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LANDSLIDES: NATURE'S UNPREDICTABLE FORCE

WHY IN THE NEWS?

Six people lost their lives, and three were injured after a massive tree, uprooted by heavy rains and a landslide, fell on parked vehicles near Gurudwara Manikaran Sahib on Sunday. Officials said the tree collapsed from a mountain opposite the gurudwara due to continuous rainfall. The injured were taken to Jari Hospital for treatment. Kullu SDM Vikas Shukla confirmed that emergency teams, including police and medical personnel, managed rescue efforts. Himachal Pradesh CM Sukhvinder Singh Sukhu directed authorities to provide all possible aid, while Leader of Opposition Jai Ram Thakur expressed condolences.



WHAT IS A LANDSLIDE?

A landslide is defined as the movement of a mass of rock, debris, or earth down a slope. Landslides are a type of "mass wasting," which denotes any down-slope movement of soil and rock under the direct influence of

gravity. The term "landslide" encompasses five modes of slope movement: falls, topples, slides, spreads, and flows. These are further subdivided by the type of geologic material (bedrock, debris, or earth). Debris flows (commonly referred to as mudflows or mudslides) and rock falls are examples of common landslide types.

INDIA'S VULNERABILITY TO LANDSLIDE

Category	Details		
Vulnerable Land Area	12.6% of India's land (excluding snow-covered areas) is landslide-prone.		
Most Affected Regions	Himalayas, Western Ghats, Northeast India, Eastern Ghats, Kerala, Sikkim, Arunachal Pradesh.		
Key Reports	ISRO Landslide Atlas: Mapped 80,000 landslides in 17 states, 2 UTs. GSI Report: Confirms 12.6% of land area at risk.		
Main Causes	Geological Factors: Young, unstable mountains (Himalayas, Western Ghats). Climate & Rainfall: Intense monsoons weaken slopes. Human Activities: Deforestation, unscientific road construction, mining, and farming on steep slopes. Earthquakes: Frequent seismic activity in the Himalayan region triggers landslides. Soil Erosion: Riverbank erosion makes slopes unstable.		
Impacts	Loss of Life: High fatalities in densely populated hilly regions. Infrastructure Damage: Roads, bridges, power lines, and buildings destroyed. Economic Losses: Disrupts agriculture, tourism, and transportation. Environmental Degradation: Causes deforestation, loss of biodiversity, and landslide-induced flooding.		

CAUSE OF LANDSLIDE

- **1. Heavy Rainfall & Flooding:** Excessive water saturates the soil, reducing its strength and triggering landslides, especially during monsoons.
- **2. Earthquakes & Seismic Activity:** Ground vibrations destabilize slopes, leading to rockfalls and landslides, particularly in mountainous regions.
- 3. Volcanic Eruptions: Lava flows, ash deposits and explosions can weaken slopes, causing sudden landslides.
- **4. Snowmelt & Glacier Movement:** Rapid melting of snow and glaciers increases water infiltration, loosening soil and rock.
- **5. Soil Erosion:** Rivers, wind, and weathering gradually wear down slopes, making them more prone to collapse over time.
- **6. Deforestation:** Cutting down trees removes the root systems that hold the soil together, increasing the risk of landslides.
- **7. Unplanned Construction & Excavation:** Poorly planned buildings, roads, and tunnels disturb natural slopes, leading to instability.
- **8. Mining & Quarrying:** Blasting and excavation weaken the ground, often triggering landslides in hilly and mountainous areas.
- **9. Poor Drainage Systems:** Improper water management causes water accumulation, weakening soil strength and increasing landslide risks.

10. Climate Change & Extreme Weather: Rising global temperatures lead to intense rainfall, glacier melting, and unpredictable weather patterns, making landslides more frequent and severe.

