



DAILY CURRENT AFFAIRS

Time: 45 min

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Biotechnology sector in India

Syllabus :GS 3/S&T

In News

The Minister of Science & Technology launched the website of "**Global Bio-India 2023**".

- He said that India is poised to be among top 5 Global Bio-manufacturing Hubs by 2025.

About Biotechnology

- Biotechnology deals with the application of biological knowledge and techniques pertaining to molecular, cellular and genetic processes to develop significantly improved products and services.
- Biotechnology products and processes have ensured ease of living, improved health care, agriculture output and created livelihood opportunities, etc.

Status in India

- The Biotechnology industry in India is divided into the following segments – Biopharmaceuticals, Bio-services, Bio-agriculture, Bio-Industrials and Bio-IT.
- Biotechnology sector is recognized as the key driver for contributing to **India's USD 5 Tn economy target**.
- India is among the **Top-12 destinations for biotechnology** in the world and **3rd largest destination for biotechnology** in Asia Pacific, with **approximately 3% share in the global Biotechnology industry**.
- In 2022, **India became the fifth-largest economy globally** and is recognized as a top innovation economy in Central and Southern Asia, ranking **40th according to the Global Innovation Index (GII) Report 2023**.
- The Indian Biotechnology industry was valued at **\$93.1 billion in 2022**, with expectations of reaching **\$300 billion by 2030**.
- The Indian Biotechnology sector is poised to grow exponentially over the next decade.

Achievements and Strength

- India has a **huge wealth of bioresources**, an unsaturated resource waiting to be harnessed and an advantage in Biotechnology especially due to the vast biodiversity and the unique bioresources in the Himalayas.
- Biotechnology has the potential to become an **important instrument of global trade and bio-economy** contributing to India's overall economy.
- Biotechnology **provides a milieu, an environment** which will be Clean, Greener and more compatible with well-being
- It also generates **lucrative sources of livelihood**, also the alternatives to the petrochemicals-based manufacturing, like bio-based products like food additives, bioengineering ties, animal feed products
- Biotechnology sector in India has made significant contributions to various sectors including Health, Medicine, Agriculture, Industry and Bio-Informatics
- Biotechnology has emerged as a **trending career option among the youth**
- India is one of the **biggest suppliers of low cost drugs and vaccines** in the world.
- By creating and using a variety of tools at its disposal, such as vaccines, antivirals, diagnostic tests, and other tools, the biotechnology industry has been at the forefront of the fight against the **Covid-19 pandemic**.

Steps

- Policy initiatives of the Government of India (GoI) such as **Startup India and Make in India programs** are aimed to develop India as a world-class Biotechnology and Bio-manufacturing hub.
- The Department of Biotechnology (DBT) is playing a pivotal role in realizing the sector's potential, aims to foster high-performance biomanufacturing to enable a circular bioeconomy.
- In the **Union Budget 2023-24**, the Department of Biotechnology (DBT) was allotted US\$ 162.7 million (Rs. 1,345 crore) to promote research and development, agriculture biotechnology, etc.
- In **2022, India and Finland** agreed to advance bilateral collaboration and expand cooperation in sectors like digital education, future mobile technologies, biotechnology, and the digital partnership in ICT.
- **The Atal Jai Anusandhan Biotech Mission** was implemented by the Department of Biotechnology (DBT), Ministry of Science and Technology to address the challenges of maternal and child health, antimicrobial resistance, vaccines for infectious disease, food and nutrition, and clean technologies.
- **Biotechnology Industry Research Assistance Council (BIRAC) established by the Department of Biotechnology (DBT)** is aimed at strengthening and empowering emerging biotechnology enterprises to undertake strategic research and innovation.
- **Biotechnology Parks and Incubators** are established across the country by the Department of Biotechnology (DBT), under the Ministry of Science and

Technology, to translate research into products and services by providing the necessary infrastructure support.

- Global Bio-India 2023(a mega international congregation of biotechnology stakeholders) showcases India's Biotech growth and opportunities to the world.
 - DBT and BIRAC are organizing Global Bio-India 2023,
- In a memorandum released in March 2022, the Indian Ministry of Environment, Forest and Climate Change exempted certain genome- edited plants from biosafety assessment in pursuance of rule 20 of the Manufacture, Use, Import, Export and Storage of Hazardous Microorganisms/Genetically engineered Organisms or Cells Rules 1989. This exemption reduces the regulatory burden on researchers and companies using these technologies to produce new plant varieties

Issues

- Biosafety is concerned with the potentially adverse impacts of biotechnology on human, animal and plant health, and the environment.
- Biotechnology also gives rise to socio-economic and ethical concerns, some of which have been described here.
- India continues to have challenges in using genetic engineering technologies for developing new plant varieties.
 - India allows for the cultivation of only one genetically engineered plant - cotton.
 - Fears over safety to human health and potential impact on biodiversity have prevented the entry of engineered food plants into India.
- In addition to the ban on the cultivation and import of genetically modified plants, India also has stringent labelling requirements for any products sourced from genetically modified food plants.

