PUBLIC HEALTH

Disease X: Tracking the next pandemic

- ❖ **CONTEXT: World Health Organisation (WHO) recently said that it is updating the list of priority pathogens that "pose the greatest public health risk due to their epidemic potential and/or whether there is no or insufficient countermeasures".**
- The process, involves more than 300 scientists from across the world , considering evidence on around 25 virus families and bacteria, as well as "Disease X". The process is expected to guide global investment and research and development (R&D) in vaccines, tests, and treatments.
- Currently, Covid-19 is at the top of the priority disease list.

➢ **What is Disease X?**
- Disease X refers to an unknown pathogen that can cause the next pandemic.
- It is part of WHO's priority diseases list prepared for R&D in a public health emergency context.
- According to WHO, it represents "the knowledge that a serious international epidemic could be caused by a pathogen currently unknown to cause human disease".

➢ **How is WHO tracking the next pandemic?**
- WHO relies on R&D Blueprint (a global strategy and preparedness plan) to avert large-scale health crises. The R&D Blueprint includes goals and research priority areas to accelerate the development of testing, vaccines, and therapeutics of diseases caused by the listed priority pathogens. The WHO uses this blueprint to guide responses to outbreaks and improve global response for future epidemics – covered under and as "Disease X".
- The need to develop such a blueprint was sharply felt during the 2014 Ebola outbreak in West Africa. The medical community was ill-prepared to deal with the disease's rapid spread, and the lack of treatment drugs, vaccines, and trained healthcare professionals compounded the problem.
- While Ebola outbreak was eventually controlled through quarantine and travel restrictions, community awareness, and coordinated international efforts, it nudged the WHO towards preparing for similar public health concerns in the future. In May 2015, the organisation convened a network of experts to develop the R&D Blueprint for Action to Prevent Epidemics.
- According to WHO, the following gaps in R&D were found during the Ebola pandemic:
  - ✓ Platforms that expedite vaccine clinical trials, drug testing and data sharing.
  - ✓ A broader R&D scope that encompassed, for example, a better understanding of the disease, animal models, and personal protective equipment.
  - ✓ Community engagement plans from the outset.
  - ✓ Funding sources that could be quickly activated.
- The Blueprint also works with partners, including the Coalition for Epidemic Preparedness Innovations (CEPI) and the Global Research Collaboration for Infectious Disease Preparedness (GloPID-R).

➢ **What is an R&D roadmap?**
- An R&D roadmap gathers the knowledge collected through stakeholder effortand identifies the main activities needed to "promote strategic research in advance of and during outbreaks.".
- Like most roadmaps, it is a concise and comprehensive document, outlining a collaborative framework that includes basic research to late-stage development, licensure and early use of products. These R&D roadmaps serve as important tools to identify effective health technologies and save lives by integrating "research into response".

➢ **More about the R&D Blueprint**
- For each disease on the list of priority pathogens, an R&D roadmap is created, followed by target product profiles (TPP). This framework is then used to guide outbreak responses — both urgent action and global response to potential future pandemics.
- The blueprint uses three different approaches to establish preparedness in dealing with disease outbreaks— improving coordination and fostering an enabling environment, accelerating R&D processes, and developing new norms and standards for epidemics.
- When an outbreak is recorded, the blueprint moves from R&D preparedness to an emergency R&D response plan. This includes WHO coordination and planning to facilitate the implementation of research response, and mobilisation of external stakeholders.
- The 2016 Zika outbreak emerged as a testing ground for the R&D Blueprint. Initial activities included developing the landscape of existing research, product development for the disease, and consultation with world experts to identify knowledge gaps and agree on a plan for accelerating product development.
- In April 2016, WHO came up with TPPs for Zika virus diagnostic tests, while a TPP for vaccines against the disease and the associated congenital syndrome was released in July of that year. The Emergency Use

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Assessment and Listing (EUAL) procedure, established during the Ebola outbreak, was opened for Zika in vitro diagnostics in the following February.

