



# CURRENT AFFAIRS



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## UNDERSTANDING FLOODS

This article covers “Daily Current Affairs” and the topic details “Understanding Floods”. The topic “Understanding Floods” has relevance in the “Disaster Management” section of the UPSC CSE exam.

### **For Prelims:**

What is Flood, its causes, effects, and implications?

Basics of Disaster Management

### **For Mains:**

GS1: Physical Geography, GS3: Disaster Management

### **Why in the news?**

Heavy rainfall during the 2023 monsoon season has caused severe flooding across Northern India, primarily affecting residents in Himachal Pradesh, Punjab, Chandigarh, Uttarakhand, Jammu and Kashmir, Haryana, Rajasthan and Delhi.

### **Understanding Floods**

- Floods occur when an overflow of water submerges typically dry land and are one of the most frequent and devastating natural disasters worldwide.
- India is highly vulnerable to floods with over 40 million hectares of its 329 million-hectare geographical area prone to flooding.
- Floods cause significant loss of lives and damage to livelihood systems, property, infrastructure, and public utilities. The average annual flood damage in the last 10 years (1996-2005) was Rs. 4,745 crore, compared to Rs. 1,805 crore in the preceding 53 years.
- This vulnerability can be attributed to factors such as population growth, urbanization, increased developmental and economic activities in flood plains, and global warming.

### **Types of Flood**

There are several different types of floods, each with its own characteristics and causes. These include flash floods, river floods, coastal floods, and urban flooding, which is often the result of rapid land development.

### **Causes of Floods**

#### **Natural causes**

- **Prolonged or intense rainfall**, which saturates the soil and leads to increased surface runoff.
- **Relief characteristics**, such as mountainous or hilly areas, can accelerate the flow of water from higher to lower elevations, making low-lying regions more susceptible to flooding.

- In addition, **climate change** has been linked to the increase in extreme weather events, including heavy rainfall and storm surges, which can contribute to flooding.

### **Anthropogenic causes**

- **Deforestation**, for instance, removes the protective vegetation cover that helps regulate water flow and promotes infiltration into the soil.
- **Poor land use practices**, such as over-cultivation and overgrazing, degrade the soil's fertility, reducing its ability to absorb water.
- **Urbanization** plays a significant role as well, as the replacement of permeable soil with impermeable surfaces like concrete and asphalt prevents water from infiltrating into the ground, leading to increased runoff and potential flooding.
- Other **human activities**, including improper waste disposal, quarrying, and the collapse of dams, can also exacerbate the risk of flooding.

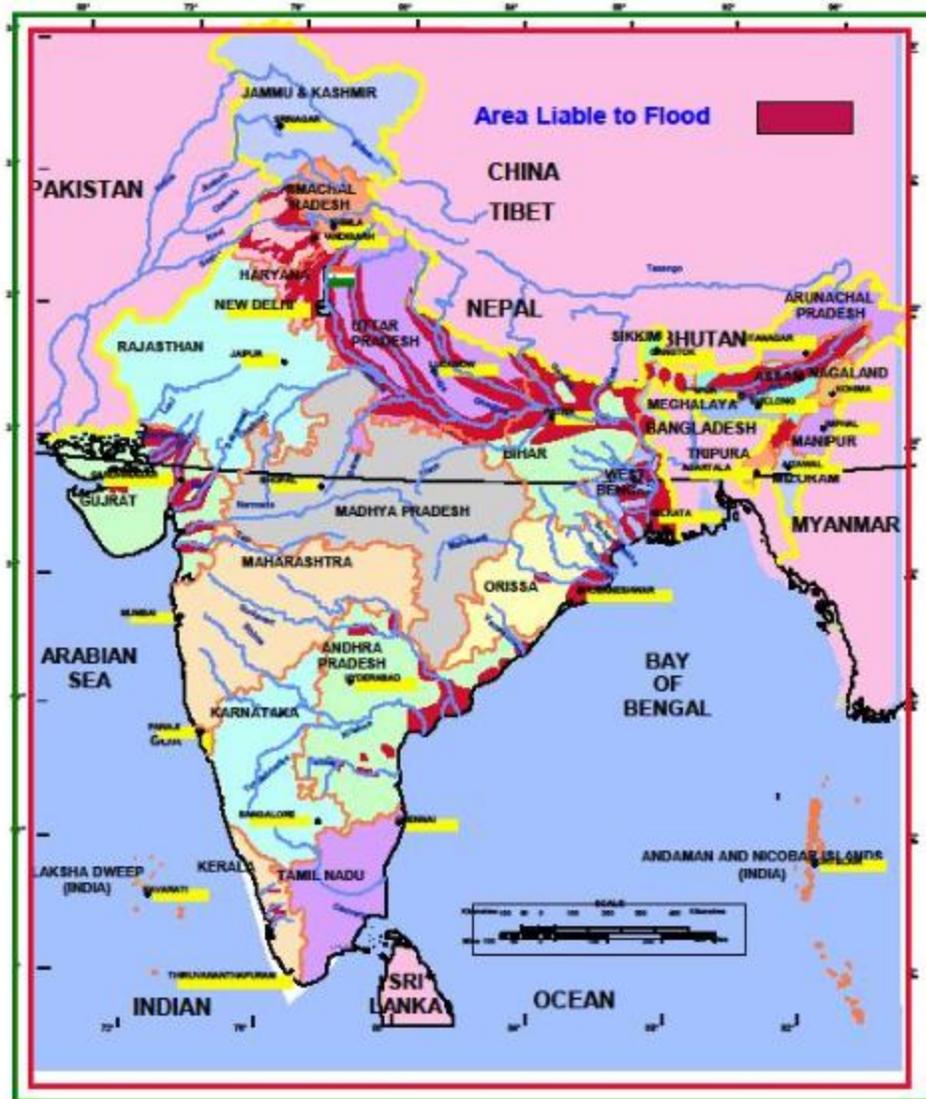
### **Implications of Floods**

- **Drowning** is a significant cause of death during flood disasters, accounting for a majority of the fatalities.
- Low- and middle-income countries with limited resources and weak flood response systems are particularly vulnerable to the devastating effects of flooding.
- Beyond the immediate risk to human life, floods can lead to **physical injuries, health issues, and disrupted health systems**, amplifying the challenges faced by affected communities. Water- and vector-borne diseases, such as cholera, typhoid, and malaria, can spread more easily in the aftermath of a flood.
- **Injuries** resulting from evacuations and disaster cleanup efforts are also common.
- Moreover, the **mental health** effects associated with emergency situations and the loss of homes and livelihoods can have long-term consequences.
- In addition to the human toll, floods cause **substantial damage to infrastructure, including roads, bridges, buildings, and utilities**. This leads to disruptions in access to basic services such as healthcare, food, and clean water, further compounding the challenges faced by affected communities.
- The **economic losses incurred by both the state and individuals** are significant, as flood damage often requires extensive recovery and rebuilding efforts.

### **Preventive Measures**

- **Improving drainage systems** through proper planning and expansion is essential to ensure efficient water flow and reduce the risk of flooding.
- **Diverting flood water** through natural or constructed channels can help alleviate pressure on vulnerable areas and redirect water away from populated regions.
- **Implementing watershed management measures**, such as afforestation and soil conservation, promotes the development of a vegetative cover that helps retain water and reduce the intensity of runoff.
- **Anti-erosion works**, such as building structures to deflect or reduce the current along riverbanks, can minimize bank erosion and stabilize vulnerable areas.
- **Constructing seawalls and coastal protection works**, such as groins, helps safeguard coastal areas from erosion and the destructive impact of storm surges.
- **Regular inspection, rehabilitation, and maintenance of structural works** are essential to ensure their effectiveness in flood prevention and management.

## AREA LIABLE TO FLOODS



### Flood as a National Calamity

In recent times, there have been several calls to declare floods as national calamity.

### Significance of National Calamity Declaration

- Assistance at the national level provided when a calamity is declared of “rare severity” or “severe nature.”
- Additional support considered from the National Disaster Response Fund (NDRF).
- Calamity Relief Fund (CRF) established, with shared contributions from the Centre and states.
- Insufficient CRF resources may lead to additional aid from the National Calamity Contingency Fund (NCCF), fully funded by the Centre.
- Possibility of relief measures for affected individuals, including loan repayment assistance or concessional loans.

### Criteria for Classifying a National Calamity

- There is no legal or executive provision to declare a natural disaster a national disaster.

- The intensity, magnitude, and assistance needed are evaluated on a case-by-case basis.
- Factors considered include the capacity of the state to address the problem and available alternatives for relief.
- The National Committee on Disaster Management (2001) examined parameters for defining a national calamity.

### Legal Definition of a Disaster

- According to the Disaster Management Act, 2005, a disaster is defined as a catastrophic event caused by natural or man-made factors, accidents, or negligence.
- Natural disasters encompass various events like earthquakes, floods, landslides, cyclones, tsunamis, urban floods, and heatwaves.
- Disasters result in significant loss of life, human suffering, property damage, environmental degradation, exceeding the affected community's coping capacity.

### Sources:

Declare floods as national calamity, compensate farmers: Samyukt Kisan Morcha  
Delhi under water as Yamuna breaches danger mark

### Q1. With reference to Floods, consider the following statements:

1. Floods can be caused by both natural and man-made factors.
2. The declaration of floods as a national calamity is mandatory in all affected regions.
3. Encouraging deforestation in flood-prone areas can help in mitigating floods.

Which of the statements given above is/are **NOT** correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 3 only
- (d) None

**Answer: (b)**

### Q2. Consider the following statements with reference to floods:

1. Implementing watershed management measures
2. Constructing buildings and infrastructure in floodplains
3. Developing early warning systems and evacuation plans
4. Replacement of permeable soil with impermeable surfaces

How many of the statements mentioned above can be considered as preventive measures against disasters like flooding?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All Four

**Answer: (b)**

**Q3. Explaining the causes, impacts, and mitigation strategies for floods in India, examine how effective are current flood management policies, and what measures can be taken to increase flood resilience in the country?**

# COAL GASIFICATION

*This article covers "Daily Current Affairs" and the topic details "Coal Gasification". The topic "Coal Gasification" has relevance in the Science and Technology section of the UPSC CSE exam.*

## **For Prelims:**

*About Coal Gasification?*

## **For Mains:**

*GS 3: Science and Technology*

*Coal Gasification Process?*

*Way Forward?*

## **Why in the news?**

The Coal Ministry on Friday announced that it is considering a comprehensive scheme to promote coal gasification projects for both government Public Sector Undertakings (PSUs) and the private sector with an outlay of Rs 6,000 crores.

## **About Coal Gasification**

The scheme aims to promote the utilization of coal gasification technology in India.

- It intends to harness the potential of natural resources and showcase the economic and technical viability of coal gasification.
- The goal is to attract both government PSUs and private sector participation, fostering innovation, investment, and sustainable development in the coal gasification sector.

## **Selection Process:**

- The scheme will employ a competitive and transparent bidding process to select entities for coal/lignite gasification projects.
- Eligible government PSUs and private sector entities will receive necessary support and incentives to undertake coal gasification initiatives.

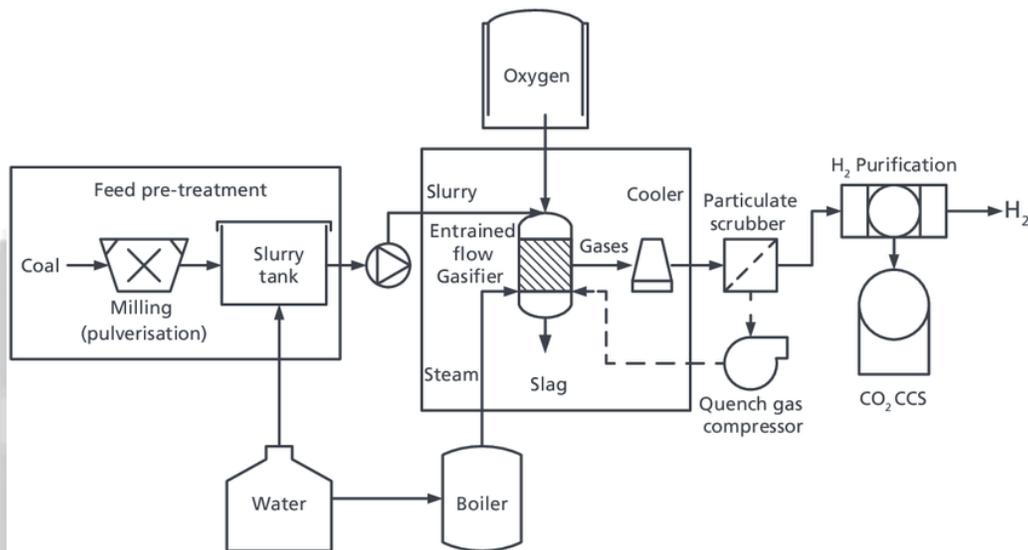
## **Significance:**

- The scheme aims to reduce carbon emissions and promote sustainable practices, contributing to global commitments for a greener future.
- It can alleviate the environmental burden associated with traditional coal-based energy production.
- Steel companies can benefit from syngas produced through coal gasification, reducing costs by replacing imported coking coal.
- Coal gasification can be used for electricity generation and the production of chemical feedstocks, fostering self-reliance in essential products.

## **Coal Gasification Process:**

- Coal gasification involves partially oxidizing coal with air, oxygen, steam, or carbon dioxide to produce a fuel gas.
- The resulting gas, known as syngas, primarily consists of methane, carbon monoxide, hydrogen, carbon dioxide, and water vapor.
- Syngas has diverse applications, including the production of fertilizers, fuels, solvents, and synthetic materials.
- It can be a substitute for piped natural gas and methane for energy production.
- Need for Promoting Coal Gasification Projects in India:

- Promoting gasification technology can reduce India's reliance on imports of natural gas, methanol, ammonia, and other essential products.
- The current dependency on imports for natural gas, methanol, and ammonia can be mitigated by utilizing coal gasification.
- It aligns with India's vision of self-reliance (Aatmanirbhar Bharat) and can create employment opportunities.
- By reducing imports, coal gasification contributes to the nation's development and energy security.



#### Way Forward:

- Conduct comprehensive evaluations of the environmental, economic, and social implications of coal gasification projects.
- Invest in research and development to improve the efficiency and environmental sustainability of coal gasification technology.
- Emphasize the development of a diversified energy mix, including renewable energy sources, energy efficiency measures, and sustainable alternatives to coal-based energy production.
- Learn from global experiences and best practices in coal gasification and hydrogen economy implementation to ensure sustainable development.

#### SOURCE:

<https://economictimes.indiatimes.com/industry/energy/coal-ministry-to-draw-scheme-for-coal-gasification-projects-worth-rs-6000-cr/articleshow/101750772.cms?from=mdr>

#### Q.1 Which of the following statements accurately describe the key points of the scheme aimed at promoting coal gasification in India?

1. The scheme aims to attract government PSUs and private sector participation in the coal gasification sector.
2. It focuses on harnessing natural resources and demonstrating the financial and technical feasibility of coal gasification.
3. The selection of entities for coal gasification projects will be done through a competitive and transparent bidding process.
4. The scheme aims to reduce carbon emissions and foster sustainable practices in line with global commitments.

Select the correct answer using the codes below:

- (a) 1, 2, and 3 only

- (b) 2 , 3 and 4 only
- (c) 1, 3, and 4 only
- (d) All of the above

**ANSWER: D**

**Q.2 Which of the following statements accurately describe the significance and benefits of promoting coal gasification in India?**

- (A) Coal gasification helps in reducing carbon emissions and fostering sustainable practices, aligning with global commitments towards a greener future.
- (B) It attracts government PSUs and private sector participation, encouraging innovation, investment, and sustainable development in the coal gasification sector.
- (C) The selection of entities for coal gasification projects is done through a competitive and transparent bidding process, ensuring efficiency and accountability.
- (D) Promoting coal gasification in India reduces dependence on imports of natural gas, methanol, and ammonia, contributing to India's goal of becoming self-reliant and creating employment opportunities.

**Select the correct answer using the codes below:**

- (a) A and B only
- (b) B and C only
- (c) A, C, and D only
- (d) All of the above

**ANSWER: D**

**Q.3 Discuss the significance and potential impact of promoting coal gasification in India on the country's energy sector, environmental sustainability, and self-reliance goals.**

*Rishabh*