Conclusion

- The biotechnology sector, mainly due to its multidisciplinary approach, holds the potential to provide an array of solutions for challenges in various sectors such as health, agriculture, environment, energy and industrial processes.
- India needs to be more ambitious about the adoption of genetically modified food crops.
 - While safety concerns over new plant varieties are legitimate, there is a need to address them scientifically instead of banning products.
- It is necessary that India creates a regulation that is transparent and simple to promote the research and development of biotechnology .
- India should also clearly state a commitment to embracing technology and simplifying regulations to allow more biotechnology-based products

India-Bhutan Relations

Syllabus :GS 2/IR

In News

Bhutan's fourth King Jigme Khesar Namgyel Wangchuck arrived in India .

- The visit comes in the aftermath of Bhutan and China holding the 25th round of bilateral border talks which led to some unease in India.

India-Bhutan Relations

- **Overview :** India and Bhutan share unique and exemplary bilateral relations, which are based on mutual trust, goodwill and understanding.
 - Formal diplomatic relations between India and Bhutan were established in 1968.
 - The basic framework of India Bhutan relations is the Treaty of Friendship and Cooperation signed in 1949 between the two countries, which was renewed in February 2007.
- **High-level Exchanges:** The traditionally unique bilateral ties characterized by mutual trust and understanding, have been advanced by regular high-level exchanges between the two countries.
 - PM Shri Narendra Modi visited Bhutan in August 2019. During the visit, four major bilateral projects including the 720 MW Mangdechhu Hydroproject, the Ground Earth Station of ISRO for utilization of the South Asian Satellite, RuPay Card and the extension of interconnection between the National Knowledge Network of India and Bhutan's Research and Education Network were launched
- **Trade and Economic Ties:** The India-Bhutan Agreement on Trade, Commerce and Transit – which was first signed in 1972 and revised most recently for the fifth time in 2016 – establishes a free trade regime between the two countries.
 - The Agreement also provides for duty free transit of Bhutanese exports to third countries.
 - India is Bhutan's top trade partner both as an import source and as an export destination
 - India is the leading source of investments in Bhutan, comprising 50% of the country's total FDI.
- **Development Partnership:** India has been extending economic assistance to Bhutan's socio-economic development since the early 1960s when Bhutan launched Five Year Plans.
 - For the 12th Five Year Plan, India's contribution of Rs. 4500 cr. constitutes 73% of Bhutan's total external grant component.
- **Hydropower Cooperation:** Mutually beneficial hydro-power cooperation with Bhutan is a key pillar of bilateral economic cooperation

- Four hydro-electric projects (HEPs) totaling 2136 MW are already operational in Bhutan and are supplying electricity to India.
- The 720 MW Mangdechhu was commissioned in August 2019 and handed over to Bhutan in December 2022.
- Two HEPs namely, 1200 MW Punatsangchhu-I, 1020 MW Punatsangchhu-II in Inter-Governmental mode are under various stages of implementation.
- **Educational, Cultural Cooperation and People-to-People Exchanges:** There is close bilateral cooperation in the educational and cultural fields between India and Bhutan.
 - Over 950 scholarships are being provided annually by GoI for Bhutanese students to study in India in a wide range of disciplines including medicine, engineering, etc.
- **Cultural and Buddhist Links:** A number of Bhutanese pilgrims travel to Bodhi Gaya, Rajgir, Nalanda, Sikkim, Udayagiri, and other Buddhist sites in India
- **New Areas of Cooperation:** Apart from hydro-power cooperation and development partnership has moved into new and emerging areas with full interoperability of the flagship digital project RuPay, which has been successfully completed.
 - Bhutan became the second country to launch the BHIM app, further deepening the financial linkages between our two countries. Space cooperation is a new and promising area of bilateral cooperation
- **COVID-19 Assistance:** In line with India-Bhutan unique and special relations, GoI ensured continuous supply of trade and essential items to Bhutan, despite COVID-19 related lock-downs
- **Indians Working in Bhutan:** About 50,000 Indian citizens are working in Bhutan, mainly in the construction sector, education and technical consultants involved in infrastructure projects

Challenges for India

- Concluding the 25th round of border negotiations, Bhutan and China are drawing close to ending the decades-old territorial dispute
- China has continued to intimidate and appease Bhutan at different times.
- Bhutan's normalisation of diplomatic relations with China, India will face a new set of challenges.