➢ **The current list of priority diseases**
- WHO's current list of priority diseases includes:
  - ✓ Covid-19
  - ✓ Crimean-Congo haemorrhagic fever
  - ✓ Ebola virus disease and Marburg virus disease
  - ✓ Lassa fever
  - ✓ Middle East respiratory syndrome coronavirus (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS)
  - ✓ Nipah and henipaviral diseases
  - ✓ Rift Valley fever
  - ✓ Zika virus disease
  - ✓ Disease X

➢ **When is the updated list expected?**
- WHO conducted its last prioritisation exercise in 2018.
- According to WTO A new updated list is expected to be released in the first quarter of 2023. Efforts towards building the updated list will draw on lessons from the Covid-19 pandemic.

➢ **The new prioritisation exercise**
- The prioritisation exercise will adopt a viral family approach – identifying "representative viruses (or prototypes) within a viral family as a pathfinder in generating science, evidence and filling knowledge gaps that may then be applied to other viruses of threat in the same family". This approach allows for fast-track research on entire families of viruses instead of individual strains, thus broadening the knowledge of experts and improving response to unforeseen strains, including those that may cause Disease X.
- Experts will review the science related to around 25 viral family groups and shortlist viruses of concern. One bacterial group will also be added to ensure that risks of naturally occurring bacterial threats are accounted for. In the first phase of the exercise, experts will shortlist priority viral families, prototype viruses and bacteria, and Disease X recommendations.
- During the second phase, scientific and public health criteria (public health impact, health equity, economic and societal impact) will be considered for a deeper review of the shortlist. An independent Prioritisation Advisory Committee (PAC) will conduct the final prioritisation following a multi-criteria decision analysis (MCDA) approach.

INDIAN ECONOMY
Digital rupee pilot project

❖ **CONTEXT: Reserve Bank of India (RBI) has announced the launch of India's Central Bank Digital Currency (CBDC), a sort of official cryptocurrency, for retail users from December 1 2022.**

➢ **Who can use the retail CBDC?**
- According to the RBI what will be launched on December 1 is the first phase of a pilot project that will cover select locations and banks in a closed user group (CUG) comprising participating customers and merchants.
- The pilot will initially cover the four cities of Mumbai, New Delhi, Bengaluru, and Bhubaneswar, where customers and merchants will be able to use the digital rupee (e₹-R), or e-rupee.
- Four banks will be involved in the controlled launch of the digital currency in these four cities: State Bank of India, ICICI Bank, Yes Bank, and IDFC First Bank.
- The service will be subsequently extended to the cities of Ahmadabad, Gangtok, Guwahati, Hyderabad, Indore, Kochi, Lucknow, Patna, and Shimla. Four more banks — Bank of Baroda, Union Bank of India, HDFC Bank, and Kotak Mahindra Bank — will join the pilot project.
- The scope of the pilot may be expanded gradually to include more banks, users and locations as needed.

➢ **What will the retail digital rupee be?**
- In effect, the retail e-rupee will be an electronic version of cash, and will be primarily meant for retail transactions. It will be potentially available for use by all — the private sector, non-financial consumers and businesses — and will be able to provide access to safe money for payment and settlement, as it will be the direct liability of the central bank.
- The RBI had said earlier: "CBDC is the legal tender issued by a central bank in a digital form. It is the same as a fiat currency and is exchangeable one-to-one with the fiat currency. Only its form is different."

➢ **And how will the retail digital rupee work?**
- The e₹-R would be in the form of a digital token that represents legal tender. It will be issued in the same denominations as paper currency and coins, and will be distributed through intermediaries, i.e., banks.
- Users will be able to transact with e₹-R through a digital wallet offered by the participating banks and stored on mobile phones and devices.

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- Transactions can be both person to person (P2P) and person to merchant (P2M). Payments to merchants can be made using QR codes displayed at merchant locations.
- The e₹-R would offer features of physical cash like trust, safety and settlement finality. As in the case of cash, it will not earn any interest and can be converted to other forms of money, like deposits with banks.

