the location and distribution of the rainfall, the land use and **topography**, **vegetation** types and growth/density, soil type, and soil water- content all determine just how quickly the Flash Flooding may occur, and influence where it may occur.

What do we know about Cloudburst?

▪ About:

- Cloudbursts are **short-duration, intense rainfall** events over a small area.
- It is a weather phenomenon with unexpected precipitation **exceeding 100mm/h** over a geographical region of approximately 20-30 square km.
- In the Indian Subcontinent, it generally occurs when a **monsoon** cloud drifts northwards, from the **Bay of Bengal** or the **Arabian Sea** across the plains then on to the Himalaya that sometimes brings 75 millimetres of rain per hour.

▪ Occurrence:

- The **relative humidity and cloud cover is at the maximum level** with **low temperature and slow winds** because of which a high amount of clouds may get condensed at a very rapid rate and result in a cloudburst.
- As **temperatures increase**, the atmosphere can hold more and more moisture and this **moisture comes down as a short very intense rainfall** for a short duration probably half an hour or one hour resulting in **flash floods** in the mountainous areas and urban floods in the cities.

▪ Cloudburst are Different from Rainfall:

- Rain is condensed water falling from a cloud while cloudburst is a sudden heavy rainstorm.
- Rain over **100mm per hour is categorized as a cloudburst.**
- The cloudburst is a **natural phenomenon**, but occurs quite unexpectedly, very abruptly, and rather drenching.

▪ Consequences of Cloudbursts:

- **Flash floods**
- **Landslides**
- Mudflows
- Land caving

Why do cloudbursts occur in hilly areas like Amarnath?

- In hilly areas, sometimes saturated clouds ready to condense into rain cannot produce rain, due to the upward movement of the very warm current of air.
 - Instead of falling downwards, **raindrops are carried upwards by the air current.** New drops are formed and **existing raindrops increase in size.**
 - After a point, the **raindrops become too heavy** for the cloud to hold on to, and **they drop down together in a quick flash.**
- **A study published in 2020** examined the meteorological factors behind the cloudburst over

the **Kedarnath** region, where a cloudburst aided the devastating 2013 floods.

- It found that during a cloudburst, the relative humidity and cloud cover was at the maximum level with low temperature and slow winds.

[Source: TH](#)

Meghalaya tribal council to revisit Instrument of Accession (IoA)

For Prelims: Six schedule, Tribal council, Hill Council, Instrument of Accession

For Mains: Socio-religious and customary issue of North-Eastern Tribes with changing times, federalism, issue related to North-East

Why in News?

A tribal council in Meghalaya has **called for a meeting of traditional heads to revisit the Instrument of Accession** that made the Khasi domain a part of the Indian Union more than seven decades ago.

Why does Meghalaya tribal council want to revisit IoA?

- The need to **revisit the Instrument of Accession and Annexed Agreement** was stressed by leaders in the Khasi Hills Autonomous District Council (KHADC). According to them, it is important to understand the paragraphs of the agreement, since many provisions are missing from the Sixth Schedule of the Constitution.
- The Federation of **Khasi States had sought special status, like Nagaland has under Article 371A**, which **protects socio-religious and customary practice of nagas with right to administration of civil & criminal justice as per Naga Customary laws**.
 - Under Article 371A, Nagas also enjoys **ownership and transfer of land and its resources**.
- Recently, introduced the '**Khasi Inheritance of Property Bill, 2021** might have infuriated few leaders of KHADC, as an interference to social and customary practices of Khasi people. The bill called for "equitable distribution" of parental property among siblings in the Khasi community.
- The **KHADC said the provisions can be added to the Sixth Schedule**, which "can be amended **by Parliament**".

Note

- **KHADC** is a body **under the Sixth Schedule** of the Constitution.
- It does not have the power to legislate.
- Paragraph 12 A of the **Sixth Schedule gives the final right of passing a law to the state legislature**.
- The **Sixth Schedule** of the Constitution provides **for the administration of tribal areas in Assam, Meghalaya, Tripura and Mizoram** to safeguard the rights of the tribal population in these states.
- This **special provision** is provided **under Article 244 (2) and Article 275 (1)** of the Constitution.
- It provides for autonomy in the administration of these areas through **Autonomous District Councils (ADCs)**, which are empowered to make laws in respect of areas under their jurisdiction.

What is loA?