Conclusion and Way head

- India's assistance with hydropower projects and Bhutan's hydropower exports form a significant component of this win-win relationship.
- The new phase of cordial diplomatic relations between Bhutan and China call for the establishment of fresh redlines between India and Bhutan .

- India will continue to watch as both Beijing and Thimphu move from dispute negotiation to border demarcation. With sensitive sectors like Doklam being unresolved and new claims in the Sakteng region, India will be cautious of Beijing's ability and intention to alter the status quo
- Bhutan's stance on trilateral engagement over Doklam further reassures its sensitivity towards India.

Women in Indian Defence Forces

Syllabus :GS 3/Defense

In News

- The Defence Minister approved the extension of rules for **maternity, child care and child adoption leaves for women soldiers in the Armed Forces at par with the officers.**

Need for the Extension of Rules

- Till now, women **were only recruited as officers and not as Other Ranks (ORs)**, which are below the officer level.
 - Now, the armed forces have opened their doors to women in the **personnel below officer rank (PBOR) cadre** for the first time **under the Agnipath recruitment model.**
 - A need was felt for proper leaves when it came to maternity, child support and adoption cases.

Extended Rules

- The benefits will be equally applicable for all women in three services whether one is an officer or any other rank.
- **Benefits:** The women officers get **maternity leave of 180 days** with full pay for each child, subject to a maximum of two children.
 - There is a provision for extension of a month of leave without pay in exceptional cases and 30 days of leave in the instance of a miscarriage or abortion.
 - **Childcare leave of 360 days** is granted in total service career (subject to the child being less than 18 years of age).
 - **Child adoption leave of 180 days** is granted after the date of the valid adoption of a child below one year of age.
- The decision is in line with the vision of **inclusive participation of all women in the Armed Forces**, irrespective of their ranks.
 - It is going to improve the work conditions of women in the military and aid them to balance the spheres of professional and family life in a better manner.

Women in Indian Forces

- Over 7,000 women personnel are serving in the Indian Army at present followed by 1,636 in the Indian Air Force and 748 in the Navy.
- The three services have women as **soldiers, sailors and air warriors** in their ranks apart from women serving at officer-level ranks.

Background

- The army, air force and navy began inducting women as **short-service commission (SSC) officers in 1992.**
 - This was the first time women were allowed to join the military outside the medical stream.
- Initially, they could **serve for five years**, and their service could be extended by another five years.
- **In 2006**, a policy revision allowed them to **serve for a maximum of 14 years** as SSC officers.
- Front-line combat roles were off limits to them until the government approved **an Indian Air Force (IAF) plan in 2015** to induct women into the fighter stream.

Scenario Around the Globe

- The United States, Israel, North Korea, France, Germany, Netherlands, Australia and Canada are among the global militaries that employ women in front-line combat positions.

Steps Taken for the Inclusion of Women into the Forces

Indian Army

- **Permanent Commission (PC):** PC is being granted to Women Officers (WOs) in 12 Arms & Services.
- **National Defence Academy (NDA):** Armed Forces have opened entry for women candidates in NDA with 19 cadets including 10 for Indian Army joining the academy every six months.
- **Women in Army Aviation:** Indian Army has also opened avenues for Women Officers to serve as pilots in the Corps of Army Aviation since 2021.
- **Colonel (Select Grade):** Women Officers are also being considered for Colonel (Select Grade) ranks and are being given command appointments.
- **Junior Commissioned Officers (JCOs)/Other Ranks (OR):** Provision for enrolment of women as Other Ranks in Corps of Military Police in the Indian Army has been introduced in 2019.

Indian Air Force

- Women are **flying fighter aircraft** and operating from the length and breadth of the country in all branches of the IAF.
- Opportunities for a career in IAF has also been provided through **NCC Special Entry** for flying SSC (Women) from 2017 onwards.

- **‘DISHA’ cell** at Air HQ conducts various Induction Publicity programmes across the country related to induction/ career of Officer Cadre in the IAF.

Indian Navy

- **Women Officers Onboard Ships:** Women officers are being appointed onboard warships.
- **Naval Air Operations (NAO) Officers on Helicopters:** Women NAO officers have been appointed as specialist NAO officers to ship borne helicopters.
- **RPA Stream:** Women officers can join the Remotely Piloted Aircraft (RPA) stream and the first woman officer joined RPA squadron in 2021.
- **Overseas Assignments:** Women NAO officers have been deputed overseas to Maldives, as part of Dornier aircrew for a period of one year w.e.f. 2020 onwards.
- **Women in all Branches/Cadres/Specialisations:** Entry of women in all Branches/ Cadres/ Specialisations (except Submarine specialization) is targeted to commence.

