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GENERAL Knowledge

TOPICS

- Important Current Affairs related to Health and Environment.
- Relevant for CLAT, AILET, MHCET, and other Law Entrance tests.

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HEALTH & ENVIRONMENT

COVID-19

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#CLIMATE CHANGE AND INDIA IN 2021

- **High Vulnerability to Climate risks:** 75% of districts in India, home to over half the population, were vulnerable to extreme climate risks. **Drought-affected districts** have increased by yearly average of 13 times over the last two decades. The **frequency of cyclones has also doubled.**
- **Increased Frequency of extreme Climate events:** While India witnessed **250 extreme climate events between 1970 and 2005**, the country recorded 310 extreme climate events after 2005 alone.



- **Financial Losses:** Between 1990 and 2019, India incurred losses exceeding \$100 billion.
- **Enhanced Intensity of Extreme Climate events:** The intensity of floods increased eightfold and that of associated events such as landslides and heavy rainfall **increased by over 20 times since 1970.**
- **Swapping Trend:** Over 40% of Indian districts now show a swapping trend: **flood-prone areas are becoming drought-prone, and vice-versa.**

Steps India should take in 2021 against extreme climate events

- **Focused Mission:** India should create an **Environment and Health De-risking Mission** to increase emergency preparedness, secure critical resources and build resilient infrastructure and governance systems to counter the increasing frequency and intensity of extreme climate events.

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- **Decentralization:** Focus on **democratising local climate-related and weather-related data** along with integrating risk projections in national, sub-national and district disaster and climate plans.
- **Focus on Indigenous Communities:** Restoration, revival, and recreation of traditional climate-resilient practices, with a special focus on indigenous communities, often on the **front lines of ecosystem conservation**.
- **Creation of Comprehensive Climate Risk Atlas:** This Atlas should identify, assess and **project chronic and acute risks** at a granular level to better prepare against extreme climate events.
- The Atlas would also help in **assessing the resilience and adaptation capabilities of communities & business** and act as risk-informed decision-making toolkit for policymakers. It would help in **climate-proofing critical infrastructure**.
- **Financing Tools:** To finance climate action at scale, risk financing instruments and risk retention and identification tools should be **supplemented by contingency and adaptation funds such as the Green Climate Fund**.
- This will enhance the public finance pool and gear up efficient allocation across sectors at risk by **mobilising investments** on critical infrastructures and resilient community actions.
- **International Collaboration:** As the permanent chair of the recently formed Coalition for Disaster Resilient Infrastructure, **India should play a pivotal role in attracting private investments into climate-proofing of infrastructure**.
- It should also promote **adaptation-based infrastructure investment** decision making in these countries.

#COVID VACCINE INTELLIGENCE NETWORK {CO-WIN}

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- Recently, the software of **Co-WIN App** (also called **Covid Vaccine Intelligence Network**) was upgraded to improve monitoring and managing the ongoing **Covid-19 Vaccination programme**.



- The **Union Health Ministry** has decided to enhance the **CoWIN app** to strengthen real-time monitoring and management of Covid-19 vaccination across the country.

- The Ministry noted certain glitches in the Co-WIN software and has **decided to enhance the platform by adding a new feature of "Allot Beneficiary"** in the ongoing session.

- The new feature will allow maximum possible number of beneficiaries per session. It will enable better coverage of the vaccination coverage. **This was informed by Additional Secretary at the Union Health Ministry, Manohar Agnani** while addressing a press conference on **Covid-19 vaccination in the country**.

- Co-WIN, a **cloud-based IT platform**, is supposed to **handle minute details for India's Covid-19 immunisation programme**, including registering beneficiaries, allocating vaccination centres, sending text messages with name of their vaccinator to beneficiaries and live monitoring of vials in cold storage.

Agencies Involved:

- The Co-WIN platform is **owned by the Ministry of Health and Family Welfare** and was earlier the platform used for conducting **Pulse Polio** and other crucial immunisation programmes across the country.
- The same platform has been expanded for doling out Covid-19 vaccines and the **Ministry of Electronics and IT** along with the **National Informatics Centre** are handling the backend and the tech infrastructure for it.

