

**SCIENCE AND TECHNOLOGY**

Internet shutdowns in India: Measuring internet freedom in India in the last 10 years

This article discusses the high number of internet shutdowns in India, often for national security but criticized for violating fundamental rights. Measuring internet freedom in India in the last 10 years status of internet shutdowns in India

- India has the highest number of internet shutdowns globally, with 780 imposed between 2014 and 2023.
- In 2023, India experienced over 7,000 hours of internet blackouts.
- Key incidents leading to shutdowns include the Citizenship Amendment Act protests in 2019, Article 370 abrogation in 2019, and Farm Bills protests in 2020.
- Jammu and Kashmir faced the most shutdowns, totaling 433 in the past 12 years.
- The longest shutdown in 2023 was in Manipur, lasting from May to December.
- There's debate over compliance with international standards, especially in cases like Jammu and Kashmir and Manipur.
- Increased censorship: Over 55,000 websites and nearly 30,000 social media URLs were blocked between 2015 and 2022.

**laws that govern internet shutdowns in India**

- **Indian Telegraph Act:** Allows Indian states and territories to impose internet shutdowns during a "public emergency" or for "public safety." The Act has been used to justify 780 shutdowns between 2014 and 2023. However, it doesn't clearly define what constitutes an emergency or safety issue.
- **Section 69A of the IT Act:** This law has been a basis for the censorship of online content. Under this Act, more than 55,000 websites were blocked between 2015 and 2022. It allows the government to block online content for various reasons, including national security.
- **Unlawful Activities (Prevention) Act:** URLs were often blocked for links to organizations banned under this Act. This includes the recent order to The Caravan, a news outlet, to remove a story alleging abuse by the Indian Army in Jammu's Poonch district.

**Reasons for internet shutdowns in India**

- **National Security and Public Order:** Shutdowns often cite national security and public order, like during the Citizenship Amendment Act protests in 2019 and Article 370 abrogation.
- **Political Instability:** Events like the introduction of Farm Bills in 2020 led to shutdowns to control unrest.
- **Ethnic Clashes:** Regional conflicts, such as the ethnic clashes in Manipur in 2023, resulted in extended blackouts.
- **Control of Information:** To restrict information flow during sensitive times, like the Jammu and Kashmir shutdowns.
- **Response to Protests:** Shutdowns are a response to large-scale protests, as seen in Haryana amid farmers' protests in early 2024.

**Impacts of internet shutdowns in India**

- **Failure to Meet Global Standards:** India's internet shutdowns, have often not met the 'three-part test' under international law, which requires actions to be lawful, legitimate, and proportionate.
- **Economic Impact:** India's internet shutdowns led to over 70% of the global economic loss due to such blackouts in 2020.
- **Legal and Rights Challenges:** The Supreme Court (Anuradha Bhasin v. Union of India case) declared indefinite internet shutdowns as a violation of fundamental rights. However, compliance with transparency in shutdown orders is poor.
- **Global Standing:** Due to these frequent shutdowns, India's global internet freedom ranking dropped from 59 points in 2016-2017 to 50 points in 2023.

**INDIAN SOCIETY**

Young and the old – lancet report on fertility rate

According to medical journal Lancet, India's TFR will fall to 1.29 in 2050. One in five persons in India will be above the age of 60 in 2050. This highlights that India's demographic dividend is not for perpetuity. Lancet Report on Fertility Rate

Total Fertility rate and Replacement level

TFR– It is the average number of children that are born to a woman (15-49 years) over her lifetime.

Replacement level– It is the level of fertility at which a population exactly replaces itself from one generation to the next. A TFR of 2.1 is known as replacement rate.

key highlights of the lancet study

- 1) Decline in TFR– India's TFR has fallen to 1.29 well below the replacement rate of 2.1.

2) **Aging factor**– One in five persons in India will be above the age of 60 in 2050. Further as per the UN Population Fund’s (UNPF) India Ageing Report, the number of elderly in India will more than double from 149 million in 2022 to 347 million by mid-century.

3) **About China**- China’s TFR had dropped to a record low and its working-age population had contracted by more than 40 million.

consequences of declining fertility rate

1) **Increase in aged population**– By 2050, over 20% of India’s population will be senior citizens, it poses challenges related to care, support, and health care.

2) **Shrinking Workforce**– A smaller working age population could lead to labour shortages and affect economic growth. For ex- working-age population of China had contracted by more than 40 million.

3) **Endanger Demographic Dividend**- Experiences of developed nations suggests that once fertility rates fall below the replacement rate, it’s almost impossible to set them back.