Source: [IE](#)

Regulation of Online Gambling in India

Syllabus :GS 2/Polity and Governance

In News

- **The Ministry of Electronics and Information Technology (MeitY)** has issued **blocking orders** against 22 illegal betting apps & websites.

About

- The action follows investigations conducted by the Enforcement Directorate (ED) against illegal betting app syndicate and subsequent raids on Mahadev Book in Chhattisgarh, revealing the app's unlawful operations.

Betting and Gambling Activities in India

- Betting and gambling activities are banned under various State laws, while few **games of skill have been held to be constitutionally valid** by the Supreme Court in various judgements.
- In this legal landscape, the **online gaming industry** in India has seen **immense growth in the recent past.**

Concerns

- **Addiction Related Concerns:** User harms due to the addictive nature of these games, especially in terms of financial losses incurred by adult users due to such addiction.
- **Content-related concerns:** It raises concerns due to depiction of violent or inappropriate content, also there is an absence of concrete measures to prevent children from accessing such content.

- **Advertisements:** Ads of offshore gambling and betting websites targeting Indian users through these apps is a matter of concern.
- **Absence of KYC Mechanism:** Lack of safeguards to secure users' money and money laundering-related concerns in the absence of any strict KYC mechanism.

Online Gaming vs Online Gambling

- There is a very thin line between online gaming and online gambling. Multiplayer gaming is a fun and leisure activity however, gambling is betting money against each other and involves a monetary transaction between players.
- Most of the online games are free and do not require any money to play whereas online gambling requires users to bet (pay) first and then play the game.
- Online gaming requires knowledge and skills to play, whereas gambling mostly relies on luck and probability.

Is Online Gambling Legal in India?

- Gambling is regulated by the **Public Gambling Act of 1867**, which prohibits running or being in charge of a public gambling house.
 - However, since this was a law passed at a time when the Internet has yet to exist, **it doesn't explicitly mention online betting or gambling.**
- Gambling laws in India are confusing. This is because of the **unclear distinction between 'games of skills' and 'games of chance'**.
- **Betting on games of chance is illegal** whereas betting on games of skill is legal. It's tricky to determine whether a game falls under a chance or skill categories.
 - When the **outcome of the game** is predominantly **determined by skill**, then it is a game of skill, while when the **outcome is decided predominantly by chance**, it is a game of chance.

Regulation of Online Gambling

- To address such concerns effectively through legal means, the MeitY has introduced amendments to the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021.
 - **Verification of Online Games:** Intermediaries have been obligated to not host, publish or share any online game that can harm users, and has not been verified by a self-regulatory body designated by the Central Government. Promotion and advertising such games has also been barred.
 - **Safeguards ensured by the Self-regulatory body:** It will have the authority to inquire and satisfy itself that the online game does not involve any risky outcome and the game complies with the rules and the framework regarding safeguards against user harm.
 - **Games involving real money:** Display of verification mark by the self-regulatory body on such games; informing their users of the policy for withdrawal or refund of deposit, manner of determination and distribution

of winnings, fees and other charges payable; obtaining the KYC details of the users; and not giving credit or enabling financing by third parties to the users.

- **Structure of regulating authority:** The Government may notify multiple self-regulatory bodies, which shall be representative of the online gaming industry but it will function at arm's length from their members, and a Board consisting of Directors who are free from conflict of interest and represent all relevant stakeholders and experts.
- **Fake Information:** Obligation on the intermediaries to not to publish, share or host fake, false or misleading information identified by the notified Fact Check Unit of the Central Government in respect of any business of the Central Government.

Conclusion

- Gambling Apps are like Multi-Layered-Marketing. It promises people with little income to make easy and quick money. However, in most cases, they turn out to be scams.
- The government must ensure that people's money is not looted for profits.
- The responsibility also lies with the people because they should do a background check on the gambling apps. They need to see whether the apps are safe and legal.