Features of the App

- Monitoring and tracking:** This app enables monitoring the inoculation drive and tracking the listed beneficiaries for vaccination on a real-time basis.

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- Thus, it also helps to **counter proxy vaccinations**.
- **Aadhaar enabled:** This app would enable beneficiaries to be **identified efficiently** through use of Aadhaar platform.

#INDIGENOUSLY DEVELOPED VACCINE 'PNEUMOSIL

Recently, India's first fully indigenously developed pneumococcal conjugate vaccine "Pneumosil" has been launched.



- **Developed by:** Serum Institute of India (SII), through collaboration with PATH and Bill and Melinda Gates Foundation.
- Serum Institute of India is a Pune based world's largest vaccine manufacturer by number of doses produced and sold globally. PATH is an international, nonprofit global health organization based in Seattle (USA).
- The Bill & Melinda Gates Foundation (BMGF) is an American private foundation, founded by Bill and Melinda Gates. Based in Seattle, Washington, the primary goals of the foundation are to **enhance healthcare** and **reduce extreme poverty** across the globe, and to expand **educational opportunities** and access to information technology in the USA.

Information about the Vaccine:

- The vaccine **targets the pneumococcal bacterium**, which causes pneumonia and other serious life-threatening diseases such as meningitis and sepsis, and is estimated to cause nearly four lakh deaths in children under five years of age each year worldwide.
- It will be available in the market at an affordable price in single dose and multidose presentations.
- While **pneumococcal conjugate vaccines (PCVs)** have helped reduce pneumococcal deaths, they are difficult for many countries to afford.
- The **unique feature** of the vaccine is its composition, which is **specially tailored** to the prevailing serotype prevalence of *S. Pneumoniae* in India and other regions of the world.

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- A serotype or serovar is a **distinct variation within a species of bacteria or virus or among immune cells of different individuals.**
- It was **licensed by the Drugs Controller General (India) in July 2020.**

Significance of the vaccine

- It is an example of **India's capability in Research & Development & manufacturing high end sophisticated Vaccines.**
- Till now, India was **fully dependent on Pneumococcal Conjugate Vaccine (PCV) manufactured by Foreign Manufacturers** which are available at very high prices.
- The vaccine also makes SII the first **developing country vaccine manufacturer** to access the global PCV market.
- SII is also the maker of **Covishield**, the Indian version of the **AstraZeneca-Oxford coronavirus vaccine.**

Pneumococcal Disease

- Pneumococcal disease is a name for any infection caused by bacteria called **Streptococcus pneumoniae** or pneumococcus.
- The bacteria are the most common **cause of bloodstream infections, pneumonia, meningitis, and middle ear infections in young children.**
- **Pneumonia** is an **infection of the lungs.** Many different bacteria, viruses, and even fungi can cause pneumonia. **Pneumococcus is one of the most common causes of severe pneumonia.**
- Doctors consider some of these infections **“invasive”.**
- Invasive disease means that **germs invade parts of the body that are normally free from germs.**
- For example, **pneumococcal bacteria can invade the bloodstream, causing bacteremia, and the tissues and fluids covering the brain and spinal cord, causing meningitis.** When this happens, disease is usually very severe, requiring treatment in a hospital and even causing death in some cases.

Disease Burden:

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- Annually India witnesses an estimated **71% of pneumonia deaths** and **57% of severe pneumonia cases**.
- According to the **World Health Organisation (WHO)**, pneumonia accounts for **15% of all deaths of children under 5 years**.

Prevention:

- **Pneumococcal Conjugate Vaccine (PCV)** prevents pneumococcal disease.
- The vaccine is a **mix of several bacteria of the pneumococci family**, which are known to cause pneumonia, hence 'conjugate' is included in the name of the vaccine.
- **Conjugate vaccines** are made using a combination of two different components.
- The Indian government has been ensuring **PCV under Universal Immunisation Programme (UIP)** to fight pneumococcal disease.

#FSSAI HAS CAPPED AMOUNTS OF TRANS FATTY ACIDS

The Food Safety and Standards Authority of India (FSSAI) has capped the amount of trans fatty acids (TFA) in oils and fats to 3% for 2021 and 2% by 2022 from the current permissible limit of 5% through an amendment to the Food Safety and Standards (Prohibition and Restriction on Sales) Regulations 2011.

