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# Daily News Discussion (DND)

2nd April 2021

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# 1. Science & Technology

## 1.1. Covaxin for those who got Placebo

- Recently Subject Expert Committee (SEC) permitted Bharat Biotech to unblind all participants of age group of more than 45 years and offer to administer the vaccine free of cost as and when they become eligible for the vaccine in the national programme.
- The Committee recommended that the company unblind the participants as vaccines including Covaxin are already available under the immunisation programme, and therefore all the eligible age groups under the immunisation programme should be permitted for unblinding for vaccination

### Blinding & Unblinding

- Blinding is used in the design of some clinical trials and other research studies to try to eliminate the bias of expectation influencing the research findings.
- Unblinding, sometimes referred to as code-break, is the process by which the treatment/allocation details are made available either purposefully (i.e according to the code-break procedures) or accidentally.

### Covaxin

- Developed by Bharat Biotech, Hyderabad in collaboration with the Indian Council of Medical Research's National Institute of Virology, Pune
- It is an inactivated vaccine which is developed by inactivating (killing) the live microorganisms that cause the disease.

### Covishield

- Developed by the University of Oxford in collaboration with Swedish- British drugmaker AstraZeneca.
- Serum Institute of India (SII) is the manufacturing partner in India.
- It is based on a weakened version of a common cold virus or the adenovirus that is found in chimpanzees.

## 1.2. Microsurgery

- The SRM Institute for Medical Science, Vadapalani, performed a liver transplant under an operating microscope.
- The microsurgical method reduces post-surgical complications to a large extent and ensures better outcomes for the patient

### Microsurgery

- Microsurgery is a surgical discipline that combines magnification with advanced diplosopes, specialized precision tools and various operating techniques.

## Purpose

- Two of the main purposes of microsurgery are to transplant tissue from one part of the body to another and to reattach amputated parts.

## Microscope use

- It is incorrect to state that microsurgery is simply a general term for surgery requiring an operating microscope
- Yes, microsurgeons use microscopes, but that is a small part of what the specialty addresses. In fact, microsurgery encompasses much, much more than this simple definition.
- The procedures themselves are a mixture of surgical science and art and take many years of training to become proficient.

## Application

- Reattach amputated body parts (replantation)
- Transplant tissue from one part of the body to another (microvascular transplantation)
- Repair nerves
- Repair blood vessels
- Manage complex soft tissue and bone infections

## Benefits

- The microsurgery technique has more advantages as the incisions are small, resulting in less haemorrhage. The handling of tissue was minimised, beside offering closer wound approximation.
- The surgeries done using microscopes magnify the object under study from about 20 to 30 times and the approximation of tissues is more accurate as thinner suture materials are used.
- The technique helps in reduction of tissue reactions, which in turn prevent blockage of tissues (thrombus formation) and narrowing (stricture) of the bile ducts in the long term

## 2. Geography

### 2.1. Tropical cyclone & Climate change

- The intensity of cyclones, hurricanes and typhoons might increase in the next century due to global warming, a new joint British-American study has said.
- Key points
- There could be a five per cent increase in maximum cyclonic wind speeds if the world warmed by two degree Celsius by 2100.
- Rising sea water levels will likely intensify the destructive impact of the cyclonic storms due to increased storm surges which inundate coastal areas during an ongoing storm, bringing in sea-water that decreases soil fertility and corrodes buildings.
- To add to the misery, the amount of rainfall carried by the storms might also increase by an average of 14 per cent due to the warming-fuelled increase in moisture in the atmosphere which can cause more intense floods.

#### Speed

- Hurricane Dorian – a Category 5 storm – in September 2019 had drowned the Bahamas islands as it moved at a slow pace.
- Slow moving storms generally carry more rainfall.
- Typically, a cyclone moving at around eight km per hr can cause up to 760 millimetres (mm) of rainfall. For a long period in its path, Dorian had moved at around 1.5 km per hr.