CONSEQUENCE OF LANDSLIDE

- 1. Loss of Life & Injuries: Landslides can bury homes and villages, leading to fatalities and serious injuries.
- **2. Destruction of Property & Infrastructure:** Houses, roads, bridges, and railways can be destroyed, causing severe disruptions.
- **3. Economic Losses:** Damage to businesses, agriculture, and industries results in financial setbacks and loss of livelihoods.
- **4. Displacement & Migration:** Affected communities may be forced to relocate, leading to social and economic challenges.
- **5. Soil Erosion & Reduced Fertility:** Landslides strip away topsoil, making land unsuitable for agriculture and reducing productivity.
- **6. Loss of Vegetation & Biodiversity:** Forests and ecosystems are destroyed, leading to habitat loss and declining wildlife populations.
- **7. Water Contamination & Shortages:** Landslides can pollute water sources and disrupt natural water flow, impacting supply and quality.
- **8. Flash Floods & Landscape Changes:** Blocked rivers can create temporary lakes that may burst, causing devastating floods and altering geography.

NDMA GUIDELINE ON LANDSLIDE

Category	Key Measures	Details
Landslide Hazard, Vulnerability & Risk Assessment	Identifying High-Risk Areas	Mapping and analyzing landslide-prone zones.
	Assessing Infrastructure & Populations at Risk	Evaluating buildings, roads, and communities vulnerable to landslides.
Early Warning Systems	Continuous Monitoring	Using sensors, satellite data, and geotechnical instruments to detect ground movement.
	Timely Alerts & Data Sharing	Communicating risk data quickly to authorities and the public.
Landslide Risk Mitigation & Remediation	Land Use Planning	Restricting development in landslide- prone areas.
	Enforcing Construction Standards	Implementing safer excavation and building regulations.
	Protective Infrastructure	Installing retaining walls, rock anchors, and other stabilizing structures.
	Slope Stabilization	Improving drainage, vegetation cover, and controlled debris removal.

Category	Key Measures	Details
	Landslide Insurance & Compensation	Providing financial support to affected communities.
National Landslide Risk Management Strategy	Comprehensive Risk Reduction Plan	Integrating hazard mapping, awareness programs, capacity building, and regulations.
	NDMA Task Force	Developing national and local-level strategies for landslide management.
	Strategy Document	Covering all aspects of landslide risk reduction.
NDMA Guidelines on Landslide & Snow Avalanche Management	National Landslide Policy (2009)	Official guidelines for landslide disaster management.
	Landslide Risk Mitigation Scheme (LRMS) – 2019	Financial and technical assistance for landslide-prone states.
	LRMS Key Objectives	Focus on prevention, mitigation, early warning systems, and capacity building.

CHALLENGES TO REDUCE THE LANDSLIDE

- **1. Lack of Accurate and Comprehensive Data:** Incomplete or outdated landslide hazard maps hinder effective risk assessment and mitigation.
- **2. Unregulated Construction in Vulnerable Areas:** Rapid urbanization and infrastructure development in landslide-prone regions increase risks.
- **3. Deforestation and Environmental Degradation:** Uncontrolled deforestation weakens slopes, making them more prone to landslides.
- **4. Poor Drainage and Water Management:** Inadequate drainage systems increase soil saturation, leading to slope failures.
- **5. Limited Implementation of Early Warning Systems:** Lack of proper monitoring networks and real-time data delays warnings and response efforts.
- **6. Climate Change and Extreme Weather Events:** Intense rainfall, rising temperatures, and unpredictable weather patterns worsen landslide frequency.
- **7. Inadequate Public Awareness and Preparedness:** Communities in high-risk zones often lack knowledge of landslide risks and safety measures.
- **8. Lack of Strict Policy Enforcement:** Weak enforcement of land-use regulations and construction guidelines allows unsafe development.
- **9. Limited Financial and Technological Resources:** Insufficient funding and technology slow down landslide mitigation projects.

WAY FORWARD

1. Strengthen Early Warning Systems: Implement real-time monitoring using sensors, satellite imagery, and Al-based prediction models.

