

# 12 Jan 2020: Comprehensive News Analysis

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*Nothing here for today!!!*

## B. GS 2 Related

**Category: POLITY AND GOVERNANCE**

### **1. Transgender Persons Act comes into effect**

**Context:**

The Social Justice Ministry notified the **Transgender Persons (Protection of Rights) Act, 2019**.

**Details:**

- The Transgender Persons (Protection of Rights) Bill, 2019 was passed by Parliament in November 2019 and subsequently received Presidential assent.

#### Significance:

- The Act aims to **end discrimination against transgender persons in accessing education, employment and healthcare.**

#### Provisions:

- The act also recognizes the **right to self-perceived gender identity and provides for certification from a district magistrate** which could be used for availing welfare schemes of the government. This would be the **gender certificate**.
- In cases of a transgender person having undergone **gender-change surgery**, the law says they can obtain a **certificate from the medical facility**. This can be used for applying for changes in the certificates.

#### Concerns:

- Many in the transgender community have **raised concerns about the requirement of a certificate from the district magistrate.**
- There is **lack of knowledge** about the transgender identity certificate under the Act. Given the **lack of awareness and sensitization** among the government officials, some of the transgender are finding it difficult to get the certification.

#### Counter Argument:

- **Certification is needed to prevent misuse of welfare measures meant exclusively for the transgender.** Given the fact that Transgender people are deeply deprived, any leakage of benefits meant for them would render the scheme ineffective for the community.

#### Way forward:

- There is the need for **greater sensitization among the common people and the government officials** regarding the transgender community.

For more information on this topic: [Click Here](#)

## 2. 34 lakh OCI cards issued: Centre

#### Context:

The Union Home Ministry's reply to a Right to Information (RTI) application.

#### Details:

The Home Ministry has said that **more than 34 lakh Overseas Citizen of India (OCI) registrations had been done between January 1, 2000, and November 26, 2019.** It has however declined to divulge information relating to the number of persons whose OCI cards had been cancelled.

### Additional Information:

- The OCI scheme provides the following facilities:
  - **Lifelong visa** for travel to India
  - **Exemption from registration with the Foreigners Regional Registration Office**
  - **Parity with non-resident Indians (NRIs) in economic, financial and educational fields** except in matters relating to the acquisition of agricultural properties.
- The OCI card does not provide parity with respect to NRIs in the political and public employment rights domain.
- The OCI cards could be **cancelled on grounds mentioned in Section 7(D) of the Citizenship Act**, Section 7(D) says the OCI registration may be cancelled on the following grounds:
  - If OIC card was obtained by means of fraud, false representation or the concealment of any material fact.
  - If the overseas citizen of India has shown disaffection towards the Constitution of India, or unlawfully traded or communicated with an enemy state.
  - If the card holder has been sentenced to imprisonment for a term of not less than two years within five years after registration as an OCI.
  - If it is necessary to cancel OCI registration in the interest of the sovereignty and integrity of India.

### Category:HEALTH

#### 1. India should lead in the fight against multidrug-resistant pathogens

##### Context:

The public health threat posed by Multi-Drug- Resistant (MDR) germs.

##### Background:

- **Penicillin and antibiotics like erythromycin and floxins** introduced about 60-70 years ago, have been successful in tackling many diseases. Each such conventional drug effectively kills millions of germs.
- During the treatment a tiny population of the disease causing germs had survived due to changes such as slight change in their genes. This would stop the drug from entering their cells or helped create pathways that pump out the entered drug molecules. **This genetic change helped them resist the effect of the drugs.** Such escapees have undergone multiplication into millions over years, and thus they constitute the MDR-germs.

##### Concerns:

##### Increasing risk of MDR germs:

- Many disease causing bacteria (**pseudomonas, E.coli, klebsiella, salmonella and TB**) and fungi (**Candida auris**), no longer respond to the conventionally used antibiotic drugs.
- These emerging Multi-Drug- Resistant (MDR) germs **affect almost 3 million people across the world every year**. A UNO study states that failure to find new drugs for these MDR-germs could lead to a global death toll of around 10 million people by 2050.