- The Regulations deal with the prohibitions and restriction on sales of various food products, ingredients and their admixtures.
- The revised regulation applies to edible refined oils, vanaspati (partially hydrogenated oils), margarine, bakery shortenings, and other mediums of cooking such as vegetable fat spreads and mixed fat spreads.
- As per the World Health Organisation (WHO), approximately 5.4 lakh deaths take place each year globally because of intake of industrially produced trans fatty acids.
- The FSSAI rule comes at the time of a pandemic where the burden of non-communicable diseases (NCD) has risen.
- Trans-fat consumption is a significant risk factor for cardiovascular diseases. Cardiovascular diseases account for most NCD deaths.

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- Previously it was in 2011 that India first passed a regulation that set a TFA limit of 10% in oils and fats, which was further reduced to 5% in 2015.

Trans Fat

- Trans fatty acids (TFAs) or Trans fats are the most harmful type of fats which can have much more adverse effects on a human body than any other dietary constituent.
- These fats are largely produced artificially but a small amount also occurs naturally. Thus in our diet, these may be present as Artificial TFAs and/ or Natural TFAs.
- Artificial TFAs are formed when hydrogen is made to react with the oil to produce fats resembling pure ghee/butter.
- In our diet the major sources of artificial TFAs are the partially hydrogenated vegetable oils (PHVO)/vanaspati/margarine while the natural TFAs are present in meats and dairy products, though in small amounts.
- Usage:
- TFA containing oils can be preserved longer, they give the food the desired shape and texture and can easily substitute 'Pure ghee'. These are comparatively far lower in cost and thus add to profit/saving.

Harmful effects:

- TFAs pose a higher risk of heart disease than saturated fats. While saturated fats raise total cholesterol levels, TFAs not only raise total cholesterol levels but also reduce the good cholesterol (HDL), which helps to protect us against heart disease.
- It is also associated with a higher risk of developing obesity, type 2 diabetes, metabolic syndrome, insulin resistance, infertility, certain types of cancers and can also lead to compromised fetal development causing harm to the yet to be born baby.
- Metabolic syndrome includes high blood pressure, high blood sugar, excess body fat around the waist and abnormal cholesterol levels. The syndrome increases a person's risk of heart attack and stroke.

Efforts to reduce their intake:

- National: FSSAI launched a "Trans Fat Free" logo for voluntary labelling to promote TFA-free products. The label can be used by bakeries, local food outlets and shops for preparations containing TFA not exceeding 0.2 per 100 g/ml.
- FSSAI launched a new mass media campaign "Heart Attack Rewind" to eliminate industrially produced trans fat in the food supply by the year 2022.

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- “Heart Attack Rewind” is a follow-up to an earlier campaign called “Eat Right”, which was launched in July, 2018. Edible oil industries took a pledge to reduce the levels of salt, sugar, saturated fat and trans fat content by 2% by 2022.
- Swasth Bharat Yatra, an initiative started under the “Eat Right” campaign is a Pan-India cyclothon to engage citizens on issues of food safety, combating food adulteration and healthy diets.
- Global: WHO launched a REPLACE campaign in 2018 for global-level elimination of trans-fats in industrially produced edible oils by 2023.

#APPROVAL FOR COVAXIN AND COVISHIELD

Recently, the **Drugs Controller General of India’s** approved **COVISHIELD** and **COVAXIN** vaccines for **restricted use** against **Covid-19** in the country.

- **COVISHIELD, COVAXIN** and **BNT162b2** applied to the **Central Drug Standard Control Organisation (CDSCO)**, seeking **emergency use approval**.

Type of Approval:

- Both vaccines have received a **restricted use approval** in an **emergency situation**.
- This means the **vaccines have been approved for use despite the companies not having completed** clinical trials.
- This approval is, however, subject to regular submission of **safety, efficacy and immunogenicity data** from their ongoing trials.
- The **immunogenicity** of a vaccine is its ability to prompt an immune response.
- The efficacy, in this case, is a measure of its ability to bring down the number of symptomatic Covid-19 cases.

Reason for the Emergency Approval:

- Given the pandemic, the government wanted a **vaccine ready to use at the earliest**.
- Another growing concern is the **mutation of the SARS-CoV-2 virus** in countries like the **UK** which are now starting to spread to other parts of the world, including India.