Source: [TH](#)

Facts In News

Extension of Pradhan Mantri Garib Kalyan Anna Yojana

In News

Prime Minister Narendra Modi said that Pradhan Mantri Garib Kalyan Anna Yojana will be extended for five more years:

About Pradhan Mantri Garib Kalyan Anna Yojana

- It was introduced in 2020 as a pandemic relief measure, providing 5 kg of free food grains per beneficiary per month in addition to the 5 kg of subsidised food grain they were entitled to under the National Food Security Act.
- PM-GKAY is the world's largest food security scheme¹ launched by the Government of India to combat COVID-induced economic disruptions
- All beneficiaries of the targeted public distribution system (TPDS) for Antyodaya Anna Yojana (AAY) and priority household (PHH) ration cardholders are eligible for food grains under this scheme.

- In December 2022, as PMGKAY came to an end after multiple extensions, the Union Cabinet decided to make NFSA rations free for one year.
 - That will now be extended further.

Source:[TH](#)

The Lokpal of India

Syllabus :GS 2/Polity and Governance

In News

The Lokpal of India has ruled that it does not have the jurisdiction to entertain a plea filed by the wife of a government official in Uttar Pradesh who died by suicide

About The Lokpal of India

- The Lokpal is the first institution of its kind in independent India, established under the Lokpal and Lokayuktas Act 2013 to inquire and investigate allegations of corruption against public functionaries who fall within the scope and ambit of the above Act.
- The Lokpal consists of a Chairperson and eight Members out of whom 50% are Judicial Members.
 - A complaint under the Lokpal Act should be in the prescribed form and must pertain to an offence under the Prevention of Corruption Act, 1988 against a public servant. There is no restriction on who can make such a complaint.
- **jurisdiction :** The Lokpal has jurisdiction to inquire into allegations of corruption against anyone who is or has been Prime Minister, or a Minister in the Union government, or a Member of Parliament, as well as officials of the Union Government under Groups A, B, C and D.
 - Also covered are chairpersons, members, officers and directors of any board, corporation, society, trust or autonomous body either established by an Act of Parliament or wholly or partly funded by the Union or State government. It also covers any society or trust or body that receives foreign contributions above ₹10 lakh (approx. US\$ 14,300/- as of 2019).
- **Power :** The Lokpal is vested with the power of search and seizure and also powers under the Civil Procedure Code for the purpose of conducting preliminary inquiry & investigation and power of attachment of assets and taking other steps for eradication of corruption.
 - Lokpal will have power of superintendence and direction over any central investigation agency including CBI for cases referred to them by the Lokpal.
- **Status :** According to the data provided by the Lokpal office to the panel on Department of Personnel and Training (DoPT), since 2019-20, the

anti-corruption body received 8,703 complaints out of which 5,981 complaints were disposed of.

Do you know ?

- India is a signatory to the United Nations Convention against Corruption. The commitment of the Government to provide clean and responsive governance is reflected in passing of the legislation and creation of the body of Lokpal, to contain and punish acts of corruption.

Source: [TH](#)

Traffic Collision Avoidance Systems (TCAS):Kavach

Syllabus :GS 3/S&T

In News

East Coast Railway officials indicated that the indigenously developed **TCAS called 'Kavach,'** was not installed on the route where the Visakhapatnam-Palasa and Visakhapatnam-Rayagada trains collided.

What is TCAS - Kavach?

- Kavach is a cab signalling train control system with anti-collision features.
- Simply put, it plays the role of a watchdog over the existing signalling system.
- It was developed over a period of 10 years, starting in 2012, by the Indian Railways **Research Designs and Standards Organisation (RDSO).**
- Kavach is designed to give out warnings to the loco pilot in case he does not notice the 'red signal,' and instead of stopping, is going to overshoot the signal.
- After giving warnings on the locopilot's display, if the pilot does not slow down below 15 kilometres per hour, the Kavach system automatically applies brakes to bring the train to a halt.
- **Components:** In the Kavach set-up, the railway stations along the route where this tech is sanctioned to be deployed are provided with three components.
 - **Radio Frequency Identification (RFID)** technology in the tracks. RFID tech uses radio waves to identify people or objects.
 - It uses electromagnetic fields to automatically identify and read information contained in a wireless device from a distance without making physical contact or requiring a line of sight.
 - **The locomotive,** which is the driver's cabin, is provided with RFID readers, computer, and brake interface equipment.
 - **Radio infrastructure** which are towers and modems are installed at railway stations.

- **Functioning** : The three components of Kavach on rail tracks, locomotives and at railway stations are communicating with each other to monitor train movements, and transmit signals ahead to locomotives. Their function is not affected by visual interferences like hilly geography or haze.
 - There is direct loco-to-loco communication and information regarding location and track IDs are exchanged, in case it is noted that both trains are on the same line. The locomotives have antennas which communicate with towers on railway stations and display warnings to the driver on his monitor.
- **Present Status** : Deploying Kavach costs ₹50 lakh per kilometre for the Indian Railways.
 - Current Kavach coverage includes the 1,400 km stretch in South Central Railway and 200 to 250 km routes from Delhi to Mumbai and Delhi to Kolkata where it is still under testing in patches, installed in 100 kms here and there, not in continuous sections and not operational.