➢ **And what is the other kind of digital rupee?**
- Based on the usage and the functions performed by the digital rupee and considering the different levels of accessibility, RBI has demarcated the digital rupee into two broad categories:
  - ✓ General purpose(retail)
  - ✓ Wholesale.
- On November 1 2022, the RBI launched the digital rupee for the wholesale segment to settle secondary market transactions in government securities.
- Wholesale CBDC is designed for restricted access to select financial institutions. It has the potential to transform the settlement systems for financial transactions undertaken by banks in the government securities (G-Sec) segment, inter-bank market and capital market more efficient and secure in terms of operational costs, use of collateral and liquidity management.

➢ **So why do we need a pilot launch for the retail e-rupee?**
- According to the central bank, the pilot will test the robustness of the entire process of digital rupee creation, distribution and retail usage in real time.
- Different features and applications of the e₹-R token and architecture will be tested in future pilots, based on the learnings from this pilot.

➢ **What are the advantages of the e-rupee?**
- The key motivations for exploring the issuance of CBDC in India among others include reduction in operational costs involved in physical cash management, fostering financial inclusion, bringing resilience, efficiency and innovation in the payments system.
- It will add efficiency to the settlement system and boost innovation in cross-border payments space and provide the public with uses that any private virtual currencies can provide, without the associated risks.
- The RBI has repeatedly flagged concerns over money laundering, terror financing, tax evasion, etc with private cryptocurrencies like Bitcoin, Ether, etc. Introducing its own CBDC has been seen as a way to bridge the advantages and risks of digital currency.

PRELIMS

1. NITI Aayog releases study report on 'Carbon Capture
❖ **CONTEXT: A study report, titled 'Carbon Capture, Utilisation, and Storage Policy Framework and its Deployment Mechanism in India', was released NITI Ayog.**
- The report explores the importance of Carbon Capture, Utilisation, and Storage as an emission reduction strategy to achieve deep decarbonization from the hard-to-abate sectors. The report outlines broad level policy interventions needed across various sectors for its application.
- As, India has updated its NDC targets for achieving 50% of its total installed capacity from non-fossil-based energy sources, 45% reduction in emission intensity by 2030 and taking steps towards achieving Net Zero by 2070, the role of Carbon Capture, Utilisation, and Storage (CCUS) becomes important as reduction strategy to achieve decarbonization from the hard-to abate sectors.
- CCUS can enable the production of clean products while still utilizing India's rich endowments of coal, reducing imports and thus leading to an Atmanirbhar Indian economy.". Implementation of CCUS technology certainly be an important step to decarbonise the hard-to-abate sector.
- CCUS projects will also lead to a significant employment generation. It estimates that about 750 mtpa of carbon capture by 2050 can create employment opportunities of about 8-10 million on full time equivalent (FTE) basis in a phased manner.
- India's dependency on the fossil-based Energy Resources is likely to continue in future, hence CCUS policy in Indian Context is needed.
- The report indicates that CCUS can provide a wide variety of opportunities to convert the captured CO_2 to different value-added products like green urea, food and beverage form application, building materials (concrete and aggregates), chemicals (methanol and ethanol), polymers (including bio-plastics) and enhanced oil recovery (EOR) with wide market opportunities in India, thus contributing substantially to a circular economy.
- CCUS is key to ensuring sustainable development and growth in India, particularly for the production of clean products and energy, leading to an Atmanirbhar Bharat

2. Global minority index
❖ **CONTEXT: A Patna based research organisation, the Centre for Policy Analysis, has prepared a report on various countries towards their respective religious minorities.**