- **COVISHIELD:** It is the name given to an **Oxford-AstraZeneca** Covid-19 vaccine candidate which is technically referred to as **AZD1222** or **ChAdOx 1 nCoV19**.

Produced By:

- It is a version of the vaccine **developed by the University of Oxford** in collaboration with **Swedish-British drugmaker AstraZeneca**.
- **Serum Institute of India (SII)** is the manufacturing partner in India.
- **Constituents and Action:**
- It is **based on a weakened version of a common cold virus** or the adenovirus that is found in chimpanzees.
- This viral vector **contains the genetic material of the SARS-CoV-2 spike protein** (protrusions) present on the outer surface of the virus that help it bind with the human cell.
- The **body's immune system** is supposed to **recognise this protein** as a threat, and work on **building antibodies against it**.

Significance:

- It had triggered an immune response in humans against the **novel coronavirus** in early trials and is considered to be one of the global frontrunners for the Covid-19 vaccine.
- **COVAXIN:** It is India's only indigenous **Covid-19** vaccine.

Produced By:

- Developed by **Bharat Biotech**, Hyderabad in collaboration with the **Indian Council of Medical Research's National Institute of Virology**, Pune
- **Constituents and Action:**
- It is an **inactivated vaccine** which is **developed by inactivating (killing) the live microorganisms** that cause the disease.
- This **destroys the ability of the pathogen to replicate**, but keeps it intact so that the immune system can still recognise it and produce an immune response.
- It is expected to **target more than just the spike protein**.

- It also aims to develop an immune response to the nucleocapsid protein (the shell of the virus that encloses its genetic material).

Significance:

- **COVAXIN** is more likely to work against newer variants of the virus, including the **UK variant**, as it contains **immunogens (epitopes)** from other genes in addition to those from Spike protein.
- **Immunogen** is a stimulus that produces a humoral or cell-mediated immune response, whereas antigens are any substance that binds specifically to an antibody.
- All immunogens are antigens, but all antigens may not be immunogens.
- Approval of **COVAXIN** ensures India has an additional vaccine shield especially against potential **mutant strains** in a dynamic pandemic situation.

#BIODIVERSITY CONSERVATION & INDIGENOUS PEOPLE

- India has managed to conserve such a **diversity of wildlife despite** its large population and development challenges. The reverence that local communities have for Nature has been vital for the **government's sustained success and other agencies' conservation efforts.**
- However, the **government's conservation** activities have created fear amongst the indigenous people for losing their existence in lands that they had inhabited for decades.
- In this context, proper implementation of the Forests Rights Act, 2006 is required, as the Act envisages protecting the indigenous people's interests and balancing the **right to the environment with their right to life and livelihood.**

A dramatic shift in the Indian conservation paradigm came in **2006 through the Forest Rights Act** that went beyond sanctioning local usage, to conferring local communities' rights over forest land and produce. The Ministry of Tribal Affairs was mandated to **operationalise the Act**, while conservation remained under the Ministry of Environment, Forest and Climate Change. The **Forest Rights Act (FRA)** is legislation which aims to address the historical injustice that our forest-dwelling communities have had to face for nearly 150 years by providing them with the security of tenure over land for cultivation and habitation through individual rights. It also provides access to various resources through more than a dozen types of community forest rights.

Role of the Indigenous People in Conservation

- **Conserving Natural Flora:** The magico-religious belief of plants' tribal communities as a god and goddess habitat leads to their conservation in their natural habitat.
- Further, a wide variety of plants such as crop plants, wild fruits, seeds, bulb, roots and tubers are conserved by the ethnic and indigenous people as they have to depend on these sources for edible purposes. **Application of Traditional Knowledge:** Indigenous people and biodiversity complement each other.
- Over time, the rural communities have gathered a pool of indigenous knowledge for the cultivation of the medicinal plants and their propagation. These plants conserved are antidotes to snake bites and scorpion bites or even for broken bones or **orthopaedic treatments**.
- **Conserving the Sacred Groves:** India's ethnic people have played a vital role in preserving the biodiversity of several virgin forests and have **conserved flora and fauna in sacred groves of tribals**. Otherwise, these flora and fauna might have disappeared from the natural ecosystem.