##### Lack of R&D against MDR germs:

- Scientists and drug firms have to undertake basic, fundamental research into the biology of MDR germs and develop effective drugs to tackle them.
- **The process of research and development, clinical trials, market release of these drugs have long cycle times** and would require a decade or more. It would also involve **billions of dollars of investment**.
- Unlike the drugs prescribed for chronic diseases like diabetes, arthritis, blood disorders and cancer which are prescribed for long terms (months and years), antibiotic drugs are prescribed for much shorter durations. This has resulted in companies shying away from investing in R&D in anti MDR germ drugs.

#### Failure of Major players in the domain of MDR drug development:

- There have been some private firm initiatives in the domain of MDR drug development. They were fortunate in getting R&D funds as grants from private foundations and governmental sources. Many of these initiatives though successful in the initial years in developing effective drugs against MDR germs have **failed to sustain**.

#### Vulnerability of India:

- A recent paper on the **mortality burden of MDR-pathogens in India**, shows that **13% is the overall rate of death**. This study involved only hospital-based deaths. It fails to consider the millions affected and dying across the towns and villages of India. **India is at high risk of MDR germ infections**.
- Given **the climatic conditions and the sanitation conditions in India**, the chances of spread of these MDR germs is more likely in India.
- **A developing country like India** is more vulnerable to the threat of MDR germs given the state of **public health system in place and the per capita expenditure by state in the health sector being low**.
- Similar situations would be witnessed in parts of Africa, Southeast Asia and **other low-income, high-population countries**.

#### Recent Developments:

- A pioneer US based Anti MDR germ drug developer firm Achaogen was bought over by CIPLA-USA, which is the US arm of the Indian public-spirited drug company CIPLA.
- The deal involved buying all the equipment and the rights to acquire the technology and to make and sell their successful drugs.
- CIPLA's move in this area holds out an example for other Indians and firms to enter the field.

#### Way forward:

##### R&D initiatives:

- Given **that R&D efforts by Indian scientists will be of public health and economic value**, there is an urgent need for more such efforts in India.
- There is a need for more research **not only in government-operated R&D institutions and universities, but also in private non-governmental research institutions, and drug companies**. The government has a key role in incentivizing such efforts.
- Indian government and its funding agencies **offering grants in the domain of MDR germ drugs development** should be increased. Private non-profit foundations in India should also consider funding such initiatives.

#### Indian firms in drug development:

- **The Indian firms in drug development are doing well as compared to firms operating in other parts of the world.** Just a handful of vaccine-makers across India now provide about 35% of childhood vaccines globally, through their R&D efforts. **India has become the major vaccine provider for children across the world.**
- These Indian firms should interact with the other pioneer firms in the US, consider acquiring them, or **working as partners and gain the hard-earned technology of making drugs active against MRD-germs**, and make these available for use by the needy not only in India but across the world.
- There is also scope for **setting up labs in India to aid the R&D work** in partnership with the US firms.
- **India could become a major player in offering good health to the 7 billion people across the world through these efforts.**

For more information on this issue: [Click here](#)

## C. GS 3 Related

### Category:ENVIRONMENT AND ECOLOGY

#### 1. Species-rich forests offer stable carbon capture

##### Context:

The research paper published in Environmental Research Letters, dealing with carbon capture by forests.

##### Background:

- The study was conducted in natural evergreen and deciduous forests inside **Anamalai Tiger Reserve** and other locations like **Parambikulam Tiger Reserve, Rajiv Gandhi Tiger Reserve, Wayanad Wildlife Sanctuary and Bhadra Tiger Reserve.**
- For comparative analysis the study also involved the teak and eucalyptus plantations.
- The team identified the trees, measured their girth and height in 250 square plots and used the measurements to estimate carbon storage in different forests and plantation types.
- The findings of the research team has been published in Environmental Research Letters.