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- Centre for Policy Analysis (CPA) has put India on top of the 'global minority index', followed by South Korea, Japan, Panama and the US, in its Global Minority Report tabulating 110 countries.
- Maldives, Afghanistan and Somalia figure at the bottom of the list, while the UK is ranked 54, and the UAE 61.
- In this report, the grading of countries has been done on the basis of the approach of the state towards minority religions and religionists, the extent of the inclusiveness of the state towards religious minorities, and the discriminatory policies and practices of the state towards religious minorities.
- This report only takes into account macro parameters to analyse the status of religious minorities in a country, and the approach of a state towards them.
- Only those parameters have been taken into account to assess the status of religious minorities which relate to Constitutional provisions, policies of a government, and other broader indicators, such as the laws of the land.
- According to the report In the Constitution of India there are special and exclusive provisions for the cultural and educational promotion of religious minorities. In no other Constitution are there special provisions in place for the promotion of religious and linguistic minorities.
- India is a country where there is no ban on any sects of any religions, unlike in many other countries, it points out.
- ➢ **The significance**
- The Global Minority Report prepared by CPA is also to sensitise the international community about the state of religion-oriented discrimination against minorities in various countries.
- This report also reflects on the concerns that various religious communities and sects face in different countries.
- The importance of this report lies in it being the first international report that grades countries on the basis of their approach to their respective religious minorities.
- It is the first report by an organisation of non-Western and Afro-Asian countries in which indexing of various countries has been done on certain parameters. The overall approach of this report is curative and it is in the interest of all religionist since no religionists have a majority in all countries.
3. **Integrating Tribal Knowledge**
- ❖ **CONTEXT: Recently, President Droupadi Murmu addressed the delegates of a National Workshop on 'Janjatiya Anusandhan – Asmita, Astitva evam Vikas' and said the Indian Knowledge System (IKS) that the National Education Policy is currently emphasizing needs to incorporate the knowledge of indigenous tribes.**
- The National Commission for Scheduled Tribes (NCST), along with the Union Government, is now pushing for the "re-documentation" of the cultures and social practices of indigenous and tribal societies in India as existing scholarly literature is heavily reliant on the body of knowledge created by colonizing governments.
- The NCST held a series of events over the past year at more than 125 institutions and TRIs under the theme of "Azadi Ka Amrit Mahotsav," where the history of tribal freedom fighters was a prominent focus. These events served as the framework for the workshop this week.
- Following these incidents, numerous conferences were held in New Delhi to discuss what areas of research in the areas of tribal identity, tribal rights, and tribal development could be pursued.
- ➢ **Significance**
- The idea is to encourage more sociologists, anthropologists, and researchers from India's indigenous and tribal communities to study and record the cultural, social, and historical practises of their own communities in an effort to replace the body of work from the colonial era on this subject, with the added benefit of helping the government better understand tribal societies, identity, and rights.
- ➢ **Indian Knowledge System (IKS)**
- Indian Knowledge System (IKS) is an innovative cell under Ministry of Education (MoE) at AICTE, New Delhi.
- Its goals are to advance interdisciplinary study of all facets of IKS, conserve and share IKS for use in future research and for social applications.
- It will actively work to disseminate our nation's rich cultural history and traditional expertise in the fields of literature, agriculture, basic sciences, engineering, architecture, management, and the arts.

ANSWER WRITTING

Q. Clean energy is the order of the day.' Describe briefly India's changing policy towards climate change in various international fora in the context of geopolitics.

India's climate change policy has undergone a significant change over the years, from seeking energy security to taking initiative in the field of clean energy at a global level, the country's diplomatic stand at the Conference of Parties reflects its pro-environment outlook. By accepting the net-zero commitments, India has reiterated its stand that its policy on climate change is based on the principle of common but differentiated responsibilities.

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India, since ancient times, has always promoted harmony with nature. This can be further evidenced by the country's commitment to the Paris Accord and the acceptance of the net-zero targets, proving that India is aware of clean energy's significance.

In this context, the five-point agenda of Panchamrit for dealing with climate change, including ambitious targets related to the use of renewable energy for meeting the country's energy requirements, reduction in carbon emissions and intensity in its economy and achieving the target of net-zero, are a clear statement by India of its commitment towards clean energy as well as its intent for taking a leading role in the same.

- India's geopolitical and global outlook, based on the constantly evolving global environmental challenges, can be witnessed by the country's diplomacy at the United Nations Framework Convention on Climate Change (UNFCCC).
- India does not agree to the imposition of legally binding targets since it requires strategic autonomy to (a) pursue its domestic developmental agenda and (b) identify the method required to commit to targets related to climate change and clean energy.
- India, keeping the ambition of enhancing its global profile and power ambitions, has moved away from a reactionary to a participatory approach. This can be seen with India's change in position from its response to the Kyoto Protocol commitments as compared to the Paris Agreement.
- Further, keeping in line with its diplomatic endeavours globally and the recognition of clean energy's significance, India has taken a leading role along with other major global players in several international initiatives such as the International Solar Alliance (ISA), the One Sun, One World and One Grid programme and the Lifestyle for Environment (LiFE) Movement.
- Further, India has also raised its concerns regarding the reluctance of the developed nations in sharing the necessary technologies with the developing nations to enable them to effectively deal with climate change.