#### Intensification

- There are other impacts of warming on tropical cyclones such as rapid intensification which could make them unpredictable and difficult to monitor.
- Rapid intensification happens when there is an increase of maximum sustained winds of a cyclone by at least 55 kilometres per hour within 24 hours.
- In 2020, Cyclone Amphan displayed rapid intensification when it developed from a cyclone (wind speeds of 70-80 km per hr) to a super cyclone (wind speeds in excess of 220 km per hr) in about 40 hours.

#### Polar region

- Stronger storms might occur in areas closer to the North and South Poles which means that seas in these regions are becoming warmer.
- Countries which had never felt the impacts of cyclones might start witnessing them.

#### Arabian sea

- The chances of cyclonic disturbances on the sea surface, known as low pressure areas, transforming into cyclones have increased in the Arabian Sea
- The research analysed data from 1951-2010. This has happened because of a decrease in vertical wind shear, which are localised winds around a cyclone in the vertical direction, in the Arabian Sea.

- When they are strong, they usually destabilise a cyclone and make it less intense. In 2019, five out of the eight cyclones that impacted India formed in the Arabian Sea. The average number of annual cyclones in the Arabian Sea is one.

## Bay of Bengal

- In the Bay of Bengal, the paper said the number of cyclones growing to become severe cyclones had increased. This had happened because of low level cyclonic vorticity which intensified cyclones.
- The India Meteorological Department (IMD) has launched a dynamic, impact-based cyclone warning system aimed at minimising economic losses and damage to property from cyclones that hit the country's coasts every year
  - ✓ Under this, district or location will issue specific warnings which will factor in the infrastructure, local population, settlements, land use as well as other elements will be disseminated and prepared.
  - ✓ All the disaster management agencies will also make the extensive use of geological, cartographic and hydrological data available for the concerned district.
  - ✓ If a district is to be hit by a wind up to 160 kmph, the system will warn about the kind of infrastructure that will likely get damaged and these can be mapped

## IMD

- It was established in 1875.
- It is an agency of the Ministry of Earth Sciences.
- It is the principal agency responsible for meteorological observations, weather forecasting and seismology.

## Tropical cyclones

- are developed in the regions between the Tropics of Capricorn and Cancer.
- They are caused by atmospheric disturbances around a low-pressure area distinguished by swift and often destructive air circulation.

## Condition

- It requires warm ocean waters of at least 26.5°C [80°F]) throughout a sufficient depth, at least on the order of 50 m which is necessary to fuel the heat engine of the tropical cyclone.
- They need to form at least five degrees of latitude away from the equator because Coriolis force that is required for cyclones rotation is absent at equators.
- During a tropical cyclone, the Coriolis force deflects winds blowing towards the low-pressure center of the storm and creates circulation.

## Low wind shear

- Wind shear is the change in wind speed or direction with height in the atmosphere.
- High wind shear will slow spinning cyclones down and prevent them from lasting a long time.
- In this case, the storm can become very lopsided or tilted in the vertical and begin to unwind as dry air is drawn in and/or the flow of warm, moist air into the entire storm is disrupted

- High relative humidity in the atmosphere up to a height of about 5,000 metres is required.
- Atmospheric instability that encourages the formation of massive vertical cumulus clouds due to condensation of rising moist air.

## Eye

- The eye is a region of mostly calm weather found at the centre of strong tropical cyclones.
- The eye of a storm is usually circular and typically 25–40 miles (40–65 km) in diameter.
- It is surrounded by the eye-wall, where the most severe weather of a cyclone occurs.
- The cyclone's lowest barometric pressure occurs in the eye, and can be as much as 15% lower than the atmospheric pressure outside of the storm



## Strong tropical cyclones

- In strong tropical cyclones, the eye is characterised by light winds and clear skies, surrounded on all sides by a towering, symmetric eyewall.

## Weak tropical cyclone

- In weaker tropical cyclones, the eye is less well-defined, and can be covered by the central dense overcast, which is an area of high, thick clouds which show up brightly on satellite pictures.
- Weaker or disorganized storms may also feature an eyewall which does not completely encircle the eye, or have an eye which features heavy rain.
- In all storms, however, the eye is the location of the storm's minimum barometric pressure: the area where the atmospheric pressure at sea level is the lowest.