##### Details:

##### Higher carbon storage in forests:

- The research has shown that **carbon storage was highest in species-rich evergreen forest.**
- The **studied eucalyptus plantations had comparatively lower carbon storage**, while teak plantations stored nearly as much carbon as deciduous forests.
- The results showed that the species-rich evergreen forests stored carbon at approximately 300 tons per hectare. **The storage in teak and eucalyptus plantations was 43% and 55% less, respectively.**

##### More stable rate of carbon capture in forests:

- The researchers found that the rates of carbon capture remained nearly the same year after year in natural forests compared with plantations. This points to the fact that **rate of carbon capture is more stable across years in forests than in plantations, and it being more resilient to drought.**

### Significance:

#### Reforestation/Afforestation policy in India:

- Given India's forest policy which envisages increasing India's forest cover from the present 21.5% to around 1/3<sup>rd</sup> of land area and India's INDC goal of increasing the carbon sequestration in India, reforestation and afforestation have received growing impetus.
- The recent study can help **transform reforestation policies in India.**
- The government data notes that **over half of compensatory afforestation plantations use five species or less, which is way lower than in natural forests and is totally inadequate.**
- The government needs to **recalibrate its approach** since the mono culture plantations are not great for the stability of carbon capture.
- The study also stresses on the need to think about where the afforestation measures are being carried out. **Grasslands help in carbon capture themselves and planting trees there can cause more harm than good.**

### Other benefits of Species-rich forests:

#### Beneficial for biodiversity:

- Species-rich forests are **beneficial for biodiversity as they also provide a conducive habitat** to many other faunal species like insects, birds, etc.

#### Resistance of Species-rich forests:

- **The recent Australian fires** caused large scale damage to flora and fauna of the region. The **species-rich forests have better resistance to fire**, given that different trees have varying degrees of fire resistance depending on the thickness of the bark. Also, the ability to regenerate the seeds differ across species and so a multi-species forest would likely show **greater resilience in case of a fire.**
- Studies have shown that **species-rich forests are also resistant to diseases.**

### Way forward:

- **Protecting and regenerating natural forests comprising a diverse mix of native tree species is more reliable in the long term than raising monoculture or species-poor plantations** as a strategy for mitigating climate change.
- The **afforestation efforts should involve the multiple native species.**

### Category:INTERNAL SECURITY

#### 1. LCA Navy variant successfully lands on INS Vikramaditya

##### Context:

The **naval variant of the Light Combat Aircraft (LCA)-Mk1** successfully completed the first arrested landing.

#### Details:

- The naval variant of the indigenous Light Combat Aircraft (LCA)-Mk1 successfully completed the **first arrested landing on the aircraft carrier INS Vikramaditya**.
- This was preceded by extensive trials on the **shore-based test facility (SBTF) in Goa**. The SBTF in Goa, replicates the flight deck of an aircraft carrier and was specifically built to train naval pilots.
- There has been contributions from **The Defence Research and Development Organisation (DRDO) and Hindustan Aeronautics Limited (HAL)** in this development process.

#### Significance:

##### Significant Upgrade of LCA:

- The naval LCA is fitted with **stronger landing gears** to absorb forces exerted by the **ski-jump ramp during take-off**, as it has to be airborne from 200m, and land within 100m, against the 1,000m required for normal fighter jets.
- This has increased the **operability conditions for the LCA**. This provides a **boost to India's capability and also helps enhance its attractiveness for potential buyers**.

##### Technological Advancement:

- The arrested landing involves complex manoeuvres of landing on the short flight deck of an aircraft carrier. **Technologies specific to deck-based fighter jet operations has been proven in the test. It marks a major technological advancement for India.**

##### Boost to Indian Navy:

- The successful test will now **pave the way for developing and manufacturing a twin-engine deck-based fighter for the Indian Navy**.
- The Defence Research and Development Organisation (DRDO) has offered to develop a new twin-engine deck-based fighter jet for the Navy by 2026, tapping into its experience of developing the naval LCA.

#### Additional Information:

- The **Navy currently operates the MiG-29K fighter jets from the INS Vikramaditya**.
- India is building its **first indigenous aircraft carrier Vikrant**.