Source:[TH](#)

Aggrieved person under Domestic Violence Act, 2005.

Syllabus :GS 2/Governance /Social Issues

In News

The Supreme Court agreed to examine the question of whether a trans gender woman who underwent a sex-reassignment surgery may be called an “aggrieved person” within the meaning of Section 2(a) of the Domestic Violence Act, 2005.

the process for a transgender person to change their gender

- The 2019 Act allows for the recognition of the identity of transgender persons. It says, “A transgender person shall have a right to be recognised as such, in accordance with the provisions of this Act,” adding that transgenders shall also have a “right to self-perceived gender identity”.
- Section 5 of the Act also allows transgenders to file applications before the District Magistrate for issuing a “certificate of identity” as a transgender person, accompanied by documents, in the form and manner prescribed.

Who is an “aggrieved person”?

- Section 2(a) of the Domestic Violence Act, 2005 defines an “aggrieved person” as “any woman who is, or has been, in a domestic relationship with the respondent and who alleges to have been subjected to any act of domestic violence by the respondent”.

- A “domestic relationship” under Section 2(f) of the Act means a relationship between two persons who live or have, at any point of time, lived together in a shared household when they are related by “consanguinity, marriage, or through a relationship in the nature of marriage, adoption or are family members living together as a joint family.”

Domestic Violence Act, 2005.

- The 2005 Act was passed with the objective of providing for “more effective protection of the rights of women guaranteed under the Constitution”.
- The Act has provisions for monetary relief which can be paid to an aggrieved person by the respondent, upon the Magistrate’s order, “to meet the expenses incurred and the losses suffered by the aggrieved person as a result of the domestic violence.

Source:[IE](#)

Monkeypox virus is Evolving

Syllabus :GS 2/Health

In News

A new analysis shows that the monkeypox, or mpox, virus is rapidly diverging into several lineages characterized by mutations resulting from continued interaction with the human immune system, suggesting that the virus has been circulating in humans since 2016.

Monkeypox

- Mpox (monkeypox) is a viral illness caused by the monkeypox virus, a species of the genus Orthopoxvirus.
- It can cause a painful rash, enlarged lymph nodes and fever.
- It is caused by the monkeypox virus (commonly abbreviated as MPXV), an enveloped double-stranded DNA virus of the Orthopoxvirus genus in the Poxviridae family, which includes variola, cowpox, vaccinia and other viruses.
 - The two genetic clades of the virus are clades I and II.
- **Discovery :** The monkeypox virus was discovered in Denmark (1958) in monkeys kept for research and the first reported human case of mpox was a nine-month-old boy in the Democratic Republic of the Congo (DRC, 1970).
 - Mpox can spread from person to person or occasionally from animals to people.
- **Transmission:** Person-to-person transmission of mpox can occur through direct contact with infectious skin or other lesions such as in the mouth or on genitals

- **Treatment and vaccination:** The goal of treating mpox is to take care of the rash, manage pain and prevent complications. Early and supportive care is important to help manage symptoms and avoid further problems.
- **WHO response:** The global outbreak of mpox was declared a public health emergency of international concern (PHEIC) on 23 of July 2022. WHO published a strategic preparedness and response plan for mpox and a suite of technical guidance documents

Source:[TH](#)

2nd World Local Production Forum

Syllabus :GS 2/Health

In News

The World Local Production Forum (WLPF) being held in The Hague, the Netherlands,

World Local Production Forum

- It is a regular global platform that encourages discussions and partnerships aimed at strengthening sustainable, quality, eco-friendly local production and technology transfer.
- It is a platform created at the initiative of WHO with the aim of increasing access to medicines and other health technologies.
- It provides Member States and the global community with a regular platform to shape strategies, galvanize collective action, and foster partnerships on sustainable local production to improve timely and equitable access to quality assured health products.
 - The Local Production and Assistance (LPA) Unit at the WLPF Secretariat is closely working with the Kingdom of the Netherlands as the hosting country to organize this Forum.