Plight of the Indigenous People

- **Disruption After Designation of the Status of World Heritage Site:** The approach adopted to isolate the indigenous people from their natural habitats to protect biodiversity is the root cause of conflict between them and conservationists.
- With the announcement of natural habitat as a **World Heritage Site**, **UNESCO** takes charge of the region's conservation.
- This leads to an infusion of many outside people and technological equipment, which in turn disrupt the lives of the Indigenous people.
- **Lax implementation of the Forest Rights Act:** Many states in India have a dismal record in implementing the Forest Rights Act (FRA).
- This can be reflected with the fact that states like Karnataka had recognised only 5.7% of the total claims made.

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- Further, the FRA's constitutionality has been challenged in the Supreme Court several times by various conservation organisations.
- One of the petitioners' key arguments has been that it is beyond the legislative competence of Parliament to enact the FRA as 'land' is a state subject.
- **Development vs Conservation:** Often, the combined stretch of land claimed by Indigenous people has been taken away for building dams, mining, laying railway lines and roads, power plants, etc.
- Moreover, forcibly removing tribal peoples from their land will only result in environmental damage and violate human rights.
- **Illegal Encroachment of Land:** The government records also reveal that 43 lakh hectares of forest land encroached legally and illegally until 1980 when the Forest Conservation Act came into force.

CONCLUSION

- **Recognition of the Rights of the Indigenous People:** For preserving the rich biodiversity of the region, the recognition of the rights of the forest dwellers who depend on the forests is as important as the declaration of natural habitat as a World Heritage Site.
- **Effective Implementation of the FRA:** The government must make an effort to build trust between its agencies in the area and the people who depend on these forests by treating them as equal citizens like everyone else in the country.
- The FRA's loopholes have already been identified; all it needs is to work on amending it.
- **Traditional Knowledge of the Tribal People for Conservation:** The Biodiversity Act, 2002 mentions about the equitable sharing of the benefits arising out of the use and knowledge of biological resources with the local communities.
- Therefore, all the stakeholders should realise that indigenous people's traditional knowledge is a way forward for more effective conservation of biodiversity.
- **Tribals, The Forest Scientists:** Tribal peoples are generally regarded as the best conservationists, as they connect with nature more spiritually.
- The cheapest and quickest way to conserve areas of high biodiversity is to respect tribal peoples' rights.

#GREAT GREEN WALL INITIATIVE

- The **Great Green Wall for Sahel and Sahara Initiative** recently received 14 billion USD funds at the recent One Planet Summit for Biodiversity.
- The funding is to be used to restore degraded land, strengthen resilience, create green jobs and protect biodiversity.
- Among the financiers, the World Bank has committed 5 billion USD, **African Development Bank committed 6.5 billion USD** and **Government of France committed 14 billion USD**.

What is Great Green Wall Initiative?

The **Great Green Wall initiative** aims to transform the lives of 100 million Africans by growing 8,000 kilo metre long and fifteen kilo metre wide mosaic of trees, vegetation, grasslands, plants. **The Great Green Wall is an African-led initiative.** It was started in 2007 by the **African Union to combat desertification, land degradation, drought.** The project aims to restore **100 million hectares of degraded land by 2030.** So far between 2007 and 2019, the **Great Green Wall initiative** has restored only four million hectares of land.

Key Objectives of Great Green Wall Initiative

- The **initiative aims to sequester 250 million tonnes of carbon** and create ten million green jobs. It will support the African communities to grow fertile land and increase economic opportunities for the youngest population.
- The project will help to create **climate resilience in the region** where temperatures are rising faster than the rest of the earth.

Sustainable Development Goals

- The **Great Green Wall initiative** will contribute **fifteen of the seventeen United Nations Sustainable Development Goals.**

- The **main objective of the United Nations Convention to Combat Desertification** is to reach Land neutrality by 2030. Thus, the Great Green Wall initiative will help achieve this.