#### Category:ECONOMY

#### 1. 'Won't back fiscal tightening currently'

##### Context:

Nobel laureate Abhijit Banerjee's views on the economy and the educational sector in India.

##### Details:

##### Fiscal Tightening:

- The Union Budget 2019-20 has pegged the fiscal deficit target at 3.3% of GDP.
- Given the major causes fuelling the economic slowdown such as dip in consumption expenditure, the economist has expressed concerns over any fiscal tightening measures from the government.

#### The education sector:

- Given the fact that the Centre had little role to play in funding education as it was a State subject, Prof. Abhijit Banerjee has stated that the real constraint to the state of education in the country was not lack of money, but the lack of attention paid to the sector.

#### *Reforming the higher institutions:*

- More important than higher budgetary allocations to education sector, is the need for reforms of institutions such as the Ministry of Human Resources and Development and the University Grants Commission (UGC).

#### *Greater autonomy to institutes:*

- There is a need for urgent institutional reforms which would grant greater autonomy for the institutes in determining their syllabus and also result in lesser interference from outside.

#### *Broad based education:*

- There is also the need to shift the excessive focus on technical education and move towards a more broad based education.

## D. GS 4 Related

*Nothing here for today!!!*

## E. Editorials

### **Category:DISASTER MANAGEMENT**

#### **1. Why are bushfires raging in Australia?**

##### **Context:**

Bushfires in Australia.

##### **Details:**

- **The Australian fires have spread over large areas in the east and south-east of the continent.** New South Wales (NSW), the country's most populated state, has been the most affected region.

- Australia's bushfires have destroyed more than 10.3 million hectares of land since September 2019. Many states like NSW, Queensland and Victoria have issued a state of emergency.
- There have been reports of **loss of life and property**. 27 people have been reported dead. Thousands of local residents have been evacuated.
- **The rare flora and fauna species of the continent have been affected by the raging fires.** The reports point out that up to a billion animals may have been killed.

### Background:

#### Monsoon winds:

- The monsoon winds cover the whole Indian Ocean region involving areas both north and south of the equator. **The movement of monsoon winds corresponds to the natural occurrence of troughs and ridges in the region.** Every trough is matched by a crest.
- Troughs represent areas of low pressure featuring ascending motion of air. It observes cooling effect due to the ascending motion, formation of clouds and occurrence of rain.
- Ridges represent areas of high pressure featuring descending motion of air. It is characterized by dryness, heat and absence of clouds and rain.

#### Delay in Retreating monsoon from India:

- **The 2019 June-September monsoon in India started its withdrawal on October 9, against the normal date of September 1,** making it the most delayed in recorded history.
- The monsoon of 2019 was also **the strongest in recent years with a surplus of 10% in 2019,** both attributed in part due to the positive phase of the Indian Ocean Dipole (IOD).

#### Indian Ocean Dipole:

- **During a positive IOD phase, the western Indian Ocean region warms up anomalously** and leads to a creation of a low-pressure region as compared to the eastern Indian Ocean region which is characterized by higher pressure and a dry phase.
- The positive IOD persisted longer than usual and remained active starting from May 2019, peaked in October-November and started decaying only during the first week of January 2020.
- **The IOD breakdown occurs when the monsoon trough moves from India into the southern hemisphere in early December.**
- This longer than usual positive IOD may have contributed to a delay in the transition of the monsoon trough from the Northern Hemisphere to the Southern Hemisphere and the subsequent onset of the Australian monsoon.