Source:[PIB](#)

Common Research and Technology Development Hubs (CRTDHs)”

Syllabus :GS3/S&T

In News

DSIR-Common Research and Technology Development Hubs (CRTDHs)

Conclave-2023 Inaugurated at Indian Institute of Technology, Gandhinagar

About CRTDHs

- Department of Scientific and Industrial Research (DSIR) has been implementing a program known as “**Common Research and Technology Development Hubs (CRTDHs)**”
- It aims to **encourage Micro, Small, and Medium Enterprises (MSMEs)** for conducting industrial R&D/innovation activities and strengthening R&D infrastructure in Public Funded Research Institutions (PFRIs).
- It recognizes the importance of MSMEs in the overall economy of India and therefore focuses on the creation of R&D infrastructure in driving scientific advancements, technological innovations and socio-economic development.
- initiated in the year **2014-15**, has now entered the 10th year of successful implementation with 18 CRTDHs across the country.
- These CRTDHs have notable achievements along with success stories of some of the stakeholders associated with them which are truly forwarding the vision of “Atma Nirbhar Bharat” and strengthening the momentum for “Vocal for Local”.

Source: [PIB](#)

Dayapar Wind project

Syllabus :GS 3/Environment

In News

NTPC Renewable Energy Limited has declared the commercial operation of Dayapar Wind project .

About Dayapar Wind project

- It is a 50 MW wind project at Dayapar in Kachch, Gujarat
- Dayapar Wind is the first project of NTPC REL and the first capacity in India to be declared commercial under new Indian Electricity Grid Code and General Network Access Regime.
 - With this, the total installed capacity of NTPC Group has become 73,874 MW and the total RE operational capacity of NTPC Group now stands at 3,364 MW.

NTPC Green Energy Ltd. (NGEL)

- NTPC Green Energy Ltd. (NGEL), another wholly owned subsidiary of NTPC, has commissioned RE capacity of 2,711 MW and is setting up two solar projects, namely a 40 MW Solar project at Ayodhya in Uttar Pradesh and a Hydrogen Hub at Pudimadaka in Andhra Pradesh.
- NTPC REL was incorporated as a wholly owned subsidiary of NTPC on 7th October, 2020, to accelerate RE capacity addition of NTPC.
- In addition to solar and wind capacity, NTPC REL is also investing in Green Hydrogen technologies. Based on green hydrogen storage and microgrid principle, it is setting up a large capacity in Ladakh.

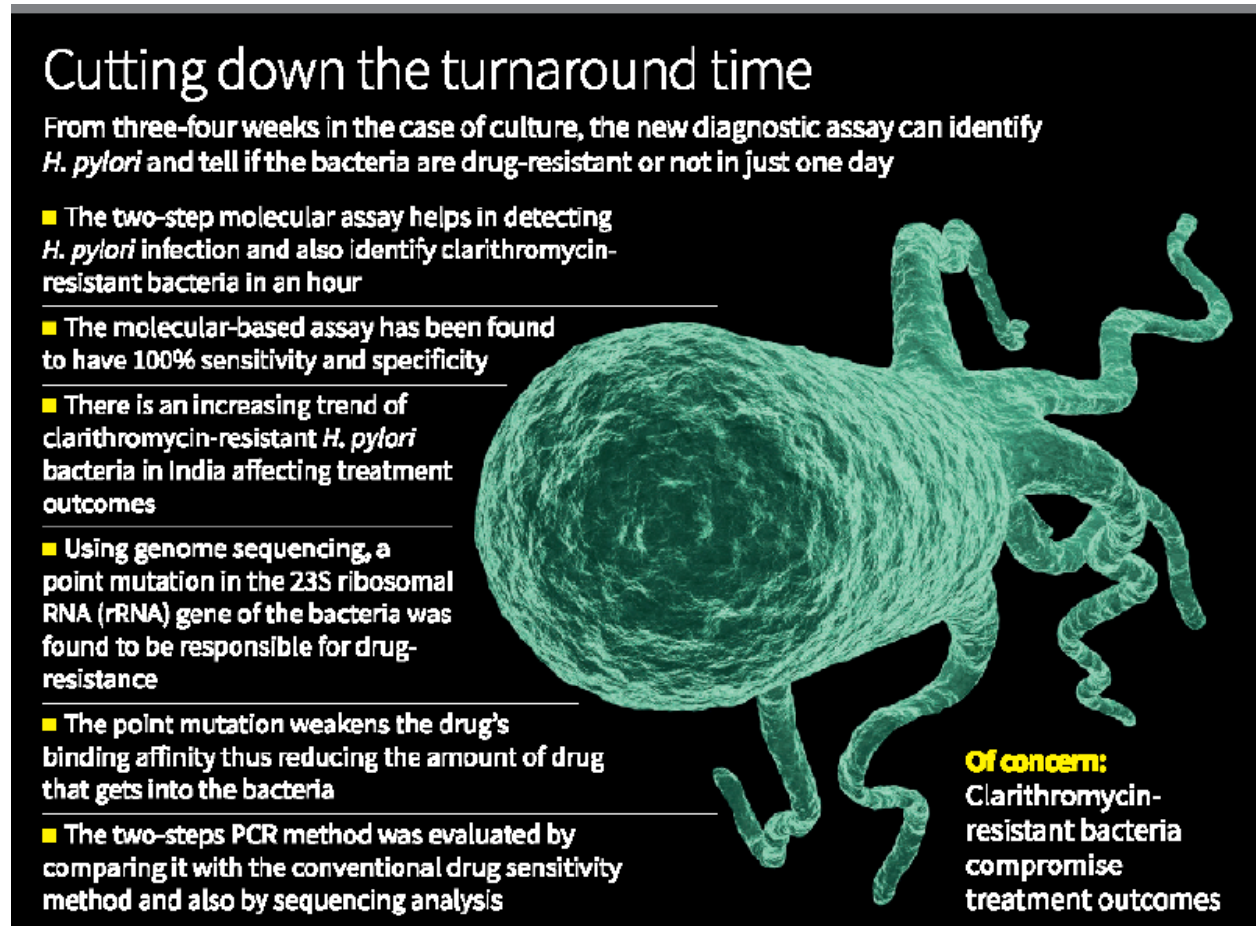
Source: [PIB](#)