#WHO SETS UP STOCKPILE OF EBOLA VACCINE

- The World Health Organization along with partner agencies informed on January 12, 2021 that they are establishing a **global stockpile of Ebola vaccines** to control future outbreaks.
- Four leading **international health and humanitarian organisations-WHO, UNICEF, Doctors Without Borders and International Federation of Red Cross and Red Crescent Societies (IFRC)** said in a statement that they are establishing an emergency reserve of about 500,000 doses of Ebola vaccine. Almost 7,000 Ebola vaccine doses are available now and more will be added throughout the year.
- The **GAVI Vaccine alliance** will be providing financial support for the vaccine stockpile to ensure outbreak response. The **International Coordinating Group (ICG)** on Vaccine Provision had led the effort to establish the stockpile.
- The Ebola vaccines being stockpiled have been manufactured by **Merck, Sharp & Dohme (MSD) Corp** and developed with financial support from the US government.
- The **injectable single-dose vaccine shots** were used previously to contain outbreaks in **Guinea and the Democratic Republic of the Congo** between 2018-20 before being licensed under a protocol for “**compassionate use**”.
- The **European Medicines Agency** had licensed the **Ebola vaccine in November 2019**.
- It was later licensed by the **US Food and Drug Administration** as well as in eight African countries.
- The global stockpile is being created in **Switzerland**. The vaccines are ready to be shipped to countries for emergency response.

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- Other **stockpiles managed by WHO** and partners exist for diseases such as yellow fever and including meningitis.
- The agencies say any decision to release vaccines will be made within 48 hours of receiving the request and the targeted delivery time is within one week.
- The **vaccines will be reserved for the people** who are at the highest risk of being infected with the **virus during any epidemic**, including those who are exposed to it and the **health workers treating such patients and their contacts**.

Significance of the vaccine

- The stockpile of Ebola vaccine will allow countries to **tackle future Ebola epidemics** by ensuring timely access to the vaccines.
- The vaccine, recommended by the Strategic Advisory Group of Experts on Immunization, protects against the **Zaire Ebolavirus species** which is most commonly known to cause outbreaks.
- **WHO Chief Dr. Tedros Adhanom Ghebreyesus** stated that the Covid-19 pandemic is a reminder of the incredible power of vaccines to save lives from deadly viruses.
- He continued by saying that the Ebola vaccines have made one of the most feared diseases on earth preventable and the new stockpile is an **excellent example of solidarity, science and cooperation** between the **private sector and international organisations** to save lives.

Background

- **Ebola virus** is a highly fatal illness, with fatality rates varying from 25 percent to 90 percent. Over thousands of people have lost their lives to the disease especially in Western and Central Africa, since the virus was first discovered in 1976.

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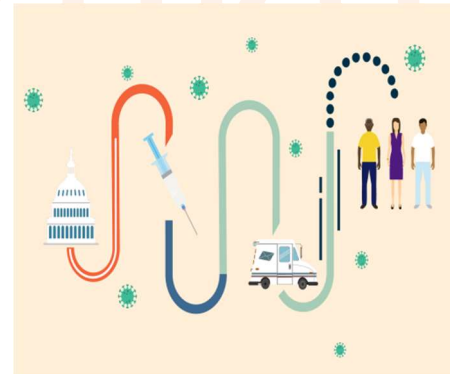
- However, as **Ebola outbreaks** are rare and unpredictable, there is no natural market for the vaccine. The vaccines for the virus are available in limited quantities and can be **secured only through the establishment of the stockpile.**
- The **Ebola vaccine** stockpile has been created for quick outbreak response to protect those at the highest risk of **contracting Ebola.**

#EFFECTIVE VACCINATION DISTRIBUTION POLICY

India plans to vaccinate **300 million people against COVID-19** over the next 6-7 months.

Challenges for the government

- **Vaccination large numbers in quick time:** The government plans to give priority to healthcare workers and other front-line workers, followed by everyone who is **above 50 years of age.** This will mean that roughly **20% of the population** will be vaccinated by July or August 2021.
- **Procurement of Vaccines:** Since all the vaccines that are currently in the spotlight require two doses, the government will have to acquire 600 million doses.