▪ About:

- The **Instrument of Accession was a legal document** first introduced by the Government of India Act 1935 and used in 1947 to enable each of the rulers of the princely states under British paramountcy to join one of the new dominions of India or Pakistan created by the Partition of British India.
- The **instruments of accession executed by the rulers**, provided for the accession of states to the Dominion of India (or Pakistan) on three subjects, namely, defence, external affairs and communications.

▪ loA and Meghalaya:

- loA with the **Khasi hills state was signed with the Dominion** of India between 15th December, 1947, and 19th March, 1948.
 - Meghalaya is **divided into three regions dominated** by as many matrilineal communities – the Khasis, Garos and Jaintias.
 - The **Khasi hills straddle 25 Himas or States** that formed the Federation of Khasi States.
- The **conditional treaty with these States was signed** by Governor General of India, Chakravarty Rajagopalachari on 17th August, 1948.

What is Sixth Schedule?

- The **Sixth Schedule** under **Article 244** provides for the **formation** of autonomous administrative divisions — **Autonomous District Councils (ADCs)** — that have some **legislative, judicial, and administrative autonomy** within a state.
- The **Sixth Schedule** contains **special provisions** for the administration of tribal areas in the **four north-eastern states of Assam, Meghalaya, Tripura and Mizoram**.
 - The tribal areas in **these four states** have been **constituted as autonomous districts**. The **governor** is empowered to **organise** and re-organise the **autonomous districts**.
- The **acts of Parliament** or the **state legislature** do **not apply to autonomous districts** or apply with specified modifications and exceptions.
 - The power of direction, in this regard, lies either with the President or Governor.
- **Each autonomous district has a district council** consisting of **30 members**, of whom **four** are **nominated** by the Governor and the remaining **26 are elected** on the basis of adult franchise.
 - The **elected members** hold office **for a term of five years** (unless the council is dissolved earlier) and **nominated members** hold office **at pleasure of the governor**.
- Each autonomous region also has a separate regional council.
 - The **district and regional councils** administer the areas under their jurisdiction.
 - They **can make laws** on certain specified **matters** like land, forests, canal water, shifting cultivation, village administration, the inheritance of property, marriage and divorce, social customs and so on. **But all such laws require the assent of the Governor**.
 - **They can constitute village** councils or **courts** for trial of suits and cases between the tribes. They hear appeals from them. The **jurisdiction of the high court over these suits and cases is specified by the governor**.
- The district council can establish, construct or manage primary schools, dispensaries, markets, ferries, fisheries, roads and so on in the district.
- They are empowered to assess and collect land revenue and to impose certain specified taxes.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Q. The provisions in Fifth Schedule and Sixth Schedule in the Constitution of India are made in order to: (2015)

- (a) protect the interests of Scheduled Tribes
- (b) determine the boundaries between States
- (c) determine the powers, authority and responsibilities of Panchayats
- (d) protect the interests of all the border States

Ans: (a)

Exp:

- The Fifth Schedule lays out provision for Administration and Control of Scheduled Areas and Scheduled Tribes in states other than Assam, Meghalaya, Tripura and Mizoram.
- The Sixth Schedule deals with the administration of the tribal areas in Assam, Meghalaya, Tripura and Mizoram. **Therefore, option (a) is the correct answer.**