## Bay of Bengal highly prone to cyclones

### High surface temperature

- Receives higher rainfall and constant inflow of fresh water from the Ganga and Brahmaputra rivers making it impossible for the warm water to mix with the cooler water below, making it ideal for a depression

### Topography

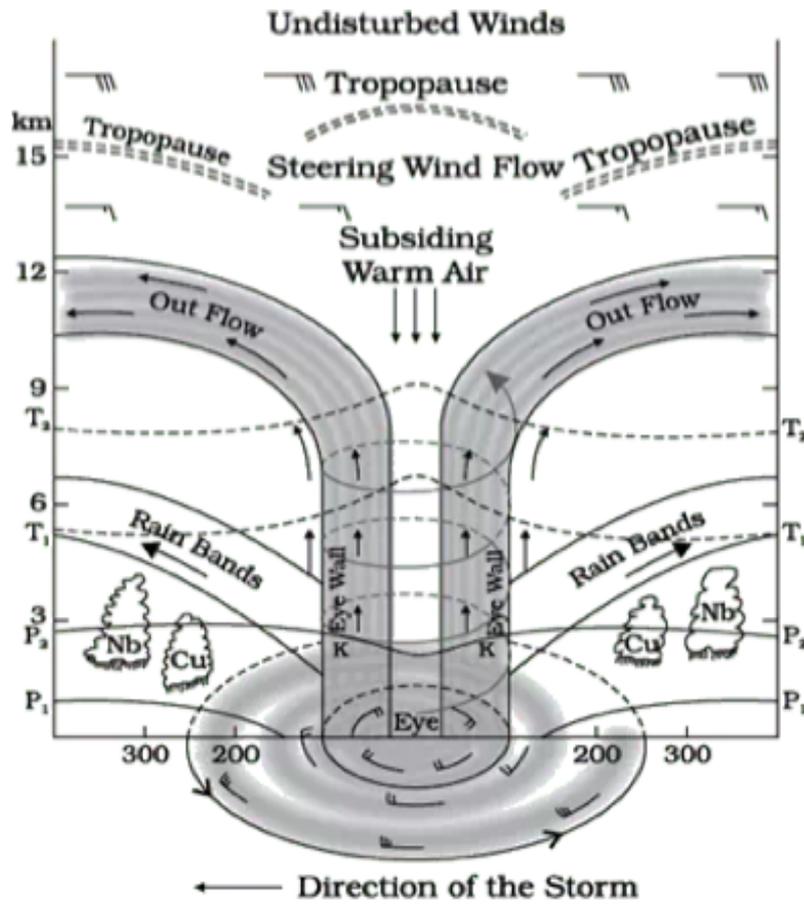
- Low topography of eastern region in comparison to Western areas with Ghats of high elevation

### Pacific region

- Typhoons originating in Pacific ocean enter the Andaman Sea of Bay of Bengal after they weaken in their native regions

### Arabian sea

- Most of the cyclones in the Arabian Sea are local. They collapse a little after making landfall as there is no back-up supply



**Fig: Vertical section of the tropical cyclone**

**India Meteorological Department  
Tropical Cyclone Intensity Scale**

Category	Sustained winds (3-min average)
Super Cyclonic Storm	≥120 kt ≥221 km/h
Extremely Severe Cyclonic Storm	90–119 kt 166–220 km/h
Very Severe Cyclonic Storm	64–89 kt 118–165 km/h
Severe Cyclonic Storm	48–63 kt 89–117 km/h
Cyclonic Storm	34–47 kt 63–88 km/h
Deep Depression	28–33 kt 51–62 km/h
Depression	17–27 kt 31–50 km/h