India’s TFR is 1.9 which is currently just below the replacement rate. Further, as per UNPF calculations, the share of the country’s working-age population will peak in the late 2030s and early 40s. Thus, in the background of these population trends, it is important to reap India’s full demographic dividend.

way forward

1) **Skill Development**-There is an urgent need to overcome skill deficits and plug gaps in the knowledge economy.

2) **Diversifying employment pattern**-There should be creation of jobs outside of agriculture. Further, the jobs must not be in the low-paid informal sector.

3) **Social security measures**– The government should ensure adequate social security and healthcare provisions for the growing elderly population. Along with this, the government should create opportunities for the elderly population to harness their skills effectively.

4) **Addressing regional imbalance**-TFR rate is not uniform across all Indian states. For ex- parts of south India and west India are greying faster than those in the north. Thus, the policymakers should acknowledge the demographic imbalance in all its dimensions and prepare for the change.

## PRELIM FACTS

### 1. Mushk Budij

Recently, scientists reported that altitude and temperature play an important role in the development of mushk budiji aroma.

- **About:** Mushk Budij is an indigenous traditional and short, bold, scented-rice variety cultivated in Kashmir.
- **Cultivation:** It is mainly grown in areas of Sagam, Panzgam, and Soaf Shali of district Anantnag and Beerwah belt of district Budgam.
- **Characteristic:** Mushk budiji is distinguished for its intense fragrance. It possesses a harmonious blend of taste and aroma and have rich organoleptic properties.
- The consumption of aromatic rice in Kashmir has now been limited to special occasions like marriages and festivals due to its low availability and high cost. It has received a Geographical Indication (GI) tag. Other GI Tag rice varieties

**Ambemohar:** It is a short grain rice grown in Maharashtra. It is popular for its quick-cooking characteristic and its beautiful aroma that is reminiscent of mango blossoms. Mulshi Ambemohar rice is especially famous in the state as an age-old traditional rice that was highly favoured by the Peshwa rulers.

- **Mullan Kazhama:** Mullan Kazhama is a fragrant rice from Wayanad that is delicious in pal payasam and Malabar biriyani. It is now cultivated by only a handful of organic paddy farmers in the lush terrain of Kerala’s Wayanad district.
- **Gobindo Bhog:** It is a small-grained fragrant rice from West Bengal. Gobindo Bhog is categorised as a khaas dhan (special grain) and is the chosen offering for Lord Krishna on Janmashtami. It tastes absolutely delectable when prepared as payesh (the Bengali version of rice kheer), and is widely used for auspicious offerings, pujas and festivals.
- **Seeraga Samba:** It is a slender rice with a sublime scent from Tamil Nadu and is extensively used to make elaborate pulav during special occasions. It is the common thread between the state’s two most iconic biryanis — Dindigul biryani and Ambur biryani.
- **Radhuni Pagol:** It is a fragrant rice whose name literally translates to ‘making the cook go mad’, Radhuni Pagol is a culinary favourite in West Bengal but is little-known outside the state. It is easily digestible. This rice is the perfect companion for decadent gravies such as chingri malai curry and kosha mangsho.
- **Chak Hao Amubi:** It is a fragrant variety of sticky black rice grown in the hills of Manipur. Chak Hao Amubi is packed with heart-healthy anthocyanins and has a slightly sweet, nutty flavour that is exemplified in the Manipuri black rice kheer. It is a staple delicacy at local feasts and festivals.

## 2. EC rules concerning carrying cash during elections

Prior to every election, the EC issues detailed instructions to keep a strict vigil on the movement of cash, liquor, jewellery, and other freebies.

How does EC deal with 'money power' during elections?

- The EC caps campaign expenditure at Rs 95 lakh per constituency in bigger states, and Rs 75 lakh per constituency in smaller ones.
- Before each election, the Election Commission (EC) instructs police, railways, airports, the Income Tax (IT) department, and other agencies to closely monitor the movement of cash, liquor, jewelry, drugs, and gifts to prevent their distribution to sway voters.
- The Election Commission (EC) has specialized teams to address election expenditure and violations, including expenditure observers in each district, static surveillance teams (SST), and flying squads led by a Senior Executive Magistrate.