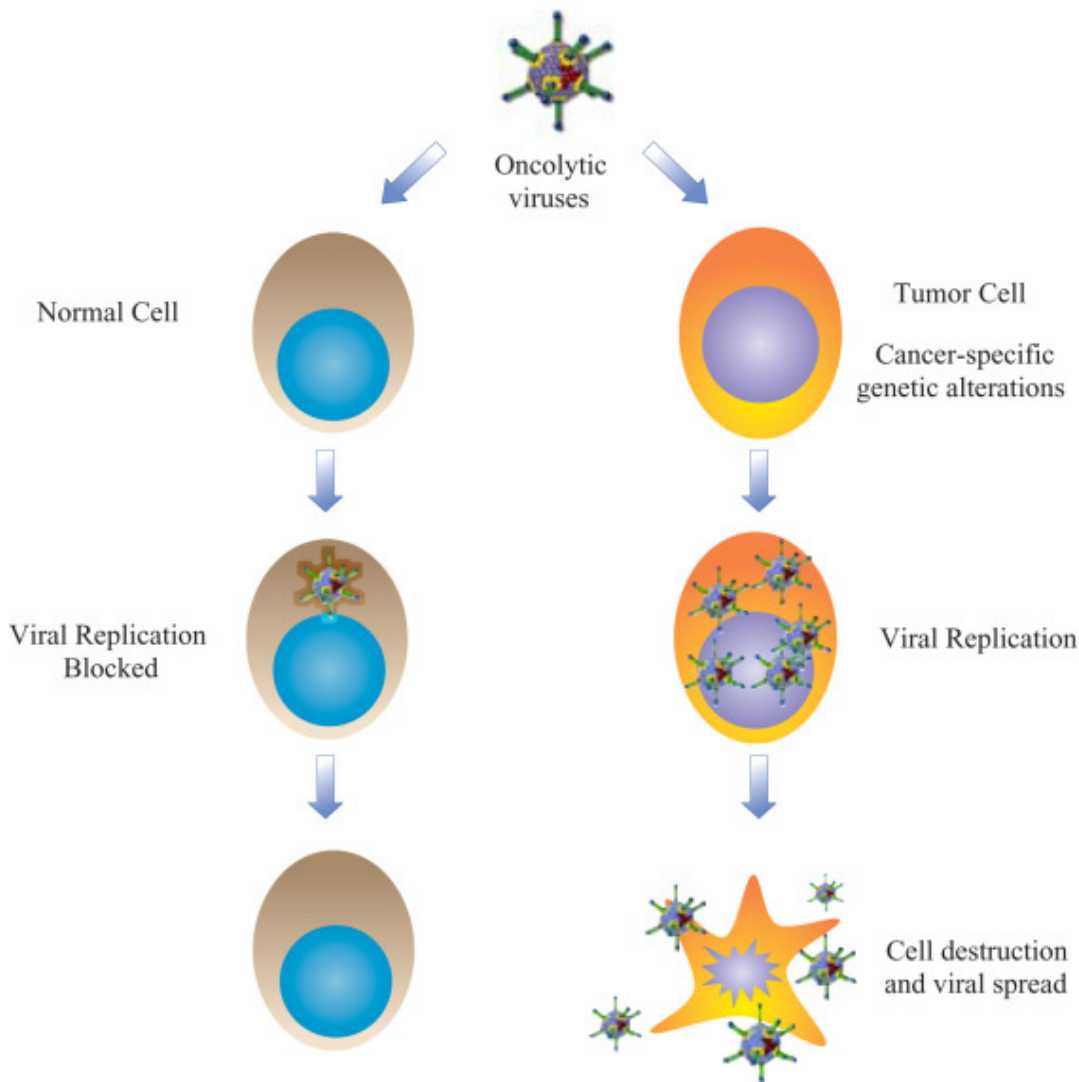
[Source: TH](#)

Oncolytic Virotherapy for Treating Cancer

Why in News?

Researchers in the US have developed **a novel strategy in Oncolytic Virotherapy (OV) to improve a cancer therapy** that can kill tumour cells while leaving nearby healthy tissues intact.

- Earlier a [Monoclonal Antibody](#) trial was held in the USA, where [12 patients were completely cured](#) of [rectal cancer](#) without requiring any surgery or chemotherapy.



What is Oncolytic Virotherapy?

- Oncolytic viruses can **kill cancer cells while leaving nearby healthy cells and tissues intact**.
- In oncolytic virotherapy, the **treatment also exerts its influence by activating an antitumor immune response made of immune cells** such as Natural Killer (NK) cells.
- However, sometimes those natural killers limit the oncolytic viruses, and so despite the exciting development in the OV field in recent years, **there is room for improvement to tackle some limitations**, including the relatively weak therapeutic activity and lack of means for effective systemic delivery.

What is the Novel Approach?

- A **region of the gene is deleted which shows to activate the signaling pathway** that enables the virus to replicate in normal cells.
- It consists of **a new oncolytic virus called FusOn-H2**, based on the Herpes simplex 2 virus, (HSV-2), commonly known as genital herpes.
- Arming FusOn-H2 with a chimeric NK engager that can engage the infiltrated natural killer cells with tumour cells **can significantly enhance the effectiveness of this virotherapy**.

What is Cancer?

- **About:**
 - It is a **large group of diseases that can start in almost any organ or tissue of the body when abnormal cells grow uncontrollably**, go beyond their usual boundaries to

invade adjoining parts of the body and/or spread to other organs. The latter process is called metastasizing and is a major cause of death from cancer.