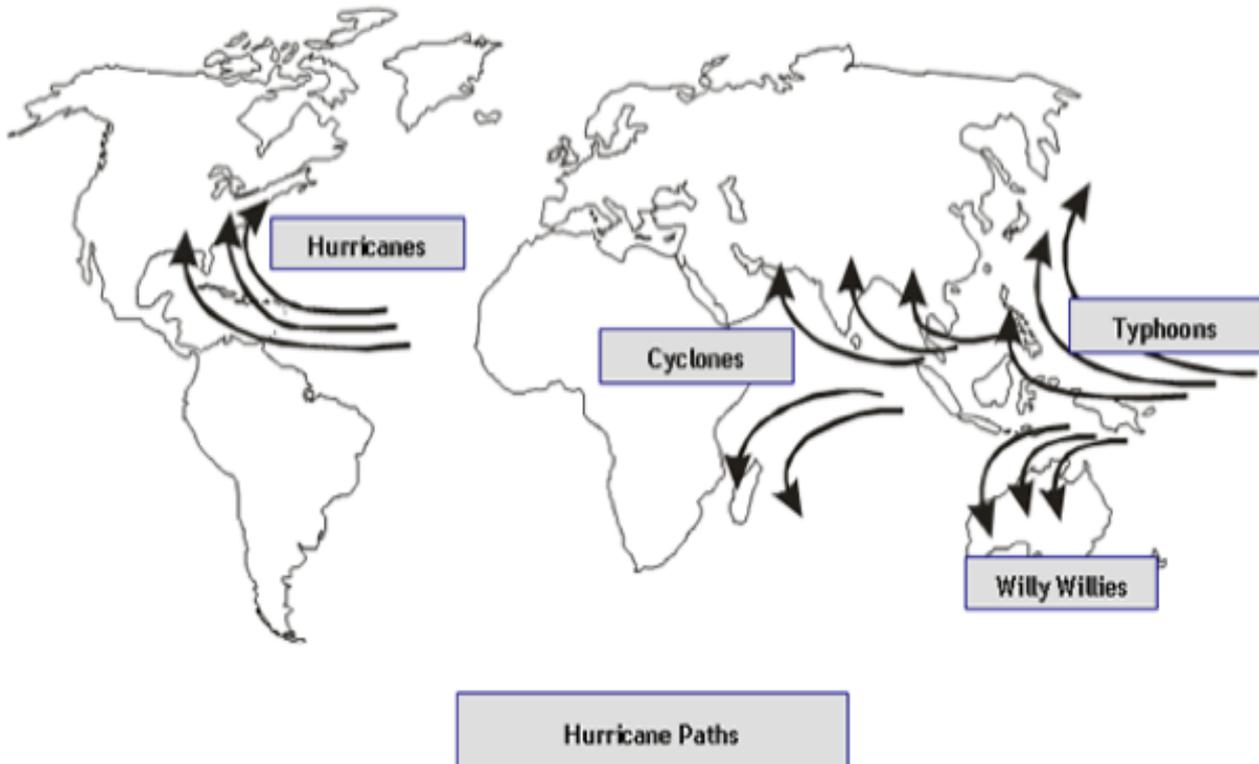




Fig: Cyclone prone areas in India.

## 3. Economy

### 3.1. Monetary policy

- The central bank has supported maintaining the existing inflation target of 4% within a band of 2 percentage points
- The inflation mandate requires RBI to keep inflation at 4%, with a 2 percentage point leeway on either side.
- The current numerical framework for defining price stability, i.e., an inflation target of 4% with a +/-2 per cent tolerance band, is appropriate for the next five years,

#### Monetary policy

- refers to the actions undertaken by a nation's central bank to control money supply and achieve macroeconomic goals that promote sustainable economic growth.

#### Fiscal policy

- refers to the use of government spending and tax policies to influence economic conditions, especially macroeconomic conditions, including aggregate demand for goods and services, employment, inflation, and economic growth.
- The major four objectives of the Monetary Policy
  - ✓ To stabilize the business cycle.
  - ✓ To provide reasonable price stability.
  - ✓ To provide faster economic growth.
  - ✓ Exchange Rate Stability
- The Monetary Policy Committee
  - ✓ Urjit Patel in 2014 recommended the establishment of the Monetary Policy Committee.
  - ✓ Statutory and institutionalized framework under the Reserve Bank of India Act, 1934

#### Composition

- committee comprises six members (including the Chairman) - three officials of the RBI and three external members nominated by the Government of India.