### Causes:

- The extended weather characterized by a strong monsoon in India appears to have translated into a delayed monsoon in Australia. Australia faces water stress given its dependence on the monsoons. **The deficient monsoons led to a drought-like situation in Australia.**
- **The resulting drought and heat have seen Australia grapple with fire over many parts of the country from September 2019.**
- The timely arrival of the monsoon rains could have helped the governments contain the spread of the fires which is a common occurrence in Australia. **The delay in the arrival of the monsoons well past the normal December-end timeline seems to have worsened the conditions.**

### Concerns:

#### A disaster unfolding:

- South-east Australia has been abnormally dry since September 2019 under prevailing positive IOD conditions, which means that it would need bouts of significant rainfall to have an impact on the fire risk.
- Given the delay in monsoon rains in Australia and the fact that Australia is only just entering its summer season, **the risk of additional fires remains high.**

The fires linked to climate change:

- Scientists and researchers have argued that unfolding fire disaster can be **attributed to climate change**. In recent years, **Australia has experienced longer dry conditions and exceptionally low rainfall.**
- Experts say climate change has worsened the scope and impact of natural disasters such as fires and floods. **Weather conditions are growing more extreme, and for years, the fires have been starting earlier in the season and spreading with greater intensity.**
- The fire disaster seems to be a symptom of the larger problem of climate change. **The failure of the global climate action to act decisively is a cause of great concern.**

Politicization:

- There have been counter-arguments which claim that a big wave of arson may have fuelled the raging bushfires with people deliberately igniting fires.
- There are concerns that the **mindless politicisation of climate change** issue may **divert the attention towards the need for urgent action and may lead to a lot of misinformation on social media.**

**For more information on this issue:**

[Amidst a tragedy, an opportunity](#)

[A continent on fire: on Australia wildfires](#)

**Category:SCIENCE AND TECHNOLOGY**

## **1. Indian cobra genome mapped**

**Context:**

Scientists have successfully mapped the genome of the Indian cobra.

**Details:**

- **The Indian cobra is considered to be among the most poisonous among snakes.**
- With very few snake genomes sequenced in detail, there has been a severe dearth of data on this, more so in the Indian context.
- **The Indian cobra genome sequencing is reportedly the most detailed blueprint of a snake's genes.**
- The study involved making a map of its 38 chromosomes. **Chromosomes are where DNA is tightly packed and the reptile's gene map revealed over 12,000 genes.**
- Among the genes mapped are 139 toxin genes, or those that produce biological products specific to toxins. Nineteen of them are venom-specific and expressed only in the venom gland.

**Background:**

### Issue of Snakebites:

- According to the World Health Organisation, though the exact number of snake bites is unknown, an estimated 5.4 million people are bitten each year with **up to 2.7 million envenomings**.
- **Snakebite envenoming is a potentially life-threatening disease that typically results from the injection of a mixture of different toxins following the bite of a venomous snake.**
- Around 81,000 to 1,38,000 people die each year because of snake bites, and around three times as many amputations and other permanent disabilities like paralysis and internal bleeding, are caused by snakebites annually.
- **The Indian cobra, the common krait (Bungarus caeruleus), Russell's viper, and the saw-scaled viper are responsible for most snakebites on the Indian subcontinent.**

### Antivenom production:

- Antivenom is made by extracting venom from the snake and injecting small amounts into rabbits or horses. **The antibodies that form are then collected from the domestic animal's blood, purified and isolated.** The process is considered laborious, expensive and time-consuming.
- **In the recombinant technology**, the genetic sequence for each toxin is pasted into yeast or E.coli bacterium and made to multiply. This is used to make antivenom. This process is less expensive.

### Challenges in Indian scenario:

#### No improvement in Antivenom therapies:

- **The antivenom therapies in use in India have remained unchanged for over a century, leading to concerns over the effectiveness of such therapies.**
- Bites from 60 of 270 species of Indian snakes are known to kill or maim humans. Worryingly **the antivenom now available in India is effective only against the 'Big 4'.**
- Venom profiling of the medically important yet neglected Indian snakes reveals severe antivenom deficiencies. **Specific antivenoms do not exist for many snakes.**

#### Supply of the antivenom:

- Sequencing a genome is just the first step in making antivenom. The problem of making and supplying enough of the product to **address the huge volume and variety of snakebites in India is a challenge in itself.**

### Significance:

- Knowledge of the sequence of genes could help in understanding the chemical constituents of the venom and help scientists **design new antivenom using recombinant protein technologies.** It will contribute to the development of the much needed new antivenom therapies.
- With the genome sequencing of more snakes, **more broad-spectrum antivenoms** could be produced in the coming times.