Rules for carrying cash and other items

- Authorities are supposed to "instantaneously report to the IT Department" if anyone is carrying cash worth more than Rs 10 lakh, or more than 1 kg in bullion.
- Cash or bullion can be seized till verification is completed, in order to ensure that it is not related to any political party or candidate.
- If a vehicle carrying a candidate, her agent or a party worker is found with over Rs 50,000 in cash, drugs, liquor. If items is worth more than Rs 10,000, then the items will be instantly seized.
- If during checking, there is any suspicion of a crime, the seizure will be done under the Criminal Procedure Code (CrPC).
- When it comes to carrying liquor across state borders, the excise laws of the respective state will apply. In case any cash or other items are seized, authorities are meant to return them if they are not related to any candidate or a crime. A district-level committee looks at grievances in order to avoid inconvenience to the public and genuine persons. The Committee, including the district election office's expenditure monitoring officer and the district treasury officer, will automatically review each seizure case where there's no complaint or the seizure isn't connected to any candidate, political party, or election campaign.
- Restructuring of the Directorate General of Quality Assurance (DGQA)  
The Department of Defence Production has announced a restructuring of the Directorate General of Quality Assurance (DGQA).

About restructuring of the Directorate General of Quality Assurance (DGQA)

- The Department of Defence Production has announced a restructuring of the Directorate General of Quality Assurance (DGQA) to streamline procedures and minimize levels of decision-making.
- This is to enhance the 'Ease of Doing Business' and support self-sufficiency in Defence.
- The reorganization is in line with the transformation of Ordnance Factories into new Defence Public Sector Undertakings (DPSUs) and the growing participation of the private defence sector.
- The revised framework facilitates centralized technical support for equipment/weapon platforms and ensures consistent product-based Quality Assurance (QA).
- Directorate of Defence Testing and Evaluation Promotion has been introduced to ensure the transparent allocation of Proof Ranges and testing facilities.
- There is a focus on leveraging automation and digital technologies in QA processes to improve the Defence Industry's interaction with DGQA.

About Directorate General of Quality Assurance (DGQA)

- The Directorate General of Quality Assurance (DGQA) is under Deptt. Of Defence Production, Ministry of Defence.
- It ensures the quality of a wide range of weapons, ammunition, equipment, and supplies for the Armed Forces.
- DGQA focuses on replacing imports with domestic products and collaborates with the Defence Research and Development Organisation (DRDO) on various projects.
- It also works on organizing and standardizing documentation and materials to reduce diversity in components and equipment.
- It supports small industries, offering post-purchase services, investigating defects.
- It also provides technical advice to the military, the Ministry, and manufacturing entities.

## 4. Governor's role in lawmaking

Recently, Kerala has moved the SC against the withholding of assent to Bills by the President and Governor.

**Governor's role in lawmaking**

- Article 200 of the Constitution states that after a Bill has been passed by the state legislature, "it shall be presented to the Governor".
- Then, the Governor has three options: give assent to the Bill, withhold assent, or reserve the Bill for consideration by the President.
- Article 200 allows the Governor to return a bill to the legislative body for reconsideration if they don't approve it initially.
- The provision states that the state government has the final say on enacting legislation.
- **President's role in the process**
- Article 201 states that in situations where a Bill is sent to the President for consideration, the President can either give or withhold assent.
- If assent is withheld, the President requests the Governor to return the Bill to the state legislature for reconsideration.
- The state government then has six months to reconsider the Bill. If it is not reconsidered it will lapse.
- If the Bill is passed once again by the state legislature, it must be sent back to the President.
- The Governor is under no obligation to give assent when assessing the reconsidered Bill.

Note: This is the only situation in which state governments do not have the final say in their own lawmaking process.

**Timeline for assent**

- In 2023, the Supreme Court of India decided on whether a Governor can refuse to approve laws passed by state legislatures if the Governor thinks the laws were made during an illegally held session.
- The Court ruled that Governors can't block or delay the lawmaking process of state legislatures.
- It explained that "as soon as possible," as mentioned in Article 200 of the Constitution, means Governors can't just sit on a law without deciding on it forever.
- If a Governor doesn't want to approve a law, they must follow Article 200's requirement to send it back to the state legislature asking for it to be looked at again.
- However, the Court didn't specify exactly how quickly Governors need to make this decision.

**5. Food Waste Index Report 2024**

Food Waste Index Report 2024, was launched by the United Nations Environment Programme (UNEP) and WRAP (Waste and Resources Action Programme).

**Findings of the report**

- According to the Food Waste Index Report 2024, households across the globe wasted over one billion meals a day in 2022.
- Whereas, 783 million people struggled with hunger and a third of humanity faced food insecurity.
- In 2022, 1.05 billion tonnes of food waste generated (including inedible parts) which amounts to 132 kilograms per capita and almost one-fifth of all food available to consumers.
- Out of the total food wasted in 2022, 60% happened at the household level, with food services responsible for 28%, and retail 12%.
- Many low- and middle-income countries continue to lack adequate systems for tracking progress to meet Sustainable Development Goal 12.3 of halving food waste by 2030, particularly in retail and food services.
- It was found that food waste is not a "rich country problem". Difference between average levels of household food waste for high-income, upper-middle, and lower-middle-income countries, was just 7 kg per capita.
- Hotter countries appear to generate more food waste per capita in households. It is potentially due to higher consumption of fresh foods with substantial inedible parts and a lack of robust cold chains.
- The report found that food loss and waste generated "8%-10%" of annual global greenhouse gas (GHG) emissions (almost five times that of the aviation sector).

The cost of both food loss and waste for the global economy was at \$1 trillion.

- As compared to urban areas, rural ones generally wasted less food, due to "greater diversion of food scraps to pets, livestock, and home composting".

**ANSWER WRITING**

Q. Dam failures are always catastrophic, especially on the downstream side, resulting in a colossal loss of life and property. Analyze the various causes of dam failures. Give two examples of large dam failures.

A. Dams have been quintessential in securing water resources and generating hydroelectric power, especially in a diverse and vast country like India. However, the safety of dams is an alarming concern in

India given the ageing infrastructure and increasing instances of extreme weather events which can have catastrophic consequences.

Catastrophic Consequences of Dam Failures on the Downstream Side:

- **Loss of Lives:** The Machchhu dam failure in 1979 is a heart-wrenching testament to the human toll of dam failures, with thousands of lives lost in a tragic event that shook the nation.
- **Massive Property Damage:** The looming fears surrounding the structural integrity of the Mullaperiyar Dam in India highlight the potential for substantial property damage that could affect countless families and businesses in the downstream regions of Kerala.
- **Ecological Destruction:** The Ratnagiri dam failure in 2019 in Maharashtra brought to the fore the severe environmental repercussions of dam failures, causing an ecological imbalance with the loss of flora and fauna, thereby underscoring the need for eco-friendly preventative measures.
- **Displacement:** The concerns surrounding the Idukki Dam in Kerala, emphasize the enormous social issue of displacement, where communities risk losing their homes and livelihoods, creating a cycle of poverty and homelessness that is difficult to break.
- **Long-term Psychological Impact:** The survivors of the Francis Dam failure in 1928 in the USA endured long-term psychological trauma, a testimony to the mental health toll dam failures can inflict on individuals, ranging from PTSD to anxiety disorders.

**Causes of Dam Failures:**

- **Natural Causes:** The Bhuj earthquake in 2001 in Gujarat elucidated the susceptibility of dam structures to seismic activities. Several dams in the region suffered varying degrees of damage, spotlighting the need for earthquake-resistant designs.
- **Unprecedented Rains:** The Kerala floods in 2018 are a case in point where torrential rains severely stressed dam systems, forcing emergency releases that exacerbated flooding situations and caused widespread destruction, stressing the need for efficient water management systems.
- **Structural Flaws:** The Banqiao dam failure in 1975 in China was partly due to engineering and structural deficiencies, which were unable to withstand the heavy rainfall and storm conditions, thereby emphasizing the need for stringent quality control in construction materials and designs.
- **Human Error:** The Vajont Dam disaster in 1963 in Italy was exacerbated due to human errors in the judgment of the geology of the site and overlooking the warning signs, highlighting the need for well-trained personnel in dam operations.
- **Lack of Maintenance:** The report by the Comptroller and Auditor General (CAG) of India has recurrently pointed out lapses in the maintenance of various dams across the country, spotlighting the pressing need for regular checks and maintenance to prevent tragic incidents.
- **Age of the Dam:** Many dams in India, like the Mullaperiyar dam, are over a century old and have witnessed disputes owing to concerns regarding their structural integrity with age, stressing the requirement for continuous assessment and reinforcement of aging dams.

**Some examples of Dam failure lead to catastrophic event :**

- **Uttarakhand Glacier Burst** – On February 7, 2021, a section of a Himalayan glacier detached and moved downwards at a very high velocity, impacting a river and causing high waves and intense floods. The incident triggered floods and damaged two dams in north India, leaving more than 170 people feared dead.
- **Polavaram Dam Failure** – In August 2022, the Polavaram dam in Andhra Pradesh failed to contain the floodwaters of the Godavari river, leading to massive floods in the surrounding areas.
- **Machchhu-2 Dam Failure** – On August 11, 1979, the Machchhu-2 dam in Gujarat failed due to excessive rainfall and massive flooding, resulting in the death of an estimated 1,800 to 25,000 people

While dams remain indispensable to India's developmental goals, safety cannot be compromised. By crafting policies inspired by global success stories and grounded in community participation and technological advancements, India can ensure the safe and sustainable operation of its dams, safeguarding countless lives and precious resources.

### MCQs

1. Consider the following statements regarding the criteria used by the India Meteorological Department (IMD) to declare a heatwave:

**Statement-I:** IMD declare a heatwave is when the temperature of a place crosses 40 degrees Celsius (°C) in the plains, 37°C in the coastal areas and 30°C in the hills.

**Statement-II:** IMD takes relative humidity into account to declare a heatwave.

Which of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I

- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I  
**(c) Statement-I is correct but Statement-II is incorrect**  
 (d) Statement-I is incorrect but Statement-II is correct
2. With reference to CoViNet, consider the following statements:  
 1. It is a global network of laboratories to identify and monitor potentially novel coronaviruses launched by the Vaccine Alliance (GAVI).  
 2. It will assess SARS-CoV-2, MERS-CoV as well as other coronaviruses.  
 3. India is a part of CoViNet.  
 How many of the statements given above is/are correct?  
 (a) Only one                      **(b) Only two**  
 (c) All three                      (d) None
3. With reference to Antarctic Circumpolar Current (ACC), consider the following statements:  
 1. ACC flows in a north to south direction near Antarctica.  
 2. It links the Atlantic, Pacific and Indian Oceans.  
 3. The ACC is the only ocean current that flows completely around the globe.  
 How many of the statements given above is/are correct?  
 (a) Only one                      **(b) Only two**  
 (c) All three                      (d) None
4. Consider the following statements regarding Armed Forces (Special Powers) Act (AFSPA):  
 1. AFSPA gives special power to the Armed Police Forces deployed in disturbed areas to arrest without a warrant.  
 2. Only the Central government can issue notification regarding the imposition of AFSPA.  
 Which of the statements given above is/are correct?  
 (a) 1 only                          (b) 2 only  
**(c) Both 1 and 2**                (d) Neither 1 nor 2
5. Consider the following pairs:  
**Elephant Corridors Location**  
 1. Abhaypur- Singphan                Manipur-Assam  
 2. Kankrajhore- Lalgarh                Odisha  
 3. Dulung- Subansiri                    Arunachal Pradesh  
 4. Bogapani Corridor                    Assam  
 How many pairs given above are not correctly matched?  
 (a) Only one pair                **(b) Only two pairs**  
 (c) Only three pairs                (d) All four pairs
6. Consider the following:  
 1. Electricity  
 2. Steel  
 3. Refinery products  
 4. Pharmaceuticals
- How many of the above are considered as the 'Core Sectors' of the Indian economy?  
 (a) Only one                      (b) Only two  
**(c) Only three**                      (d) All four
7. Which of the following organizations have jointly published the 'Food Waste Index Report 2024'?  
 (a) World Food Programme and the World Bank  
**(b) United Nations Environment Programme (UNEP) and Waste and Resources Action Programme (WRAP)**  
 (c) World Health Organization (WHO) and World Trade Organization (WTO)  
 (d) Food and Agricultural Organization (FAO) and Oxfam
8. The 'Agnipath scheme' fundamentally changes the recruitment process in the Indian Armed Forces by:  
 (a) Focusing on long-term service for all recruits  
**(b) Introducing a short-term service tenure followed by selective retention**  
 (c) Prioritizing recruitment from border regions  
 (d) Increasing the retirement age for commissioned officers
9. Consider the following statements:  
 1. Article 22 of the Constitution makes it mandatory for preventive detention laws to form advisory boards consisting of persons qualified to be High Court judges.  
 2. Advisory boards, under the various laws, have to review detention orders every three months to see whether there was sufficient cause for detention.  
 3. Law and order issues have a wider impact, affecting the community at large or even the entire country compared to the issues of public order.  
 4. The state's failure to effectively manage law and order should not automatically lead to the use of preventive detention measures.  
 Which of the statements given above are correct?  
 (a) 1, 2 and 3 only                (b) 2, 3 and 4 only  
**(c) 1, 2 and 4 only**                (d) 1, 3 and 4 only
10. Consider the following statements:  
 1. Indian States and Union Territories can impose an internet shutdown only in case of a "public emergency" or in the interest of "public safety".  
 2. The Indian Telegraph Act defines the criteria for determining what constitutes as an emergency or safety issue in the case of internet shutdowns.  
 3. Jammu and Kashmir saw the highest number of internet shutdowns in the last decade.  
 How many of the statements given above are correct?  
 (a) Only one                      **(b) Only two**  
 (c) All three                      (d) None