Steps taken by Government towards Vaccination

- **Pune's Serum Institute of India** is the **world's largest producer of vaccines.** There are reports that the **government has already struck a deal** with the Serum Institute to acquire 500 million doses of the AstraZeneca vaccine.
- **Emergency authorisation** for this vaccine is likely to follow soon. There are other vaccine frontrunners including **Bharat Biotech's Covaxin** and the **Russian Sputnik V** whose clinical trials in India are being conducted by **Reddy's Labs.**
- So, provided that there are no last-minute setbacks, the government should have no **problems in acquiring the required number of doses.**

Guiding principle of Vaccination drive

A **vaccination drive** such as this should have **two distinct objectives**:

- one, providing protection to those vaccinated,
- **Two, to minimise** or at least slow down the speed and **spread of the viral transmission**.

Who gets Priority?

- The government's strategy of giving priority to **front-line workers and elderly people** is in line with the practice being followed in **the U.K. and the U.S.**, the two major countries that have been the leaders in the **COVID-19 vaccination drive**.
- The rationale for this is to protect those who are most likely to be infected in the future as well as those who are most vulnerable to the **health consequences of the infection**.
- Vaccinating **healthcare professionals** satisfy both the above mentioned objectives: these are individuals who have high levels of exposure and they also act as **active disease vectors** since they interact with large numbers of people.
- However, the **priority given to older people may not actually minimise** the total social and economic cost inflicted by the virus in the long run. The elderly are less mobile, have a lower level of social interaction, and are hence less likely to spread the virus.
- **Alternative Suggestions:** A younger person who interacts with a larger number of people is both more likely to be infected and subsequently infect others. This suggests that densely populated areas — **for instance, the Dharavi slum** — should receive far more attention than they are likely to get under the current strategy.

Involvement of Private hospital in vaccination drive

- The **government's procurement strategy seems** to depend entirely on domestic sources. It also plans to rely entirely on public resources for distribution without involving private hospitals.
- Moreover, the **government plans to bear the entire cost of vaccination**.
- **Alternative proposition:** Suppose Pfizer or some other multinational pharmaceutical company approaches the government both for **authorisation of a vaccine** as well as for **permission to import and sell (for a profit) to those who can afford it**.

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- Any approval from the government for private players will **enable the affluent to jump the vaccination queue**. This will inevitably attract the charge that the government is catering to the interests of the richer groups in the population.
- But perhaps a more **dispassionate analysis** would suggest that allowing the private sector will help provide additional supplies of the vaccine especially **when interests of the poor are taken into account by government**.
- The government will and should continue to procure all available domestically produced vaccines and supply them through its own distribution channel to people especially the poorer sections of society.
- Another potential benefit of allowing private players is that the larger the numbers who get vaccinated, the **lower will be the speed of virus transmission** amongst the non-vaccinated.
- The government must examine the **principle underlying the vaccination scheme** and whether private players should be allowed space.

#VISION 2035: PUBLIC HEALTH SURVEILLANCE IN INDIA

- Recently, the NITI Aayog has released a white paper, “**Vision 2035: Public Health Surveillance in India**” which is envisaged to serve as a vision document to **propel Public Health Surveillance (PHS)** in India and establish India as a global leader in the area.
- A **white paper** is an **informational document**, usually issued by a company or not-for-profit organization, to **promote or highlight the features of a solution, product, or service**.



Background:

- **NITI Aayog's mandate is to provide strategic directions** to the various sectors of the Indian economy. In line with this mandate, the Health Vertical released a set of four working-papers compiled in a volume entitled '**Health Systems for New India: Building Blocks-Potential Pathways to Reforms**' during November 2019.
- This white paper is a **continuation of the work on strengthening the health systems**.

About the White Paper:

- This paper is a **joint effort of Health Vertical, NITI Aayog, and Institute for Global Public Health**, University of Manitoba, Canada with **contributions from technical experts** from the Government of India, States, and International agencies.
- It **lays out India's vision 2035 for PHS** through the integration of the **three-tiered (primary, secondary and tertiary) public health system into Ayushman Bharat**.
- It contributes by **suggesting mainstreaming of surveillance** by making individual electronic health records the basis for surveillance.