- A **neoplasm and malignant tumor are other common names for cancer.**
- Lung, prostate, colorectal, stomach and liver cancer are the most common types of cancer in men, while breast, colorectal, lung, cervical and thyroid cancer are the most common among women.
- **Cancer Burden:**
 - Cancer remains as one of the leading causes of adult illness and death due to chronic and **Non-Communicable Diseases (NCD)** world-over including in India.
 - According to the **World Health Organisation (WHO)**, cancer is the second leading cause of death globally and in 2018, there were approximately 18 million cases globally, of which 1.5 million were in India alone.
- **Prevention:**
 - **Between 30% and 50% of cancer deaths could be prevented by modifying or avoiding the key risk factors.**
 - Key risk factors include tobacco use, alcohol use, diet, exposure to ultraviolet radiation, pollution, chronic infections, etc.
- **Treatment:**
 - Options include surgery, cancer medicines and/or radiotherapy, administered alone or in combination.
 - Palliative care, which focuses on improving the quality of life of patients and their families, is an essential component of cancer care.

What are the Related Initiatives?

- **National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke**
- **National Cancer Grid**
- **National Pharmaceutical Pricing Authority**
- **International Agency for Research on Cancer**
- **National Cancer Awareness Day**

Source: ET

Open Acreage Licensing Programme

Why in News?

Recently, the Government of India has launched the OALP Bid Round-VIII, offering 10 blocks for International Competitive Bidding.

What do we know about OALP?

- **The Hydrocarbon Exploration and Licensing Policy (HELP)** replacing the erstwhile **New Exploration Licensing Policy (NELP)** was approved in March 2016 and the **Open Acreage Licensing Policy (OALP)** along with the **National Data Repository (NDR)** were launched in June 2017 as the key drivers to accelerate the Exploration and Production (E&P) activities in India.
- Under OALP, **companies are allowed to carve out areas they want to explore oil and gas in.** Companies can put in an expression of interest for any area throughout the year but such interests are accumulated thrice in a year. The areas sought are then put on auction.

What do we know about HELP?

- **About:**
 - It stands for **Hydrocarbon Exploration and Licensing Policy**.
 - The new policy promises simpler rules, tax breaks, pricing and marketing freedom and is part of a government strategy to double oil and gas output by 2022-23.
- **Functions of HELP:**
 - **Uniform Licensing**
 - HELP provides for a uniform licensing system that will cover **all hydrocarbons** such as **oil, gas**, and coal bed methane.
 - Under NELP, separate licenses were issued for exploring different types of hydrocarbons.
 - This leads to additional costs, as a separate license is required if a different type of hydrocarbon is found while exploring a certain type.
 - **Revenue Sharing Model**
 - HELP **provides for a revenue sharing model**, the government will receive a share of the gross revenue from the sale of oil, and gas, etc and will not be concerned with the cost incurred.
 - The NELP was **profit sharing model**, where profits are shared between Government and the contractor after recovery of cost.
 - Under NELP, it became necessary for the Government to scrutinize cost details of private participants and this led to many delays and disputes.
 - **Pricing**
 - HELP has marketing and pricing freedom.
 - Before HELP, contracts were based on production sharing with the possibility of gold plating (**incorporation of costly and unnecessary features**) the investment and causing loss to the government by 'manipulating profit'.
 - To reduce the complexity of handling contracts, it was changed to revenue sharing.
 - Under the new system, a graded system of royalty rates were introduced.
 - Under this system the royalty rates will decrease from shallow water (**where cost of exploration and risks are lower**) to deep water (**where cost and risks are higher**) to ultra-deep water areas.

What are the Advantages of HELP?

- It provides for marketing freedom for **crude oil** and **natural gas** produced from these blocks. This is in tune with the Government's policy of **"Minimum Government -Maximum Governance"**.
- Under NELP, it became necessary for the Government to scrutinize cost details of private participants and this led to many delays and disputes. HELP is in tune with the Government's efforts to promote **'Ease of Doing Business'**.
- HELP marks the biggest transition from an era of government control to government support for upstream E&P (exploration, development and production) in India.
 - OALP removes restrictions on exploration by giving companies both the data and the discretion to explore areas of their choice.

[Source: PIB](#)

Conservation of Ancient Buddhist site

For Prelims: ASI, Buddhism, Edicts of Ashoka

Why in News?

[Archaeological Survey of India \(ASI\)](#) will conserve the **Ancient Buddhist site** on the bank of Bhima River near Kanaganahalli (forming part of Sannati site) in Kalaburagi district, Karnataka.

- The conservation project will reset the **remains of Maha Stupa retrieved in the excavation to their original positions** without much ornamentation and reconstructing of fallen portions of the Ayaka platforms using newly-fabricated bricks of the same size, shape and texture.

What are the Findings of the Excavation?