Helicobacter pylori (H. pylori)

Syllabus :GS 3/S&T

In News

National Institute of Cholera and Enteric Diseases (ICMR-NICED), Kolkata makes quick detection of drug-resistant *H. pylori* possible.



Cutting down the turnaround time

From three-four weeks in the case of culture, the new diagnostic assay can identify *H. pylori* and tell if the bacteria are drug-resistant or not in just one day

- The two-step molecular assay helps in detecting *H. pylori* infection and also identify clarithromycin-resistant bacteria in an hour
- The molecular-based assay has been found to have 100% sensitivity and specificity
- There is an increasing trend of clarithromycin-resistant *H. pylori* bacteria in India affecting treatment outcomes
- Using genome sequencing, a point mutation in the 23S ribosomal RNA (rRNA) gene of the bacteria was found to be responsible for drug-resistance
- The point mutation weakens the drug's binding affinity thus reducing the amount of drug that gets into the bacteria
- The two-steps PCR method was evaluated by comparing it with the conventional drug sensitivity method and also by sequencing analysis

Of concern: Clarithromycin-resistant bacteria compromise treatment outcomes

About Helicobacter pylori (H. pylori)

- It is a gram-negative spiral-shaped bacterium that can infect humans.
- It is often found in the stomach of affected individuals and causes inflammation and ulceration.
- It is the most important cause for chronic or atrophic gastritis, peptic ulcer, gastric lymphoma, and gastric carcinoma;
- It is usually acquired in early childhood and persists in the absence of treatment.
- **Transmission** of *H. pylori* can occur via the faecal-oral, gastric-oral, oral-oral, or sexual routes.

- **Risk factors:** Most of the infections caused by the bacterium *H. pylori* are asymptomatic, 10–15% of them develop peptic ulcer disorders or stomach cancer.
 - In India, *H. pylori* infections affect 60-70% of the population. *H. pylori* infection is often acquired during childhood and remains in the stomach throughout life if not treated with antibiotics effectively.

Source: [TH](#)

Wolbachia

Syllabus: GS2/Health

In News

- Scientists are studying the **right strain of Wolbachia** for rapidly spread in a particular mosquito population so that the **bacteria can suppress malaria transmission.**

About

- Wolbachia is a **genus of bacteria** and only lives inside host cells, but not in the environment.
- Wolbachia was first discovered in the reproductive tissues of **mosquitoes *Culex pipiens*** by **Hertig and Wolbach in 1924** and the species was later named ***Wolbachia pipientis*.**
- Many mosquitoes, including some of the major disease-transmitting species, carry Wolbachia naturally.
- Release of Wolbachia mosquitoes poses negligible risk to humans and the environment.

How does the Wolbachia Method works?

- When mosquitoes carry Wolbachia, the **bacteria compete with viruses** like dengue, Zika, chikungunya and yellow fever.
- This makes it **harder for viruses to reproduce** inside the mosquitoes. And the mosquitoes are much less likely to spread viruses from person to person.
- Wolbachia can also **reduce the rate** at which chikungunya and yellow fever viruses multiply in infected mosquitoes.
- Scientists have also found that some Wolbachia species can strongly protect some mosquito species against the malaria parasite.

Source: [TH](#)