## F. Tidbits

*Nothing here for today!!!*

## G. Prelims Facts

### 1. Rongali Bihu artists decry order on cheque payments

- The Goods and Services Tax (GST) authority of Assam has asked the **Bihu committees across Assam** to make all transactions, including payments to artists, through cheques.
- **Rongali Bihu** is a major source of income for artists associated with the entertainment industry in Assam.
- **Bihutolis, temporary stages**, are set up for cultural programmes that start mid-April and end with **Bogahi Bidai (farewell spring)** more than a month later.

### 2. We won't leave Siachen: Army chief

- The Chief of the Army Staff, General Manoj Mukund Naravane, has stated that the Army would not disengage from the **Siachen Glacier as the world's highest battlefield** was key to deterring a two-front engagement with Pakistan and China.
- **The Shaksgam valley along the India-China border** is strategically important to India. This was another area where Pakistan and China could jointly operate.
- **The Shaksgam valley tract is administered by the People's Republic of China** as part of its Xinjiang Autonomous Region, but it was regarded by Pakistan as part of Kashmir until the **1963 Sino-Pakistan Agreement**. It is **claimed by India as part of the union territory of Ladakh**.

## H. UPSC Prelims Practice Questions

Q1. The red line campaign is associated with:

- a. Creating awareness on HIV-AIDS among the masses.
- b. Part of government's Anti-Microbial resistance awareness campaign
- c. Creating awareness about the critically endangered species in India
- d. Campaign against sexual harassment at workplace.

Answer: b

Explanation:

- The Union health ministry's Anti-Microbial Resistance awareness campaign urges people not to use medicines marked with a red vertical line, including antibiotics, without a doctor's prescription.
- This campaign is aimed at discouraging unnecessary prescription and over-the-counter sale of antibiotics causing drug resistance for several critical diseases including TB, malaria, urinary tract infection and even HIV.

Q2. The term *Candida auris* is associated with:

- a. Disease causing fungi
- b. Disease causing virus
- c. Bacteria used in production of biofuels

- d. Bacteria used extensively for production of antibiotics

**Answer: a**

**Explanation:**

- Candida auris is a species of fungus which grows as yeast. It is one of the few species of the genus Candida which cause candidiasis in humans. C. auris can cause invasive candidiasis (fungemia) in which the bloodstream, the central nervous system, and internal organs are infected.
- Often, candidiasis is acquired in hospitals by patients with weakened immune systems. Healthcare facilities in several countries have reported that it is causing severe illness in hospitalized patients.
- It has recently attracted increased attention because of its multiple drug resistance.

**Q3. The Anamalai tiger reserve is situated in which of the following states:**

- a. Kerala
- b. Tamil Nadu
- c. Karnataka
- d. Telangana

**Answer: b**

**Explanation:**

Aanaimalai Tiger Reserve, earlier known as Indira Gandhi Wildlife Sanctuary and National Park (IGWLS&NP) and previously as Aanaimalai Wildlife Sanctuary, is a protected area located in Tamil Nadu, India.

**Q4. Which of the following is wrongly matched?**

- a. Bihu: Assam
- b. Lavani: Maharashtra
- c. Dollu Kunitha: Karnataka
- d. Pulikali: Tamil Nadu

**Answer: d**

**Explanation:**

The Folk art Pulikali or Tiger dance is one of the most popular folk dance in Kerala during Onam festival in the Cultural Capital of Thrissur. Pulikali is a colorful recreational folk art form, performed on the occasion of annual harvest festival of Onam.

## I. UPSC Mains Practice Questions

1. Define Indian Ocean Dipole and explain how it is one of the causes of the raging bushfires in Australia. Comment on the arguments being made by Scientists and researchers that the unfolding fire disaster in Australia can be attributed to climate change.

2. In the backdrop of a recent study pointing to the better carbon capture by species rich forests discuss the other benefits of a species rich forest. Comment on how the recent observations necessitate the need to transform the reforestation/afforestation policies in India. (15 marks, 250 words)
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