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HIMACHAL FLASH FLOODS

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

For Prelims:

What are flash floods? Their Reasons?

For Mains:

GS3: Disaster and Disaster Management

Why in the news?

Flash floods during this year's monsoon season have caused unprecedented damage to both lives and assets in Himachal Pradesh.

Flash Floods:

Flash floods are events that occur in a small and specific area for a brief period, characterised by a rapid rise in water levels, reaching their peak within a few hours after the rainfall, typically within six hours.

Feature	Flash Floods	Floods in General
Definition	Sudden and intense flooding events that occur within a short span of time, typically within a few hours or even minutes.	An overflow of water that submerges land that is usually dry.
Cause	Heavy rainfall over a localized area, often associated with cloudbursts or intense thunderstorms. Can also result from factors other than rainfall, such as the release of water from a dam or the overflow of glacial lakes.	Prolonged and excessive rainfall over a wide area, usually lasting for days or weeks. Can also result from the melting of snow and ice, storm surges, tidal actions, or the failure of dams.
Onset	Rapid onset, catching people by surprise, and they can escalate quickly with little warning.	Slower onset compared to flash floods, as they take time to build up over a larger region and gradually inundate the surrounding areas.
Duration	Usually of short duration, but the impact can be severe due to the high intensity of the water flow.	Can last for an extended period, depending on the amount of rainfall and the water's source.
Scope	Highly localized and affect specific areas, such as narrow river valleys or urban regions with poor drainage systems.	Cover larger geographical areas, affecting extensive river basins or entire regions.
Characteristics	Often result in a swift and powerful surge of water, causing significant damage to infrastructure, posing dangers to human lives, and leading to landslides in mountainous terrains.	While floods may not have the same rapid intensity as flash floods, they can still cause significant damage to properties, disrupt transportation and communication, and result in the displacement of communities.

Causes:

Natural Causes of Flash Floods:

- **Cloudbursts:** Intense rainfall occurring suddenly over a specific area during a thunderstorm can lead to a massive amount of rainwater being dumped, causing flash floods.
- **Rivers and Streams Overflowing:** Prolonged heavy rains can cause rivers and streams to swell and overflow their banks, resulting in flash floods.
- **Blocked or Inefficient Drainage Systems:** When heavy rains exceed the capacity of drainage systems, they become blocked or inefficient, leading to flash flooding.
- **Volcanic Eruptions Melting Glaciers:** Volcanic eruptions on glacial mountains can melt ice, triggering flash floods.
- **Slow Moving Thunderstorms or "Trapped Thunderstorms":** Thunderstorms that move slowly over an area or become trapped between mountains can dump significant rainfall, causing flash floods.
- **Upstream Thunderstorms:** Thunderstorms occurring upstream in mountainous areas can contribute to flash floods as the runoff joins downstream rivers.
- **Hurricanes and Tropical Storms:** Hurricanes and tropical storms bring heavy rainfall that can result in flash floods.
- **Glacial Lake Outburst Floods (GLOF Events):** Glacial lake outburst floods can cause flash floods downstream, impacting mountainous areas.

Anthropogenic Causes of Flash Floods:

- **Dam Failures:** Human-induced dam failures can lead to flash flooding in an area, posing significant risks.
- **Climate Change:** Human activities causing climate change contribute to extreme weather events like hurricanes, leading to flash floods.
- **Destruction of Mangroves and Wetlands:** The destruction of mangroves and wetlands, which act as natural buffers against flooding, can exacerbate flash flood events.
- **Deforestation:** Deforestation removes the natural buffer provided by forests, allowing floodwaters to reach areas with greater force and intensity, leading to flash floods.

Probable causes of Himachal Flash Floods

- **Climate Change:**
 - Increased precipitation occurring in shorter periods of time in the Himalayas due to climate change.
 - The impact of the south-west monsoon combined with western disturbances leading to heavy rainfall.
- **Anthropogenic Factors:**
 - **Uncontrolled construction of hydropower projects**, which divert water through tunnels and contribute to the transformation of mountain rivers into streams.
 - **Road-widening projects for tourism promotion**, carried out without proper geological studies, leading to landslides and damage to existing roads.
 - **Establishment of massive cement plants** and extensive cutting of mountains altering the natural landscape and reducing the land's capacity to absorb water.
 - **Changes in crop patterns**, with more farmers embracing cash crop economies over traditional cereal farming, leading to hastily constructed roads and improper dumping of muck that affects river ecosystems.

Impacts:

- **Loss of life:** Flash floods can be extremely deadly, as they often occur with little or no warning. In 2023, for example, flash floods in Himachal Pradesh and Punjab killed at least 41 people.
- **Damage to property:** Flash floods can cause extensive damage to homes, businesses, and infrastructure. In 2022, flash floods in Assam damaged or destroyed over 100,000 homes.
- **Disruption of transportation:** Flash floods can wash away roads, bridges, and railways, making it difficult or impossible to travel. This can have a major impact on the economy, as it can disrupt the movement of goods and people.
- **Contamination of water supplies:** Flash floods can contaminate water supplies with mud, debris, and bacteria. This can lead to outbreaks of waterborne diseases, such as cholera and typhoid.
- **Damage to crops:** Flash floods can damage or destroy crops, which can lead to food shortages. In 2021, flash floods in Uttar Pradesh damaged or destroyed over 1 million hectares of crops.
- **Environmental damage:** Flash floods can cause erosion, landslides, and other environmental damage. This can have a lasting impact on the ecosystem.

Measures to Mitigate and Adapt to Flash Floods:

- **Early Warning Systems:** Implementing efficient early warning systems that utilize weather forecasting and monitoring technologies can provide timely alerts to vulnerable communities, allowing them to take necessary precautions and evacuate if needed.
- **Flood Mapping and Risk Assessment:** Conducting flood mapping and risk assessments helps identify flood-prone areas, enabling better land use planning and the development of flood-resistant infrastructure in high-risk regions.
- **Improved Drainage Infrastructure:** Investing in well-designed and properly maintained drainage systems can enhance water flow and reduce the risk of flash floods caused by blocked or inefficient drainage.
- **Afforestation and Reforestation:** Promoting afforestation and reforestation in catchment areas and vulnerable regions can help reduce soil erosion, improve water retention, and mitigate the intensity of flash floods.
- **Land Use Planning:** Proper land use planning is essential to avoid construction in flood-prone areas. Implementing regulations that prohibit building in high-risk zones can prevent human settlements from being exposed to flash flood hazards.
- **Sustainable Agriculture Practices:** Encouraging farmers to adopt sustainable agricultural practices, such as contour farming and terrace cultivation, can help reduce soil erosion and prevent sedimentation in rivers, thereby minimizing the risk of flash floods.
- **Flood Insurance and Relief Measures:** Providing access to affordable flood insurance for vulnerable communities and implementing efficient relief measures can help people recover from the impact of flash floods more effectively.
- **Public Awareness and Education:** Conducting awareness campaigns and educational programs to inform communities about flash flood risks, safety measures, and evacuation procedures is crucial in building community resilience.
- **Urban Planning and Green Spaces:** Integrating green spaces and rainwater harvesting systems in urban planning can improve water management and reduce the intensity of flash floods in cities.
- **River Restoration and Floodplain Management:** Restoring rivers to their natural state and managing floodplains can help absorb excess water during heavy rainfall and reduce the risk of flash floods downstream.

- **Climate Change Adaptation:** Implementing climate change adaptation strategies, such as building climate-resilient infrastructure and developing drought and flood management plans, can enhance the country's ability to cope with changing weather patterns.

Sources:

Explained | Himachal floods: a man-made disaster? – The Hindu

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

1. Flash floods usually last for an extended period, depending on the amount of rainfall and the water's source. (Wrong)
2. Flash floods are sudden and intense flooding events that occur over a wide geographical area, typically within a few hours or even minutes.
3. The cause of flash floods in Himachal Pradesh during the monsoon season is totally due to climate change-induced extreme weather events.

Which of the statements given above is/are correct?

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

Answer: (d)

Q2. Consider the following:

1. Early warning systems are only useful for coastal regions and not for inland areas prone to flash floods.
2. Contour farming is a practice that increases the risk of flash floods.
3. Planting more trees in flood-prone areas can help reduce the intensity of flash floods.
4. Public awareness and education have no impact on flash floods as they are natural disasters that cannot be controlled through community knowledge.

How many of the abovementioned statement/s is/are correct ?

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

Answer: (a)

Q3. Discuss the causes, impacts, and measures to mitigate and adapt to flash floods and floods in general, with a specific focus on the recent flash floods in Himachal Pradesh.

Gaurav Nikumbh

BIOLOGICAL DIVERSITY (AMENDMENT) BILL, 2021

This article covers "Daily Current Affairs" and the topic details "Biological Diversity (Amendment) Bill, 2021". The topic "Biological Diversity (Amendment) Bill, 2021" has relevance in the Environment section of the UPSC CSE exam.

For Prelims:

Key Features of the Biological Diversity (Amendment) Bill, 2021?

For Mains:

GS 3: Environment

Concerns about the Biological Diversity (Amendment) Bill, 2021?

Way Forward?

Why in the news?

Recently, Lok Sabha has passed the Biological Diversity (Amendment) Bill, 2021

Key Features of the Biological Diversity (Amendment) Bill, 2021:

Access to Biological Resources:

- Currently, anyone seeking to access biological resources or associated knowledge in India needs prior approval or must inform the regulatory authority.
- The Bill modifies the classification of entities and activities that require intimation, introducing exemptions to certain cases.

Intellectual Property Rights (IPR):

- The Act requires NBA approval before applying for IPR related to biological resources from India.
- The Bill suggests that approval will be required before the actual grant of the IPR, not during the application process.

Exempting AYUSH Practitioners:

- The Bill proposes to grant exemptions to registered AYUSH medical practitioners and individuals accessing codified traditional knowledge, among others. These exemptions would relieve them from the requirement of giving prior intimation to State biodiversity boards when accessing biological resources for specific purposes.

Benefit Sharing:

- The Act mandates benefit sharing, involving both monetary and non-monetary benefits with those conserving biodiversity or holding traditional knowledge.
- The Bill removes the applicability of benefit sharing requirements from research, bio-survey, and bio-utilisation.

Criminal Penalties:

- The Act stipulates criminal penalties, which may include imprisonment, for offenses such as failing to obtain approval or provide intimation for specific activities.
- It proposes to replace criminal penalties with fines ranging from one lakh to fifty lakh rupees



Concerns about the Biological Diversity (Amendment) Bill, 2021:

Favoring Industry over Conservation:

- Critics argue that the amendments prioritize industry interests over biodiversity conservation, contrary to the CBD's spirit.
- Benefit-sharing and community involvement frameworks may be weakened.

Decriminalization of Violations:

- The Bill proposes to decriminalize violations, reducing the NBA's power to file FIRs against non-compliant parties.
- Enforcement of biodiversity protection laws may be weakened.

Exemption for Domestic Companies:

- The Bill introduces a provision that requires only "foreign-controlled companies" to seek permission for using biodiversity resources. This exemption may create potential loopholes for domestic companies with foreign shareholding to avoid the approval process
- This may lead to unchecked exploitation of biodiversity.

Limited Benefit Sharing:

- Inclusion of "codified traditional knowledge" exempts certain users, such as Indian systems of medicine practitioners, from the need to share benefits.
Domestic companies may avoid sharing profits with communities holding traditional knowledge.

Ignoring Conservation Issues:

- Critics contend that the amendments fall short in effectively addressing the challenges related to biodiversity conservation in India.
- The focus on reducing regulations and facilitating business interests may negatively impact biodiversity and traditional knowledge holders.

Way Forward:

Striking a Balance: Strive for a balance between economic development and sustainable biodiversity conservation.

Inclusive Consultations: Engage in transparent and inclusive consultations with stakeholders, including local communities, indigenous people, conservationists, scientists, and industry representatives.

Consider All Perspectives: Ensure that all perspectives are considered in the decision-making process.

Alignment with Conservation Principles: Ensure that the amendments align with biodiversity conservation principles.

SOURCE:

<https://www.thehindu.com/sci-tech/energy-and-environment/biological-diversity-amendment-bill-passed-in-lok-sabha/article67120215.ece>

Q.1 Consider the following statements:

1. In India, the Biodiversity Management Committees are key to the realization of the objectives of the Nagoya Protocol.
2. The Biodiversity Management Committees have important functions in determining access and benefit sharing, including the power to levy collection fees on the access of biological resources within its jurisdiction.

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

Answer: (c)

Q.2 Which of the following amendments were proposed by the Biological Diversity (Amendment) Bill, 2021 to the Biological Diversity Act, 2002?

1. Introducing criminal penalties for violations related to biodiversity resources.
2. Granting exemptions to registered AYUSH medical practitioners from prior intimation to State biodiversity boards.

Select the correct answer using the codes below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (b)

Q.3 How is the Government of India protecting traditional knowledge of medicine from patenting by pharmaceutical companies?

Rishabh