#### RBI

- The Governor of RBI is ex-officio Chairman of the committee.
- Deputy governor
- One person nominated by RBI Central board
- Tenure- As per their ex office job

#### Government

- Selected by Search-cum Selection Committee headed by Cabinet Secretary (IAS)

- Tenure- 4 yrs, no reappointment

### **Decisions**

- Decisions are taken by majority with the Governor having the casting vote in case of a tie.

### **Quorum**

- 4 members, incl. Governor.

### **Meetings**

- Legally minimum four meetings a year. In practice, they meet every two months to decide bi-monthly monetary policy updates.
- If inflation not kept in this 2-6% zone for 3 consecutive quarters (9 months) then Committee must send report to Govt with reasons and remedies.

## 4. Polity

### 4.1. Global gender gap report

- India has fallen 28 places in the World Economic Forum's Global Gender Gap Report 2021, and is now one of the worst performers in South Asia, trailing behind neighbours Bangladesh, Nepal, Bhutan, Sri Lanka and Myanmar -- it is now ranked 140 among 156 countries.

#### ● About Four dimensions

- Economic Participation and Opportunity,
- Educational Attainment,
- Health and Survival and
- Political Empowerment.

#### India's performance

- India had ranked 112th among 153 countries in the Global Gender Gap Index 2020
- India is now one of the worst performers in South Asia, it is now ranked 140 among 156 countries
- South Asia
  - ✓ Bangladesh ranked 65, Nepal 106, Pakistan 153, Afghanistan 156, Bhutan 130 and Sri Lanka 116.

#### Economic Participation: (Widen by 3%)

- Women share in senior and managerial positions also is at 14.6% and only 8.9% firms in the country have top female managers.
- The share of women in professional and technical roles declined further to 29.2%. • Income earned by women in India is only one-fifth of men's, which puts the country among the bottom 10 globally on this indicator.

#### Education Attainment

- In the index of education attainment, India has been ranked at 114.

#### Health and Survival index

- Worst performance, ranking at 155.