- **Ashokan Edict:**
 - The [Edicts of Ashoka](#) are a collection of **more than thirty inscriptions on the pillars**, as well as boulders and cave walls, attributed to Emperor Ashoka of the Mauryan Empire who reigned from 268 BCE to 232 BCE.
- **Maha Stupa:**
 - A **Maha Stupa** was discovered which was referred to as **Adholoka Maha Chaitya (the Great Stupa of the netherworlds)** in the inscriptions and, more significantly, the **stone-portrait of Emperor Ashoka**, surrounded by his queens and female attendants.
 - The Maha Stupa is believed to have been developed in three constructional phases - **Maurya, Early Satavahana and Later Satavahana periods** stretching from 3rd Century B.C. to 3rd Century A.D.
 - The Stupa is believed to have been destroyed in an earthquake.
 - Stupa is **one of the largest of its time**, the stone-portrait is considered to be the only surviving image of the Mauryan Emperor which had the inscription **'Raya Asoko' in Brahmi on it.**
- **Other Findings:**
 - Sculptural rendering of **Jataka stories**.
 - The Jatakas are an important part of Buddhist art and literature.
 - They **describe the previous existences or births of the Buddha (the Enlightened One) when he appeared as Bodhisattvas** (beings who are yet to attain enlightenment or moksha), in both human and non-human forms.
 - **Satavahana monarchs and certain unique depictions of Buddhist missionaries** sent by Ashoka to different parts.
 - **72 drum-slabs** decorated with a variety of [Dharma-Chakras](#).
 - Sculptures of Yakshas and lion.
 - Yakshas (male nature spirits) are **personifications of the natural world**.
 - Over time they were worshipped as minor gods in both the Buddhist and Hindu pantheons, often functioning as protectors of the earth's riches, and they became associated with wealth.
 - [Brahmi inscriptions](#) with varied paleographical features.
 - Brahmi script is **one of the oldest writing systems**, having been used in the Indian subcontinent and Central Asia during the final centuries BCE and the early centuries CE.

Who were Satavahanas?

- In the Deccan, the **Satavahanas established their independent rule after the decline of the Mauryas**. Their rule lasted for about 450 years.
- They were **also known as the Andhras**.
- The **Puranas and the Nasik and Nanaghad inscriptions** remain important sources for the history of Satavahanas.
- The **founder of the Satavahana dynasty was Simuka**. The greatest ruler of the Satavahana

dynasty was Gautamiputra Satakarni.

- The Satavahanas **patronized Buddhism and Brahmanism**. Brahmanism was revived by the Satavahanas **along with the performance of asvamedha and rajasuya sacrifices**.
- They also **patronized the [Prakrit language and literature](#)**.

[Source: TH](#)

Airline Turbulence

Why in News?

Recently, [Directorate General of Civil Aviation \(DGCA\)](#) has issued a show-cause notice to SpiceJet over degradation of safety margins of its aircraft.

Why do such Incidents take Place?

- **Financial Reasons:**
 - SpiceJet reported a consolidated net loss of Rs.1,259.21 crore for the nine month period ended 31st December 2021 and is yet to declare its results for the full financial year 2022.
 - This leads to situations where an airline company is not able to pay the vendors and falls short of spare parts, as most of the vendors carry out business on **“cash and carry”** basis.
- **Ignorance to Defaults:**
 - Many captains blame the **organizational culture where pilots are forced to fly despite defects being unresolved** and rules given a go-by.
 - For instance, a DGCA surprise check at a training centre in March 2022 revealed that SpiceJet was training its pilots on a simulator despite a faulty stick shaker which warns a pilot if there is an imminent fall.
 - The training was part of the return to service of the infamous **Boeing 737 MAX planes** which were grounded across the world after two air crashes.
 - The DGCA barred 90 of SpiceJet's pilots from flying the MAXs until they were re-trained.

What Do We Know About DGCA?

- It is an attached office of the **Ministry of Civil Aviation**.
- It is the regulatory body in the field of Civil Aviation primarily dealing with safety issues.
- It is responsible for regulation of air transport services to/from/within India and for enforcement of civil air regulations, air safety and airworthiness standards.
- It also co-ordinates all regulatory functions with the [International Civil Aviation Organisation](#).

What Can the DGCA Do?

- **The Aircraft Rules 1937** empower the DGCA to **impose a fine of Rs. 1 crore**, detain any aircraft if it can lead to danger to persons in the aircraft or to any other persons or property.
- The regulator can also **suspend the airline's air operator's certificate (AOC)** which is a prerequisite for offering commercial air services in the country or curtail the airline's schedule, i.e., flights.

[Source: TH](#)

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