Thus, India has modified its climate change policy according to the developments taking place on a global scale and has taken initiatives in mitigating issues arising out of climate change while keeping in mind its geopolitical objectives.

MCQs

1. Consider the following statements regarding Carbon capture, utilisation and storage(CCUS)
   1. CCUS technologies provide the foundation for carbon removal or "negative emissions"
   2. It is a process that captures carbon dioxide emissions from sources like coal-fired power plants and releases them into space.

   Select the correct statement.
   a) **1 only**
   b) 2 only
   c) Both 1 and 2
   d) Neither 1 nor 2

2. The term "Disease X" often mentioned in news, which of the following statement best describes it?
   a) Previous pandemic pathogens
   b) **An unknown pathogen that could cause a serious international epidemic.**
   c) A diagnostic method for zeroing in on an unknown disease
   d) The next epidemic caused by an known dormant pathogen

3. Consider the following statements
   1. Tribal knowledge systems are stored in songs and stories, while mainstream knowledge is preserved in books and recordings.
   2. Indian Knowledge System (IKS) is an innovative cell under Ministry of Education (MoE)

   Which of the above statement/s is/are correct?
   a) 1 only
   b) 2 only
   c) **Both 1 and 2**
   d) Neither 1 nor 2

4. With respect to Janjatiya Gaurav Divas, consider the following statements
   1. In 2021 the Centre decided to mark Janjatiya Gaurav Divas as a day to celebrate the contributions of tribal communities to Indian culture
   2. It is celebrated annually on November 15 on the birth anniversary of tribal leader Alluri Seetha Ram Raju

   Which of the following statements are correct?
   a) **1 only**
   b) 2 only
   c) Both 1 and 2

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d) Neither 1 nor 2

5. With reference to Global minority index which was released recently consider the following
   1. It has been released by U. S. Commission for International Religious Freedom (USCIRF)
   2. Report awarded India 100 out of 100 points on state religious neutrality, state inclusivity index and global minority index
   Which of the above statement/s is/are not correct?
   a) 1 only
   b) 2 only
   c) Both 1 and 2
   d) Neither 1 nor 2

6. Recently, a measles outbreak in Mumbai has alarmed the country's public health officials, with reference to this, consider the following statements about measles:
   1. It may lead to pneumonia, encephalitis and death.
   2. Infants become susceptible to measles infection at the end of three months.
   3. India currently gives a measle-rubella vaccine in its universal immunization program to tackle both measles and rubella.
   Which of the statements given above is/are correct?
   a) 1 only
   b) 1 and 2 only
   c) 2 and 3 only
   d) 1, 2 and 3

7. Recently which of the following organisation decided to help waste segregation workers to access government schemes in India?
   a) UNEP
   b) UNDP
   c) WHO
   d) CPCB

8. Consider the following statements with reference to 'Samanvay 2022' exercise
   1. It is a multilateral military exercise on combating terrorism
   2. All the indo pacific bordering countries are the part of this exercise.
   Choose the correct statement/s using the codes given below
   a) 1 only
   b) 2 only
   c) Both 1 and 2
   d) Neither 1 nor 2

9. Consider the following Pairs:
   (Global Navigation Satellite System: Country)
   1. Global Positioning Sytem : USA
   2. Beidou : China
   3. GLONASS : Russia
   4. Quasi-Zenith Satellite System : European Union
   How many of the pairs given above is/are correctly matched?
   a) One pair only
   b) Two Pairs only
   c) Three Pairs only
   d) Four Pairs

10. With reference to International Jaguar Day consider the following
    1. It has been observed annually on November 30.
    2. All the jaguar range countries are South American countries.
    Choose the correct statement/s using the codes given below
    a) 1 only
    b) 2 only
    c) Both 1 and 2
    d) Neither 1 nor 2

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