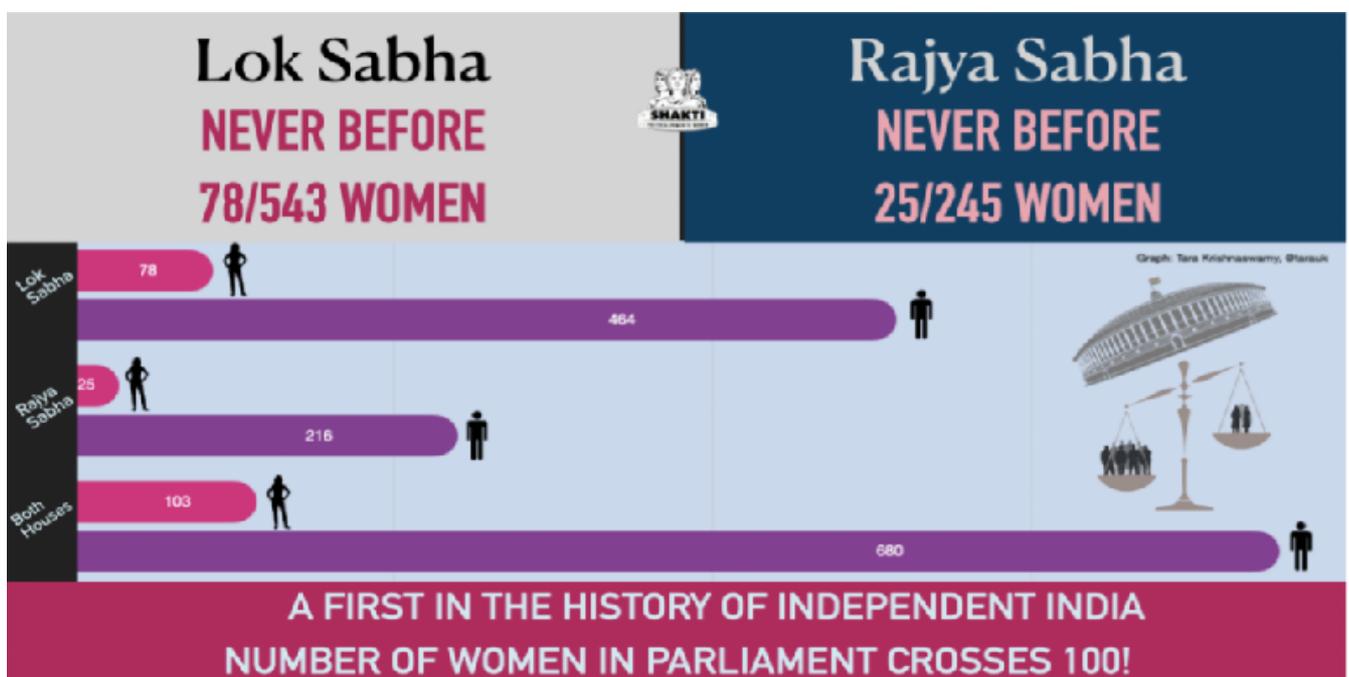
#### Political Empowerment

- Declined by 13.5 percentage points, and a decline in the number of women ministers, from 23.1% in 2019 to 9.1% in 2021.
- Ranked at 51 in women's participation in politics.

#### World Economic Forum

- Established in 1971 as a not-for-profit foundation and is headquartered in Geneva, Switzerland
- International Organization for Public-Private Cooperation.

- Put efforts to demonstrate entrepreneurship in the global public interest while upholding the highest standards of governance.
- Other reports published by WEF
  - ✓ Energy Transition Index
  - ✓ Global Competitiveness Report.
  - ✓ Global Gender Gap Report.
  - ✓ Global Travel and Tourism Report
  - ✓ Global IT Report
  - ✓ Global Risk Report



## 4.2. Curbs on Indian media continue

- In its 2020 Human Rights Report, the U.S. State Department said the harassment and detention of journalists critical of the (Indian) government in their reporting and on social media, has continued, although the government generally respected the freedom of expression

### Key points

- Misuse of UAPA for unreasonable detention

### Jammu & Kashmir

- Detention of politicians under the Jammu & Kashmir's Public Safety Act 1978 was also mentioned.
- The government partially restored internet access, however, high-speed 4G mobile internet remained restricted in most parts of Jammu & Kashmir for the year 2020.

### Private Data access

- The government made 49,382 user data requests in 2019 from Facebook, a 32% increase from 2018.

- Over the same period, Google requests increased by 69%, while Twitter requests saw a 68% increase.

### **Harassment of Journalists**

- The harassment and detention of journalists critical of the (Indian) government in their reporting and on social media, has continued
- It mentioned restrictions on the press, including violence, threats of violence, or unjustified arrests or prosecutions against journalists.

### **Religious Freedom**

- Tolerance of violations of religious freedom; crimes involving violence and discrimination targeting members of minority groups including women based on religious affiliation or social status.

### **United States Trade Representative (USTR) has released its Annual Special 301 Report.**

- Published pursuant to Section 301 of the Trade Act of 1974.
- The report contains a “Priority Watch List” and a “Watch List”, containing countries whose intellectual property regimes are deemed of concern.
- India continues to be on the ‘Priority Watch List’ for lack of adequate intellectual property (IP) rights protection and enforcement.
- US It has urged India to join the Singapore Treaty on the Law of Trademarks, a treaty that harmonises trademark registration.
- Singapore Treaty on the Law of Trademarks
  - ✓ The objective of the Singapore Treaty is to create a modern and dynamic international framework for the harmonization of administrative trademark registration procedures

## Current affairs Worksheet (2nd April 2021)

Factual sheet for Quick revision

Topic	Description	Update
Sc n tech	<b>Covaxin Vs Covishield</b>  <b>Blinding Vs Unblinding</b>  <b>Microsurgery Application</b>	
Geog	<b>Tropical cyclone-cond', Naming, BOB Vs Arabian sea etc</b>	
Econom y	<b>Monetary policy committee Vs GST Council</b>	
Reports	<b>Global gender gap report</b>  <b>Special 301 Report</b>  <b>Human Rights Report</b>	