- **2. Improve Land Use Planning & Regulations:** Enforce strict zoning laws to prevent construction in high-risk areas. Implement eco-friendly infrastructure development in vulnerable regions.
- **3. Enhance Slope Stabilization Measures:** Use retaining walls, vegetation cover, and proper drainage systems to reinforce slopes. Promote bioengineering techniques for sustainable landslide prevention.
- **4. Increase Public Awareness & Community Preparedness:** Conduct education campaigns on landslide risks and safety measures. Train local communities in disaster preparedness and evacuation drills.
- **5.** Leverage Technology & Research for Risk Mitigation: Encourage research on cost-effective landslide mitigation techniques. Use drones, LiDAR, and GIS mapping for precise hazard assessment.
- **6. Implement Sustainable Environmental Practices:** Promote afforestation and soil conservation techniques to stabilize slopes. Control deforestation and unplanned mining activities to reduce environmental stress.
- **7. Strengthen National Landslide Policy & Funding:** Expand financial assistance programs like LRMS for highrisk states. Invest in disaster resilience infrastructure and emergency response teams.

CONCLUSION

Landslides pose a significant risk to lives, infrastructure, and the environment in India. While natural factors like rainfall and earthquakes contribute, human activities such as deforestation and poor urban planning exacerbate the problem. A proactive approach combining scientific research, policy enforcement, community participation, and technological advancements is essential to minimize the impact of landslides. By strengthening risk management strategies, we can build a safer and more resilient future against these disasters.

PRELIMS QUESTIONS

Q. With reference to landslides in India, consider the following statements:

- 1. The Himalayas are more prone to landslides due to their young fold mountain structure and high seismic activity.
- 2. The Western Ghats experience landslides primarily due to excessive rainfall and deforestation.
- 3. The Landslide Hazard Zonation (LHZ) maps are prepared by the Indian Space Research Organisation (ISRO).

How many of the above-given statements are correct?

- A. Only one
- B. Only two
- C. All three
- D. None

Answer: B

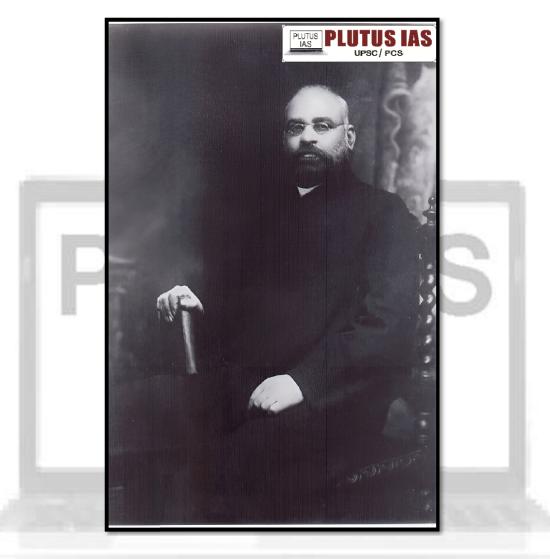
MAINS QUESTIONS

Q. "Landslides are a recurrent disaster in India, especially in the Himalayan and Western Ghats regions." Discuss the causes, consequences, and mitigation strategies for landslides in India (250 words, 15marks)

THE REVOLUTIONARY NATIONALISM SHYAMJI KRISHNA VARMA

WHY IN THE NEWS?

Prime Minister Shri Narendra Modi paid tribute to the great freedom fighter Shyamji Krishna Varma on his death anniversary today. Shyamji Krishna Varma was a revolutionary nationalist who played a crucial role in India's freedom struggle, especially through his activities in London. PM Modi acknowledged his contributions and sacrifices in the fight against British rule.



WHO WAS SHYAMJI KRISHNA VARMA

Shyamji Krishna Varma (1857–1930) was an Indian freedom fighter, nationalist, lawyer, and journalist. He played a crucial role in India's struggle for independence by promoting revolutionary nationalism against British rule.

Key Contributions:

- **1. Founder of India House (1905):** A centre in London that nurtured Indian revolutionaries, including Vinayak Damodar Savarkar.
- 2. Established the Indian Home Rule Society: Advocated for India's complete independence and self-rule.
- **3. Published The Indian Sociologist:** A monthly journal that criticized British rule and inspired revolutionaries.
- **4. Influence of Swami Dayanand Saraswati:** A disciple of Arya Samaj, he promoted cultural nationalism and Vedic ideals.
- **5. Legal and Political Activism:** Served as Diwan (chief minister) of Ratlam and Junagadh but resigned due to British interference.

6. Advocated Armed Resistance: Believed that "Resistance to aggression is not simply justified, but imperative", inspired by Herbert Spencer.

CONTRIBUTIONS TO INDIAN FREEDOM STRUGGLE

- **1. Founder of India House (1905):** Established India House in London as a base for Indian revolutionaries. Provided shelter, financial aid, and guidance to leaders like Savarkar, Madan Lal Dhingra, Lala Hardayal, and Virendranath Chattopadhyaya.
- **2. Formation of the Indian Home Rule Society (1905):** Founded the Indian Home Rule Society to demand complete independence (Swaraj) from British rule. Promoted revolutionary nationalism instead of peaceful protests.
- **3. Publication of The Indian Sociologist:** Launched The Indian Sociologist, a radical monthly journal spreading anti-British ideas. Encouraged armed revolution instead of petitions and compromises.
- **4. Support for Armed Struggle:** Rejected moderate approaches of the Indian National Congress. Supported Lokmanya Tilak during the Age of Consent Bill controversy (1890). Encouraged the Chapekar brothers and Madan Lal Dhingra's assassination of British officers.
- **5. Financial Support for Revolutionaries:** Established Herbert Spencer Indian Fellowships to fund Indian students in Europe. Used personal wealth to finance revolutionary activities and Indian independence movements.
- **6. Opposition to British Rule:** Exposed British oppression in India through speeches, writings, and activism. Inspired Indian students and political leaders to fight against colonial rule.
- **7. Exile and Continued Resistance:** Forced to flee London to Paris in 1907 due to British persecution. Later moved to Geneva, Switzerland, and continued supporting Indian revolutionaries. Remained under British surveillance but never stopped his mission.
- **8.** Posthumous Recognition & Legacy: His ashes were repatriated to India in 2003 by Narendra Modi. The Kranti Teerth Memorial in Gujarat was built in his honour. In 2015, he was posthumously reinstated to the Inner Temple, London, from where he was disbarred in 1909.

REVOLUTIONARY STREAM OF INDIA'S NATIONAL MOVEMENT

- 1. Early Revolutionary Activities (1870s-1890s): Influenced by Swami Dayanand Saraswati and Bal Gangadhar Tilak. Chapekar Brothers (1897) assassinated British officer W.C. Rand in Pune, marking early armed resistance.
- **2. Formation of Secret Societies (1900s):** Anushilan Samiti (1902) in Bengal and Abhinav Bharat Society (1904) by Vinayak Damodar Savarkar. Promoted revolutionary ideology and military training among Indian youth.
- **3. Role of India House & Shyamji Krishna Varma (1905-1909):** India House in London became a hub for Indian revolutionaries. Madan Lal Dhingra (1909) assassinated British official Curzon Wyllie in London as an act of defiance.
- **4. Alipore Bomb Conspiracy (1908):** Aurobindo Ghosh, Barindra Ghosh, and others planned to overthrow British rule using explosives. Khudiram Bose and Prafulla Chaki attempted to assassinate Judge Kingsford but were captured and executed.
- **5. Ghadar Movement (1913-1917):** Lala Hardayal and Sohan Singh Bhakna founded the Ghadar Party in the USA to instigate an armed revolt in India. The Ghadar Mutiny (1915) was planned but failed due to British intelligence infiltration.
- **6. Hindustan Republican Association (HRA) & Kakori Conspiracy (1925):** Ram Prasad Bismil, Ashfaqulla Khan, Chandrashekhar Azad led a train robbery at Kakori to fund revolutionary activities. The leaders were arrested and executed, inspiring future revolutionaries.

- **7. HSRA & Bhagat Singh's Struggle (1928-1931):** The Hindustan Socialist Republican Association (HSRA) was formed by Bhagat Singh, Rajguru, Sukhdev, Chandrashekhar Azad. Saunders' assassination (1928) and the Central Assembly bombing (1929) were key acts of resistance.
- **8.** Azad Hind Fauj & Subhas Chandra Bose (1943-1945): The Indian National Army (INA) was formed with Japanese support to fight the British. Bose's famous slogan: "Give me blood, and I will give you freedom!" motivated Indians to join the struggle.

CONTRIBUTIONS OF REVOLUTIONARY TO INDIA'S NATIONAL MOVEMENT

- **1. Ignited the Spirit of Resistance:** Revolutionaries like Bhagat Singh, Chandrashekhar Azad, and Subhas Chandra Bose infused fearlessness and sacrifice into the freedom struggle.
- **2.** Challenged British Rule: Assassination of British officials (e.g., Curzon Wyllie by Madan Lal Dhingra, Saunders by Bhagat Singh) shook British confidence. Bomb attacks and armed resistance (e.g., Kakori Conspiracy (1925), Delhi Assembly Bombing (1929)) demonstrated defiance against colonial rule.
- **3. Formed Revolutionary Organizations:** Anushilan Samiti (1902) and Jugantar (1906) in Bengal spread revolutionary ideology. Hindustan Socialist Republican Association (HSRA) (1928), led by Bhagat Singh, promoted socialism and armed struggle.
- **4. Spread Nationalist Ideas:** Newspapers like Bande Mataram, Ghadar, and The Indian Sociologist fueled anti-British sentiment.
- **5. Global Influence & Support:** The Ghadar Movement (USA, Canada) and Subhas Chandra Bose's INA sought international backing for independence.
- **6. Forced British Repressive Measures:** Their activities led to harsh laws like the Rowlatt Act and the Defence of India Act, exposing British fear.
- **7. Radicalized the Freedom Struggle:** Their demand for complete independence (Purna Swaraj) pushed Congress towards a more assertive stance.
- **8.** Legacy of Sacrifice & Nationalism: Their martyrdom became a symbol of patriotism, inspiring future generations and post-independence policies.

LIMITATIONS OF REVOLUTIONARY NATIONALISM

- **1. Lack of Mass Support:** Revolutionary movements were largely confined to urban youth and students, failing to mobilize the broader masses, including peasants and workers.
- **2. Absence of a Clear Political Program:** Unlike Congress-led movements, revolutionaries lacked a well-defined long-term strategy for governance post-independence.
- **3. Dependence on Armed Struggle:** The focus on assassinations and bombings led to severe crackdowns, making the movement unsustainable in the long run.
- **4.** Harsh British Repression: The colonial government responded with brutal measures like executions, deportations, and stricter laws (e.g., the Rowlatt Act), weakening revolutionary networks.
- **5. Lack of Unity & Coordination:** Different revolutionary groups like Anushilan Samiti, HSRA, and Ghadar Party operated independently, limiting their collective impact.
- **6. Failure to Gain International Support:** Unlike Gandhi's diplomacy, revolutionaries struggled to secure significant foreign backing for India's independence.
- **7. Financial & Resource Constraints:** Limited funds and weapons made it difficult to sustain prolonged armed resistance against a well-equipped colonial government.
- **8. Overshadowed by Mass Movements:** Non-violent mass movements led by Gandhi, Nehru, and Patel gained wider acceptance, sidelining the revolutionary approach over time.

CONCLUSION

Revolutionary nationalism played a crucial role in India's freedom struggle by instilling a spirit of resistance and sacrifice. The contributions of revolutionaries like Shyamji Krishna Varma, Bhagat Singh, and Subhas Chandra Bose created an atmosphere of defiance against British rule. However, due to harsh repression, lack of mass support, and absence of a clear political strategy, it could not achieve independence on its own. Despite its limitations, the revolutionary movement laid the foundation for the demand for complete independence (Purna Swaraj) and remains a source of inspiration for generations.

PRELIMS QUESTIONS

- Q. With reference to the Ghadar Movement, which of the following statements is/are correct?
- 1. The Ghadar Party was founded in the USA in 1913 to initiate an armed revolt against British rule in India.
- 2. Lala Lajpat Rai was one of the founding members of the Ghadar Party.

Select the correct answer using the code given below:

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

Answer: A

MAINS QUESTIONS

Q. Analyze the role of revolutionary nationalism in India's freedom struggle. Discuss its impact, limitations, and legacy in shaping the independence movement (250 words, 15marks)