Main Features:

- Strengthen non-communicable disease prevention, detection, control and to reduce out of pocket expenses of individuals and families.
- It **builds on initiatives such as the Integrated Health Information Platform of the Integrated Disease Surveillance Program**.
- **Aligns with the citizen-centricity highlighted in the National Health Policy 2017 and the National Digital Health Blueprint**.
- It encourages the use of mobile and digital platforms and point of care devices and diagnostics for amalgamation of data capture and analyses.
- It **highlights the importance of capitalizing on initiatives** such as the **Clinical Establishments (Registration and Regulation) Act 2010** to enhance private sector involvement in surveillance.
- It **points out the importance of a cohesive and coordinated effort of apex institutions** including the **National Centre for Disease Control, the Indian Council of Medical Research (ICMR), and others**.

Vision of the programme

- To make India's PHS system **more responsive and predictive to enhance preparedness for action** at all levels.
- To make it **more citizen-friendly to ensure individual privacy and confidentiality**, enabled with a client feedback mechanism.

- To **improve data-sharing mechanisms** between Centre and states for better disease detection, prevention, and control.
- To **provide regional and global leadership** in managing events that constitute a public health emergency of international concern.

Public Health Surveillance

- PHS is an important public health function that **cuts across the three-tiered public health system and care provided**. Surveillance is '**Information for Action**' and is an **essential action for disease detection, prevention, and control**.

Challenges associated with it:

- **Data Collection and Sharing:** Various verticals to collect data work differently and in separation with no mechanism for data sharing.
- There is **no single system** where surveillance data generated by target specific populations like the **National AIDS Control Programme, National TB Elimination Programme, etc. could be understood in its entirety**.
- **Poor Quality Data:** The data generated is of **low quality** and the **research or use of data** to answer critical health policy questions of the country **has been very limited**.
- **Limited Synchronisation:** There is the limited ability of programme implementation structures to work in synchrony with research organisations and vice versa.
- **Missing Linkages:** India invests significant resources in the registration of deaths. However, various **reviews have not been able to link the causes of mortality with morbidities**. There was still **no proper linking to find common ground** between the causes of diseases and deaths.
- **Lack of Human Resources:** Human resources also form a formidable challenge. As many as **42% vacancies existed** at state and district level surveillance systems.
- Most of the positions of the Central Surveillance Unit at the Centre are **filled either by deputation or on contract** and the individuals are **loaded with multiple other responsibilities**.
- **Lack of Epidemic Intelligence:** India **does not have an adequate number** of public health professionals having expertise in the field.

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- 'Epidemic intelligence' can be defined as all the activities related to early identification of potential health threats, their verification, assessment and investigation in order to recommend public health measures to control them.
- **Under-developed Systems: A non-communicable diseases (NCDs) surveillance system hardly exists** in India and other factors like integration of surveillance for NCD risk factors, surveillance of injury and accidents, air pollution and its effects, etc, are **yet to be included in surveillance.**
- **Lack of Occupational Health Surveillance:** This type of surveillance **addresses issues like lead toxicity, silicosis, etc.** Whatever data has been generated hardly became part of India's PHS system.
- **Emerging Challenges:** Growing **antimicrobial resistance (AMR)**, new infectious diseases or new strains of existing diseases and increased rate of NCDs.

Suggestions:

- **Creation of a skilled and strong health workforce** dedicated to surveillance activities.
- **Integration** of NCDs, reproductive and child health, occupational and environmental health and injury into PHS.
- **Merger of morbidity data** from health information systems.
- **Amalgamation** of plant, animal, and environmental **surveillance in a One-Health approach** that also includes surveillance for antimicrobial resistance and predictive capability for pandemics.
- **Strengthening of laboratory capacity** with new diagnostic technologies including molecular diagnostics, genotyping, and phenotyping.
- **Establishment of a governance framework** that is inclusive of political, policy, technical, and managerial leadership at the national and state level.
- **Enhancement of surveillance** of NCDs, citizen-centric and community-based surveillance and use of point of care devices and self-care diagnostics.
- **Prioritization of diseases** that can be targeted for elimination as a public health problem, regularly.
- **Improvement of core support functions** and system attributes for surveillance at all levels.
- **Establishment of mechanisms to streamline data sharing**, capture, analysis, and dissemination for action.
- These could **include the use of situation-aware real-time signals** from social media, mobile sensor networks, and participatory surveillance systems for event-based epidemic intelligence.



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- **Encouragement of innovations** at every step-in surveillance activity.

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