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UTTRAKHAND FLASH FLOOD 2013

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ABSTRACT

The Uttarakhand Flash Flood of 2013 serves as a stark reminder of the devastating consequences of environmental mismanagement and unplanned development. This paper examines the multifaceted causes of the disaster, including rapid urbanization, industrialization, and population growth, which have led to significant ecological degradation in the Himalayan region. The author argues that the indiscriminate exploitation of natural resources has disrupted the delicate balance of the ecosystem, resulting in catastrophic events such as the flash floods. The paper emphasizes the need for a paradigm shift in how we perceive and interact with our environment, advocating for sustainable development practices that prioritize ecological integrity over short-term economic gains. It calls for comprehensive disaster management plans, stricter regulations on construction in ecologically sensitive areas, and a collective commitment to climate justice to mitigate future disasters.

KEYWORDS

Uttarakhand, Flash Flood, Environmental Management, Urbanization, Industrialization, Disaster Management, Climate Justice, Sustainable Development, Ecological Degradation, Himalayan Region.

INTRODUCTION

"We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect. --- ALDO LEOPARD

The first sentence of this quote is the cause of the problem and the second sentence of the quote is a thought to its solution.

The cause of environmental damage is indiscriminate urbanization, rapid industrialization, and population explosion. Unplanned urbanization is responsible for increasing concrete jungles of colonies resulting in boosting the number of mega cities. Industrial hubs in the suburbs of mahanagars, large number of chimneys of industrial units and vehicular pollution are straining the free gifts of nature—OXYGEN and WATER. Both the gifts are being polluted or contaminated to an alarming limit. The result is mounting number of patients suffering from various known and unknown diseases. Even the Himalayan ranges have not been spared. It speaks of our faulty planning and wrong priorities in the name of development.

As you sow, so you reap.

Nature reacts if wounds are deep.

NATURE knows no limits, when it strikes with all its fury it doesn't differentiate between rich or poor, rural or urban, men and women, Hindu and Muslim, it just wreaks havoc all under its clutch. A disaster is a serious disruption that strikes the areas inhabited by man as it involves widespread destruction of human, material, property, environment etc.

The assignment under study is Uttarakhand Disaster,2013. Uttarakhand has a total area of 53484 km2. Uttarakhand is a Himalayan state which is 86% mountains and 65% forests. Most of the area is covered by high Himalayan peaks and glaciers. Two of the most important and holy rivers the Ganga at Gangotri and the Yamuna at Yamunotri are originated from Uttarakhand. The state has CHAR DHAM i.e., Gangotri, Yamunotri, Badrinath, and Kedarnath the holy pilgrimage for the Hindus. It is also known as the DEVBHUMI (literally- "Lands Of The Gods").

Himalayan ranges have three features: -

1.Soaring heights—It includes 50 mountain ranges exceeding 7200 m. in height forming steep gorges.

2.Alpine glaciers—The glaciers of the Ganga and Yamuna have been a unique feature of the Himalayas for years.

3. Vast bio-diversity-The Himalayan ranges are blessed with a variety of wildlife and medicinal plants.

#SHOWING MAP OF UTTARAKHAND

THE CHAR DHAM #KEDARNATH # BADRINATH #GANGOTRI & #YAMUNOTRI

Hence Uttarakhand is inherently vulnerable to various natural and human-induced disasters. During June16-17, 2013 a devastating flood followed by large-scale landslides occurred in the state which is termed as the country's worst disaster in the living memory since the 2004 tsunami. The maximum damage was in the Kedarnath valley. The foremost cause of this calamity was the increase in anthropogenic activities such as construction of hydropower projects, ever-increasing tourism, rapid urbanization near riverbanks and increased emission of greenhouse gases (GHGs) during the last few years. These factors contributed to the occurrence of this disaster. These anthropogenic activities have resulted in frequent heavy rainfall, cloud bursting, rapid melting of snow and ice, sudden release of water stored in glaciers, landslides, and failure of water storage structures such as dams.

HISTORICAL CLOUDBURST EVENTS IN UTTARAKHAND

- 2002 Cloudburst in Khetgaon (Pithoragarh) 04 persons died.
- 2004 Cloudburst in Ranikhet (Almora) 01 casualty.
- 2007 Cloudburst in Pithoragarh & Chamoli 23 lives lost.
- 2008 Cloudburst in Pithoragarh 01 casualty.
- 2009 Massive Cloudburst in Tehsil Munisyari district Pithoragarh 43 lives lost.
- 2010 Massive Cloudburst Kapkot (Bageshwar) 18 school children were buried alive and Massive Cloudburst in Almora 36 lives lost.
- 2013 Cloudburst Chorabari Glacier melted and this triggered the flooding of the Mandakni river which led to heavy flood near Gobindghat, Kedar Dome, Rudraprayag districts, Uttarakhand. 822 Deaths, 1800 were Missing, 1520 roads got Damaged.

CAUSES OF THE DISASTER

HISTORICAL BACKGROUND RESPONSIBLE FOR THE DISASTER

The factors responsible for the devastating disaster were -

A. Climatic and environmental change –

The studies say that there is a change in natural and anthropogenic influence on the climate, that –

- