

# Daily News Decoding

## 1st December 2022

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# Great Indian Bustard

## Prelims

### SC seeks Centre's response on evolving a programme to protect Great Indian Bustard

**The Hindu Bureau**  
NEW DELHI

The Supreme Court on Wednesday sought the government's response about evolving a "Project Great Indian Bustard" conservation programme like the Project Tiger to bring attention to the peril faced by the critically endangered bird.

Project Tiger is touted by the government as one of the most successful conservation programmes for a single species in the world.

"Can we not have a focussed approach by the Environment Ministry involving something like Project Tiger? Take instructions on it. Have a word with the Minister and come back to us on it," Chief Justice D.Y. Chandrachud addressed Attorney-General R. Venkataramani and Additional Solicitor-General Aishwarya Bhati, appearing for the government. The court is hearing a series of petitions highlighting the numerous



The court is hearing petitions highlighting the numerous deaths of Great Indian Bustards in Gujarat and Rajasthan. SPECIAL ARRANGEMENT

deaths of Great Indian Bustards due to power transmission lines criss-crossing their habitat in Gujarat and Rajasthan.

#### Expert panel

In its order, the Special Bench, including Justices A.S. Bopanna and V. Ramasubramanian, directed the Chief Secretaries of Gujarat and Rajasthan to undertake and complete a comprehensive exercise within four weeks to find out the total length of the transmission lines in question and the number of bird diverters required in the priority areas of the birds' habitats.

The court was not, however, for the time being, ready to agree with the Centre's plea to expand its expert committee formed in April 2022 to study the problem.

The government wanted the court to allow the Additional Secretary of the Renewable Energy Ministry and the Chief Operating Officer of Central Transmission Utility of India Ltd. to join the committee as domain experts on transmission lines. Instead, the Bench said the expert committee was free to consult the firm's officer for his expert opinion for now.

**Context:** *Hearing a plea to protect the endangered bird, Great Indian Bustard (GIB), Supreme Court asked if a "Project GIB" on the lines of Project Tiger, could be launched.*

#### About:

- The great Indian bustard (*Ardeotis nigriceps*) or Indian bustard, is a bustard found on the Indian subcontinent.
- A large bird with a horizontal body and long bare legs, giving it an ostrich-like appearance, this bird is among the heaviest of the flying birds.
- **Distribution and Habitat:**
  - In India, the bird was historically found in Punjab, Haryana, Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Odisha, Andhra Pradesh, Rajasthan, Gujarat, Maharashtra, Karnataka and Tamil Nadu.
  - Today the bustard is restricted to isolated pockets in Andhra Pradesh, Gujarat, Karnataka, Maharashtra, Madhya Pradesh and Rajasthan (shared with Pakistan).
  - The habitat where it is most often found is arid and semi-arid grasslands, open country with thorn scrub, tall grass interspersed with cultivation. It avoids irrigated areas.

- The major areas where they are known to breed are in central and western India and eastern Pakistan.
  - The dry semi-desert regions where it was found in parts of Rajasthan has been altered by irrigation canals that have transformed the region into an intensively farmed area.
- **Physical Structure:**
    - The body is brownish and the wings are marked with black, brown and gray.
    - Males and females generally grow to the same height and weight but males have larger black crowns and a black band across the breast.
    - Males have a gular pouch, which helps produce a resonant booming mating call to attract females and can be heard up to a distance of 500 meters.
  - **Behavior:**
    - Great Indian bustards make local movements but these are not well understood although it is known that populations disperse after the monsoons.
    - Males are said to be solitary during the breeding season but form small flocks in winter.
  - **Cultural Aspect:**
    - The Mughal emperor Babur noted that "[while] the flesh of the leg of some fowls, and of the breast of others is excellent; the flesh of every part of the Kharchal is delicious".
    - The great Indian bustard was however a cryptic and wary bird making it a challenge for sportsmen, who had to stalk carefully (sometimes using covered bullock carts) to get within range.
    - British soldiers in India considered it a delicacy and the species was among the top game-birds.
    - When the "national bird" of India was under consideration, the great Indian bustard was a proposed candidate (strongly supported by the Indian ornithologist Salim Ali).

#### **Conservation Issues:**

- The biggest threat to this species is hunting, which is still prevalent in Pakistan.
- This is followed by occasional poaching outside Protected Areas, collisions with high tension electric wires, fast moving vehicles and free-ranging dogs in villages.

- Surveys conducted by Wildlife Institute of India (WII) in Thar covering 80 km of power lines repeated 7 times over a year found 289 carcasses of around 40 species including the Great Indian Bustard (GIB). The study detected 8 carcasses/10 km for high tension and 6 carcasses/10 km for low tension power-lines.
- Other threats include habitat loss and alteration as a result of widespread agricultural expansion and mechanized farming, infrastructural development such as irrigation, roads, electric poles, as well as mining and industrialization.

**Conservation Strategy:**

- **Core Areas Protection Plan**

- Existing Great Indian Bustard breeding areas have to be excluded from all kinds of human disturbances except low intensity traditional agro-pastoralism, that too not during the breeding season.
- This includes restriction on infrastructural development and land-use diversion (ban on roads, high tension electric poles, intensive agriculture, wind turbines and construction).
- These areas must be actively protected during the breeding months by Forest Department staff.
- Carnivores like domestic dogs, foxes and jackals are believed to be contributing to breeding failure.
- Since bustards are known to nest in specific spots over years, these high priority spots and relevant surroundings within the breeding areas have to be freed from the above problem species prior to breeding.

- **Species Recovery Plan**

- Species Recovery Plan (SRP) has been formulated by the Ministry of Environment and Forests through consultative meetings with Forest Departments, wildlife biologists and non-governmental organizations.
- The SRP reviews species' biology, assesses threats, and prescribes actions at generic and site-specific levels to secure the long-term persistence of the resident bustards of India.
- It broadly advocates a holistic conservation approach at species and habitat levels, which includes protection and management of breeding areas, addressing local livelihood concerns, research and monitoring, conservation awareness, and need-based interventions.

- **No Power Line Zones**

- Mitigation measures are available to reduce power-line mortality, such as under-grounding of cables and fitting overhead wires with bird diverters. Bird mortality and crossing rate through wires reduce, if lines are marked with diverters compared to unmitigated segments. While under-grounding of cables eliminates bird mortality, marking power lines can reduce mortality by 10 % to 78 %, depending on area and species, but not eliminate mortality.
- Crucial breeding habitats of bustards have to be made free of overhead power-lines. Conservation of the bustard is not possible in areas with power-lines which sooner or later kill the bird.
- Existing power-lines in such important habitats have to be moved underground or redesigned.
- No new power-lines should be permitted in such areas

# 160-200 mn Indians could be exposed to lethal heat waves annually: World Bank report

**The Hindu Bureau**  
NEW DELHI

From 2030, 160 million to 200 million people can be exposed to lethal heatwaves in India every year, and nearly 34 million Indians will face job losses due to heat stress-related productivity decline. By 2037, the demand for cooling is likely to be eight times more than the current level, the World Bank has said in a report.

In this scenario, it is imperative for India to deploy alternative and innovative energy efficient technologies for keeping spaces cool. According to the report, "Climate investment opportunities in India's cooling sector", this could open an investment opportunity of \$1.6 trillion by 2040, besides reducing greenhouse gas emissions significantly and creating 3.7 million jobs.

With the demand for cooling shooting up, there will be a demand for a new air-conditioner every 15 seconds, the report said,



India's cooling strategy can help save lives and livelihoods, reduce carbon emissions and position it as a global hub for green cooling manufacturing

**AUGUSTE TANO KOUAMÉ**  
World Bank's Country Director

leading to an expected rise of 435% in annual greenhouse gas emissions over the next two decades. Thus, there is a need to shift to a more energy-efficient pathway which could lead to a reduction in expected CO2 levels.

The report proposes a road map to support New Delhi's India Cooling Action Plan (ICAP), 2019, through new investments in three major sectors: building construction, cold chains and refrigerants.

Adopting climate-responsive cooling techniques as a norm in both private and government-funded

constructions can ensure that those at the bottom of the economic ladder are not disproportionately affected by rising temperatures. The report suggests that India's affordable housing programme for the poor, the Pradhan Mantri Awas Yojana (PMAY), can adopt such changes on scale.

It proposed enacting a policy for "district cooling", which could lead to the consumption of 20-30% less power than the most efficient conventional cooling solutions. District cooling technologies generate chilled water in a central plant which is then distributed to buildings via underground insulated pipes. This brings down the cost for providing cooling to individual buildings. Apart from this, guidelines for implementation of local and city-wide urban cooling measures such as cool-roofs should also be considered. "India's cooling strategy can help save lives and livelihoods and reduce carbon emissions.

**Context: From 2030, 160 to 200 million people can be exposed to lethal heatwaves in India every year, and nearly 34 million Indians will face job losses due to heat-stress related productivity decline.**

### What is a heatwave?

- A heat wave, or heatwave, is a period of excessively hot weather, which may be accompanied by high humidity, especially in oceanic climate countries.
- While definitions vary, a heat wave is usually measured relative to the usual climate in the area and relative to normal temperatures for the season.
- Temperatures that people from a hotter climate consider normal can be called a heat wave in a cooler area if they are outside the normal climate pattern for that area.

- According to the IPCC, heatwaves have become more frequent, and over land more intense, almost everywhere since the 1950s, due to climate change.
- The National Disaster Management Act, 2005, and the National Policy on Disaster Management, 2009, do not consider heatwaves to be a natural disaster (natural calamity).
- It is not notified in the list of 12 disasters eligible for relief through national or state disaster relief funds.

#### What causes a heatwave?

- **High pressure at ground level**, most common in the summer months, creates heat waves. When high pressure accumulates over an area it results in the sinking of air through the atmosphere. The air compresses and heats up as it sinks. For every 100 meters the air is pushed downward, the temperature increases by 1°C.
- **Heat Dome**: High pressure can also result in a **heat dome, exacerbating the heatwave**. A heat dome is created when an area of high pressure stays over the same area for several days, trapping very warm air underneath. The dome traps air that would otherwise rise and cool before circulating back to the surface, resulting in the continual build-up of heat and reducing the chance of precipitation.
- Longer periods of high pressure are more likely in summer when weather patterns are slower moving. **When high-pressure systems take longer to leave an area, they have knock-on effects on other weather systems.** Cloud cover can be reduced and winds minimized, making the air stuffier and more humid.
- **Industrialization**: This is all taking place because the excess greenhouse gasses (such as carbon dioxide), released since the Industrial Revolution, trap heat in the Earth's atmosphere. Since the late 1800s, this effect has warmed the Earth's average temperature by around 1°C. This is enough warming of the average temperature to cause a disproportionately large jump in extreme heat.

#### Formation:

- Heat waves form when high pressure aloft (from 10,000–25,000 feet (3,000–7,600 meters)) strengthens and remains over a region for several days up to several weeks.
- This is common in summer (in both Northern and Southern Hemispheres) as the jet stream 'follows the sun'. On the equator side of the jet stream, in the upper layers of the atmosphere, is the high pressure area.
- Summertime weather patterns are generally slower to change than in winter. As a result, this upper level high pressure also moves slowly.
- Under high pressure, the air subsides (sinks) toward the surface, warming and drying adiabatically, inhibiting convection and preventing the formation of clouds.
- Reduction of clouds increases shortwave radiation reaching the surface. A low pressure at the surface leads to surface wind from lower latitudes that brings warm air, enhancing the warming.
- Alternatively, the surface winds could blow from the hot continental interior towards the coastal zone, leading to heat waves there, or from a high elevation towards low elevation, enhancing the subsidence and therefore the adiabatic warming.

#### Health Effects:

- **Heat edema** presents as a transient swelling of the hands, feet, and ankles and is generally secondary to increased aldosterone secretion, which enhances water retention. When combined with peripheral vasodilation and venous stasis, the excess fluid accumulates in the dependent areas of the extremities. The heat edema usually resolves within several days after the patient becomes acclimated to the warmer environment. No treatment is required, although wearing support stockings and elevating the affected

legs will help minimize the edema.

- **Heat rash**, also known as prickly heat, is a maculopapular rash accompanied by acute inflammation and blocked sweat ducts. The sweat ducts may become dilated and may eventually rupture, producing small pruritic vesicles on an erythematous base. Heat rash affects areas of the body covered by tight clothing. If this continues for a duration of time it can lead to the development of chronic dermatitis or a secondary bacterial infection.
- **Heat cramps** are painful, often severe, involuntary spasms of the large muscle groups used in strenuous exercise. Heat cramps tend to occur after intense exertion. They usually develop in people performing heavy exercise while sweating profusely and replenishing fluid loss with non-electrolyte containing water.
- **Heat syncope** is related to heat exposure that produces orthostatic hypotension. This hypotension can precipitate a near-syncope episode. Heat syncope is believed to result from intense sweating, which leads to dehydration, followed by peripheral vasodilation and reduced venous blood return in the face of decreased vasomotor control.

### Impact:

- **Agriculture:**
  - High temperatures can be damaging to agriculture.
  - Plant growth is negatively impacted by high daytime temperatures and some crops require cool night temperatures.
  - Heat waves also increase the chances of livestock experiencing heat stress, especially when night time temperatures remain high and animals are unable to cool off. Heat-stressed cattle can experience declines in milk production, slower growth, and reduced conception rates.
- **Energy:**
  - Warmer temperatures affect many aspects of the U.S. energy system, including production, transmission, and demand.
  - While higher summer temperatures increase electricity demand for cooling, at the same time, they can lower the ability of transmission lines to carry power, possibly leading to electricity reliability issues like rolling blackouts during heat waves.
- **Infrastructure:**
  - Heat waves can and do cause roads and highways to buckle and melt, water lines to burst, and power transformers to detonate, causing fires.
  - Heat waves can also damage railroads, such as buckling and kinking rails, which can lead to slower traffic, delays, and even cancellations of service when rails are too dangerous to traverse by trains.

## Jallikattu

### Prelims

# The way Jallikattu is being held in Tamil Nadu might be cruel, says SC

**Krishnadas Rajagopal**  
NEW DELHI

The Supreme Court on Wednesday said the sport of Jallikattu as such now might not be brutal but the “form” in which it was being held in Tamil Nadu might be cruel.

A Constitution Bench led by Justice K.M. Joseph said the Prevention of Cruelty to Animals (Tamil Nadu Amendment) Act of 2017 and Prevention of Cruelty to Animals (Con-

duct of Jallikattu) Rules of 2017 had laid down procedures to protect the bulls from brutality. Violation of these rules would attract penal action.

Justice Ajay Rastogi asked whether the act of Jallikattu, once the protective mechanism was in place, could be termed cruel. “Suppose Jallikattu is the only way traditionally for a poor man to get married to the local landlord’s daughter. He has to get at the trinkets on the

horns of the bull. This is a tradition which has been going for time immemorial... consider the cruelty shown to that young man?”, asked Justice Hrishikesh Roy. “It is not cruelty. It is just the deprivation of an opportunity for the young man to advance his position... Cruelty is to the animal who is forced without choice to be part of it,” senior advocate Shyam Divan responded.

Mr. Divan said it was not whether Jallikattu was per-

formed following a set of rules or not. He said the basic issue here was that Jallikattu was antithetical to the very nature and body structure of the bull, a bovine animal. He said it was cruelty pure to compel a frightened, choiceless animal to suffer pain.

Justice Rastogi said the court should confine itself to the rules and not ground realities. The senior advocate, however, responded that the court should also test the efficacy of the law.

**Context: *The Supreme Court said the sport of Jallikattu as such now might not be brutal but the “form” in which it was being held in Tamil Nadu might be cruel.***

### About:

- Jallikattu is typically practiced in the Indian state of Tamil Nadu as a part of Pongal celebrations on Mattu Pongal day, which occurs annually in January.
- Historical references indicate that the sport was popular among warriors during the Tamil classical period. It was common among the Ayar people who lived in the ‘Mullai’ geographical division of the ancient Tamizh Nadu. Later, it became a platform for display of bravery, and prize money was introduced for participation encouragement.
- The term ‘jallikattu’, comes from Tamil terms ‘salli kaasu’ (coins) and ‘kattu’ (a package), referring to the tying of prize money to the horns of a bull. Later, in the colonial period, the name was changed to ‘jallikattu.’
- Several rock paintings, more than 3,500 years old, at the remote Karikkiyur village in Tamil Nadu also show men chasing bulls with big humps and long, straight horns.
- Kalithogai, a classic Tamil poetic work of Sangam literature, speaks of how the bulls were women’s best friends, in that they selected the right partners for them. The text also talks elaborately about how to identify the right kind of bull and train it.
- Modern day Jallikattu is played by farming communities in Tamil Nadu to handpick the strongest bulls as studs for their cows so that, in turn, they may sire high-quality calves.
- Kothamangalam Subbu in his book, Rao Bahadur Singaram, captured the shifting dynamics of the sport, not just between man and man, but also as it plays out between man and animal. Interestingly, while the port/festival is primarily celebrated among the intermediary castes (such as Thevars), all these texts mentioned above were written by Brahmins.

**Culture:**

- According to local folklore, during the rule of the Nayak kings, an arena – usually the biggest open space in the village – would be designated for the sport to be played.
- A makeshift entrance, or Vaadi Vaasal, would then be marked out for both competing bulls, which were decorated and garlanded, and for their owners, who would stand in line with them.
- Gold coins, wrapped in a piece of cloth, were tied to the horns and the bulls were then released, one by one, onto the field. Excited by the gestures of those who were trying to catch him, the bullock would then lower his head and charge wildly into the midst of the crowd, who would nimbly run off on either side to make way for him.
- Willing young men would then grapple with the bull in an attempt to untie the knot and get at the prize — they either successfully managed to hang on for dear life, or were simply tossed around like rag dolls, bouncing off the bulls' muscular body.

**Judicial Angle:**

- The Jallikattu debate in 2017 became the fulcrum of discussions around questions of culture, folk tradition, modernity, region and regional identity, caste, gender, law, environment and animal rights.
- The Supreme Court, in its judgement banning Jallikattu, goes into great detail about the torture that is meted out to the bulls during play – instances of lemons being squeezed into the bulls' eyes, chilli powder rubbed on to their genitals, the force-feeding of liquor and even cases of the animal having its tail twisted and bitten – have been brought to light.
- The country's apex court also says that there is no merit in the argument that just because the sport has been practiced for centuries, it must be allowed to continue. By that token, no unjust or abhorrent social custom could ever be done away with.
- Jallikattu supporters argue that as the traditional sport sees native male bulls being raised for the sole purpose of breeding, it works as an effective way to conserve the native breeds of the region.
- The banning of Jallikattu must then mean that it is only a matter of time before these native breeds go extinct.

**Animal Welfare Board of India:**

- The Animal Welfare Board of India is a statutory advisory body on Animal Welfare Laws and promotes animal welfare in the country. Established in 1962 under Section 4 of the Prevention of Cruelty to Animals Act, 1960.
- The Animal Welfare Board of India was started under the stewardship of Late Smt. Rukmini Devi Arundale, well known humanitarian.
- From ensuring that animal welfare laws in the country are diligently followed, to providing grants to Animal Welfare Organizations and advising the Government of India on animal welfare issues, the Board has been the face of the animal welfare movement in the country for the last 50 years.
- The Board consists of 28 Members.
- The term of office of Members is for a period of 3 years.

# Malnutrition

## Prelims & GS Paper - III

### *An Indian recipe to quell micronutrient malnutrition*

**W**hen it comes to nutrition, or more specifically micronutrient malnutrition, there is an urgent need to address the maladies that poor nutrition can inflict on the masses, especially given the diverse populations in India.

Malnutrition exacerbates the magnitude of the public health crises we face, and is India's most serious challenge and concern. As in National Family Health Survey-5 data, every second Indian woman is anaemic, every third child is stunted and malnourished, and every fifth child is wasted. According to an FAO Food Security Report for 2021, India ranks 101 out of 116 countries in the Global Hunger Index 2021, with a 15.3% undernourished population, the highest proportion of stunted children (30%), and wasted children (17.3%).

The picture the Global Nutrition Report 2021 paints is cause for concern, noting that stunting among children in India is significantly higher than the Asian average of 21.8%.

Since the 1920s, developed countries and high-income countries have successfully tackled the issue of malnutrition through food fortification. Of late, the low- and middle-income countries, such as India, have pursued food fortification as one of the strategies to tackle micronutrient malnutrition. Put simply, food fortification is the process of adding nutrients to food. For instance, rice and wheat are fortified with iron, folic acid and vitamin B<sub>12</sub>, and salt fortified with iron and iodine. Iodised salt has been in use for the past few decades.

#### **The rice programme and anaemia**

Pilot projects on the distribution of fortified rice have been taken up in select States, including Maharashtra (Gadchiroli district) as part of a targeted Public Distribution programme for the



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Food fortification is a proven cost-effective and complementary strategy to address India's malnutrition burden

masses. The programme has been a success in terms of preventing cases of anaemia – from 58.9% to 29.5% – within a span of two years, prompting the central government to declare the scaling up of the distribution of fortified rice, the major staple diet of 65% of the population, through the existing platform of social safety nets such as the PDS, ICDS and PM-POSHAN.

Experiences from the different States on the fortified rice project, so far tally with the results of global programmes that use fortified food as a cost-effective strategy. The health benefits accruing from food fortification have made 80 countries to frame laws for the fortification of cereal flour, and 130 countries with iodised salt, where 13 countries have mandated rice fortification. The encouraging results of the pilot programme in Gadchiroli have prompted the proposed large-scale food fortification programme, which includes fortified rice in all safety net government schemes. The study found a promising reduction (29.5%) in the prevalence of anaemia among women, adolescent girls, and children put together in Gadchiroli district.

#### **Noon meal scheme in Gujarat**

In Gujarat, an eight-month long study on multiple micronutrient fortified rice intervention for schoolchildren (six-12 years) in 2018-2019, as part of the Midday Meal Scheme, found increased haemoglobin concentration, 10% reduction in anaemia prevalence, and, more importantly, improved average cognitive scores (by 11.3%).

Iron deficiency anaemia is a major public health concern, because it is responsible for 3.6% of disability-adjusted life years or DALYs (years of life lost due to premature mortality and years lived with disability) according to the World Health Organization (WHO) – i.e., a loss of 47 million DALYs, or years of healthy life lost due to

illness, disability, or premature death (2016).

According to NITI Aayog (based on WHO meta-analysis on the impact of rice fortification), a rice fortification budget of around ₹2,800 crore per year can save 35% of the total or 16.6 million DALYs per year with no known risk of toxicity. In India, the cost of one DALY lost due to iron deficiency anaemia (IDA) is approximately ₹30,000, while the cost of averting an IDA-related DALY is only ₹1,545, resulting in a cost-benefit ratio of 1:18. Rice fortification, which costs less than 1% of the food subsidy bill (2018-19), has the potential to prevent 94.1 million anaemia cases, saving ₹8,098 crore over a five-year period.

#### **Need for precautions**

Despite the programme's proven efficacy, activists have expressed concern that excess iron overload from fortified rice has been dangerous for Jharkhand's tribal population suffering from sickle cell anaemia and thalassaemia. Iron levels in fortified rice range from 28 mg to 42.5 mg, folic acid levels from 75 mcg-125 mcg, and vitamin B<sub>12</sub> levels from 0.75 mcg to 1.2 mcg (FSSAI standards). Considering the per capita intake, in a family of three members with a rice consumption of approximately 60 grams per person, the additional intake is 2.45 mg of iron. This in fact compensates our daily losses of iron from the body, which is 1 mg-2 mg per day.

Food fortification, according to stalwarts of nutrition, is a cost-effective complementary strategy to address multiple micronutrient deficiencies. Thus, given its proven efficacy and cost-effectiveness, food fortification can help us in reducing micronutrient deficiencies and address overall health benefits. The intervention, carried out with precautions, is the key to the malnutrition issue which the nation continues to grapple with.

### **What is malnutrition?**

- Malnutrition is the condition that develops when the body is deprived of vitamins, minerals and other nutrients it needs to maintain healthy tissues and organ function.
- Malnutrition occurs in people who are either undernourished or overnourished.
- It addresses 3 broad groups of conditions:
  - undernutrition, which includes wasting (low weight-for-height), stunting (low height-for-age) and underweight (low weight-for-age).
  - micronutrient-related malnutrition, which includes micronutrient deficiencies (a lack of important vitamins and minerals) or micronutrient excess.
  - overweight, obesity and diet-related noncommunicable diseases (such as heart disease, stroke, diabetes and some cancers).

### **Undernutrition:**

- There are 4 broad sub-forms of undernutrition: wasting, stunting, underweight, and deficiencies in vitamins and minerals.
- **Wasting:**
  - Low weight-for-height is known as wasting.
  - It usually indicates recent and severe weight loss, because a person has not had enough food to eat and/or they have had an infectious disease, such as diarrhea, which has caused them to lose weight.
  - A young child who is moderately or severely wasted has an increased risk of death, but treatment is possible.
- **Stunting:**

- Low height-for-age is known as stunting.
- It is the result of chronic or recurrent undernutrition, usually associated with poor socioeconomic conditions, poor maternal health and nutrition, frequent illness, and/or inappropriate infant and young child feeding and care in early life.
- Stunting holds children back from reaching their physical and cognitive potential.
- **Underweight:** Children with low weight-for-age are known as underweight. A child who is underweight may be stunted, wasted, or both.

**Micronutrients & Other Problems:**

- Micronutrients enable the body to produce enzymes, hormones, and other substances that are essential for proper growth and development.
- Overweight and obesity result from an imbalance between energy consumed (too much) and energy expended (too little). Globally, people are consuming foods and drinks that are more energy-dense (high in sugars and fats), and engaging in less physical activity.
- Diet-related noncommunicable diseases (NCDs) include cardiovascular diseases (such as heart attacks and stroke, and often linked with high blood pressure), certain cancers, and diabetes. Unhealthy diets and poor nutrition are among the top risk factors for these diseases globally.

**Risk:**

- Every country in the world is affected by one or more forms of malnutrition. Combating malnutrition in all its forms is one of the greatest global health challenges.
- Women, infants, children, and adolescents are at particular risk of malnutrition. Optimizing nutrition early in life—including the 1000 days from conception to a child’s second birthday—ensures the best possible start in life, with long-term benefits.
- Poverty amplifies the risk of, and risks from, malnutrition. People who are poor are more likely to be affected by different forms of malnutrition. Also, malnutrition increases health care costs, reduces productivity, and slows economic growth, which can perpetuate a cycle of poverty and ill-health.

<p><b>UN Decade of Action on Nutrition:</b> Led by WHO and the Food and Agriculture Organization of the United Nations (FAO), the UN Decade of Action on Nutrition calls for policy action across 6 key areas:</p> <ul style="list-style-type: none"> <li>● Creating sustainable, resilient food systems for healthy diets</li> <li>● Providing social protection and nutrition-related education for all</li> <li>● Aligning health systems to nutrition needs, and providing universal coverage of essential nutrition interventions;</li> <li>● Ensuring that trade and investment policies improve nutrition;</li> <li>● Building safe and supportive environments for nutrition at all ages; and</li> <li>● Strengthening and promoting nutrition governance and accountability, everywhere.</li> </ul> <p><b>Nutrition Strategy:</b></p> <ul style="list-style-type: none"> <li>● According to the 2016–2025 nutrition strategy, WHO works with Member States and partners towards universal access to effective nutrition interventions and to healthy diets from</li> </ul>	<p><b>COVID - 19 Pandemic and Malnutrition:</b></p> <ul style="list-style-type: none"> <li>● Over the last three decades, the worldwide prevalence of stunting declined from 40 percent in 1990, to 22 percent in 2020.</li> <li>● In 2020, 38.9 million children under 5 were affected by overweight and obesity, which are now pervasive even in countries where children experience undernutrition. Overall, it is estimated that overweight and obesity cost US\$2 trillion in economic and social expenses globally.</li> <li>● However, the health and food systems disruptions caused by the COVID-19 Pandemic has rolled back years of progress on child undernutrition; it is estimated that, by 2022, an additional 9.3 million children will suffer from acute malnutrition and 2.6 million more children will be stunted.</li> <li>● Even though the prevalence of child stunting in Sub-Saharan Africa fell from 48 percent in 1990 to 32 percent in 2020, the total number of stunted children in Africa increased by 13.1 million during the same period as a result of high fertility rates and lower rates of decline in</li> </ul>
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<p>sustainable and resilient food systems.</p> <ul style="list-style-type: none"> <li>• WHO uses its convening power to help set, align and advocate for priorities and policies that move nutrition forward globally; develops evidence-informed guidance based on robust scientific and ethical frameworks; supports the adoption of guidance and implementation of effective nutrition actions; and monitors and evaluates policy and programme implementation and nutrition outcomes.</li> </ul>	<p>stunting.</p> <ul style="list-style-type: none"> <li>• Global expert consortium, including the World Bank, estimated economic productivity losses equivalent to US\$29 billion globally by 2022 as a result of the additional malnutrition burdens attributable to the COVID-19 pandemic.</li> </ul>
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### Global Nutrition Report:

- The Global Nutrition Report is a report card on the world's nutrition—globally, regionally, and country by country—and on efforts to improve it.
- The Global Nutrition Report is an independently produced annual stock-take of the state of the world's nutrition.
- The GNR is an annual publication and the first series was published in 2014.
- **Key Findings:**
  - Lack of progress means unacceptable levels of malnutrition persist. Worldwide, 149.2 million children under 5 years of age are stunted, 45.4 million are wasted and 38.9 million are overweight. Over 40% of all men and women (2.2 billion people) are now overweight or obese.
  - No country is on track to achieve the target on reducing salt intake or to halt the rise in adult obesity. In the Africa region, no country is on course to meet any of the diet-related NCD targets, and the only countries on course to meet both raised blood pressure and diabetes targets are a few high-income Western countries.
  - The additional financing needed to meet nutrition targets has grown significantly, partly due to the impacts of Covid-19. Available data allows us to estimate nutrition-specific financing needs for global nutrition targets on only stunting, wasting, maternal anemia and breastfeeding.
  - India is 'on course' to meet three targets for maternal, infant and young child nutrition (MIYCN)
  - No progress has been made towards achieving the target of reducing anemia among women of reproductive age, with 53.0% of women aged 15 to 49 years now affected.
  - India has shown limited progress towards achieving the diet-related non-communicable disease (NCD) targets. The country has shown no progress towards achieving the target for obesity, with an estimated 6.2% of adult (aged 18 years and over) women and 3.5% of adult men living with obesity.
  - India's obesity prevalence is lower than the regional average of 10.3% for women and 7.5% for men. At the same time, diabetes is estimated to affect 9.0% of adult women and 10.2% of adult men.

# Ransomware

## Prelims & GS Paper - III

# Are ransomware attacks increasing in India?

What happened at the All-India Institute of Medical Sciences? How does a ransomware infect a computer? How many organisations in India are working toward cyber-crime responses and prevention?

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### The story so far:

On November 23, e-services at the All-India Institute of Medical Sciences (AIIMS) were crippled by what is being suspected to be a ransomware attack. The Delhi Police's Intelligence Fusion & Strategic Operations have registered a case and launched investigations to identify the perpetrators, while cyber security experts are employing software tools for data recovery. They have been able to retrieve a significant number of files. However, pending sanitisation of the entire network and its nodes, all hospital services are currently being executed manually. AIIMS has a Local Area Network comprising more than 6,500 computers supporting the institute, its hospital, centres and

other departments. While a probe is underway to determine if essential safety protocols were in place, measures are being taken to thwart any such attack in the future.

### What is ransomware?

Ransomware is a type of malicious software, used by cyber criminals, to infect a computer system by blocking access to the stored data by encrypting the files. A ransom is then demanded from the owner in exchange for the decryption key.

While it is not yet clear as to how exactly the AIIMS computer systems were targeted, the malware may usually be injected remotely by tricking the user into downloading it upon clicking an ostensibly safe web link sent via email or other means, including hacking. It can spread throughout the network by

exploiting existing vulnerabilities. Ransomware attacks can also be accompanied by theft of sensitive data for other sinister motives.

### How serious are ransomware attacks?

Preliminary findings by cyber experts have indicated that at least five of the AIIMS' servers that hosted data related to more than three crore patients were compromised. In India, several cases of ransomware attacks targeting commercial and critical infrastructure have been reported in the recent past. In May, Spicejet had faced such a threat, while Public Sector Undertaking Oil India was targeted on April 10. Cybersecurity firm Trellix, in its third-quarter global report, has identified 25 major ransomwares in circulation. According to the Interpol's first-ever Global Crime Trend report presented at its 90th General Assembly

meeting in Delhi this October, ransomware was the second highest-ranking threat after money laundering, at 66%. It is also expected to increase the most (72%).

### Which agencies in India deal with cyber-attacks?

Set up in 2004, the Indian Computer Emergency Response Team (CERT-In) is the national nodal agency that collects, analyses and circulates inputs on cyber-attacks; issues guidelines, advisories for preventive measures, forecasts and issues alerts; and takes measures to handle any significant cyber security event. It also imparts training to computer system managers. The National Cyber Security Coordinator, under the National Security Council Secretariat, coordinates with different agencies at the national level on cybersecurity issues, while the National Critical Information Infrastructure Protection Centre has been set up for the protection of national critical information infrastructure. According to the government, the Cyber Swachhata Kendra (Botnet Cleaning and Malware Analysis Centre) has been launched for detection of malicious software programmes and to provide free tools to remove the same, while the National Cyber Coordination Centre works on creating awareness about existing and potential threats.

## THE GIST

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**Context: e-Services at the All-India Institute of Medical Sciences were crippled by what is being suspected to be a ransomware attack.**

## What is Ransomware?

- Ransomware is a type of malware that prevents or limits users from accessing their system, either by locking the system's screen or by locking the users' files until a ransom is paid.

## Types of Sending Ransomware:

- **Malspam:** To gain access, some threat actors use spam, where they send an email with a malicious attachment to as many people as possible, seeing who opens the attachment and "takes the bait," so to speak.
  - Malicious spam, or malspam, is unsolicited email that is used to deliver malware.
  - The email might include booby-trapped attachments, such as PDFs or Word documents. It might also contain links to malicious websites.
- **Malvertising:** Malvertising, or malicious advertising, is the use of online advertising to distribute malware with little to no user interaction required.
  - While browsing the web, even legitimate sites, users can be directed to criminal servers without ever clicking on an ad. These servers catalog details about victim computers and their locations, and then select the malware best suited to deliver. Often, that malware is ransomware.
  - Malvertising often uses an infected iframe, or invisible web page element, to do its work. The iframe redirects to an exploit landing page, and malicious code attacks the system from the landing page via exploit kit.
- **Spear phishing:** A more targeted means to a ransomware attack is through spear phishing. An example of spear phishing would be sending emails to employees of a certain company, claiming that the CEO is asking you to take an important employee survey, or the HR department is requiring the user to download and read a new policy. The term "whaling" is used to describe such methods targeted toward high-level decision makers in an organization, such as the CEO or other executives.

- **Social engineering:** Threat actors may use social engineering in order to trick people into opening attachments or clicking on links by appearing as legitimate—whether that's by seeming to be from a trusted institution or a friend.
  - Cybercriminals use social engineering in other types of ransomware attacks, such as posing as the FBI in order to scare users into paying them a sum of money to unlock their files.
  - Another example of social engineering would be if a threat actor gathers information from your public social media profiles about your interests, places you visit often, your job, etc., and using some of that information to send you a message that looks familiar to you, hoping you'll click before you realize it's not legitimate.

### Types of Ransomware:

- **Scareware:** Scareware, as it turns out, is not that scary. It includes rogue security software and tech support scams.
  - A user might receive a pop-up message claiming that malware was discovered and the only way to get rid of it is to pay up.
  - If the user does nothing, they'll likely continue to be bombarded with pop-ups, but their files are essentially safe.
  - A legitimate cybersecurity software program would not solicit customers in this way.
- **Screen lockers:** When lock-screen ransomware gets on a computer, it means the user is frozen out of their PC entirely. Upon starting up the computer, a full-size window will appear, often accompanied by an official-looking authorized seal saying illegal activity has been detected on the user's computer and the user must pay a fine.
- **Encrypting ransomware:** These are the guys who snatch up users' files and encrypt them, demanding payment in order to decrypt and redeliver. The reason why this type of ransomware is so dangerous is because once cybercriminals get ahold of your files, no security software or system restore can return them to users.

### Current Trends:

- **Ransomware is big business.** There's a lot of money in ransomware, and the market expanded rapidly from the beginning of the decade. In 2017, ransomware resulted in \$5 billion in losses, both in terms of ransoms paid and spending and lost time in recovering from attacks.
- **Some markets are particularly prone to ransomware—and to paying the ransom.** Many high-profile ransomware attacks have occurred in hospitals or other medical organizations, which make tempting targets: attackers know that, with lives literally in the balance, these enterprises are more likely to simply pay a relatively low ransom to make a problem go away.
  - 45 percent of ransomware attacks target healthcare orgs, and, conversely, that 85 percent of malware infections at healthcare orgs are ransomware.
  - It's estimated that 90 percent of financial institutions were targeted by a ransomware attack in 2017.

<p><b>Critical Information Infrastructure</b></p> <ul style="list-style-type: none"> <li>● IT resources form the backbone of countless critical operations in a country's infrastructure, and given their interconnectedness, disruptions can have a cascading effect across</li> </ul>	<p><b>Cyber Swachhta Kendra</b></p> <ul style="list-style-type: none"> <li>● The "<b>Cyber Swachhta Kendra</b>" (Botnet Cleaning and Malware Analysis Centre) is a part of the Government of India's Digital India initiative under the Ministry of Electronics and</li> </ul>
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sectors. An information technology failure at a power grid can lead to prolonged outages crippling other sectors like healthcare, banking services.

- The Information Technology Act of 2000 defines "Critical Information Infrastructure" as a "computer resource, the incapacitation or destruction of which shall have debilitating impact on national security, economy, public health or safety".
- The government, under the Act, has the power to declare any data, database, IT network or communications infrastructure as CII to protect that digital asset.
- National Critical Information Infrastructure Protection Centre (NCIIPC) is the nodal agency for taking all measures to protect the nation's critical information infrastructure.

Information Technology (MeitY) to create a secure cyberspace by detecting botnet infections in India and to notify, enable cleaning and securing systems of end users so as to prevent further infections.

- The "Cyber Swachhta Kendra" (Botnet Cleaning and Malware Analysis Centre) is set up in accordance with the objectives of the "National Cyber Security Policy", which envisages creating a secure cyber ecosystem in the country.
- This center operates in close coordination and collaboration with Internet Service Providers and Product/Antivirus companies.
- "Cyber Swachhta Kendra" (Botnet Cleaning and Malware Analysis Centre) sends an alert to the ISPs, specifying the IP addresses of infected systems which are part of the botnet and are performing malicious activities. ISPs then reach out to the owner(s) of the infected system(s) with the help of a registered IP address.
- All users, system administrators can report incidents to "Cyber Swachhta Kendra" (Botnet Cleaning and Malware Analysis Centre) at CERT-In help desk regarding the malicious behavior on their systems / networks along with sufficient logs for analyzing the incident and providing requisite support.
- Cyber Swachhta Kendra will provide the services free-of-cost.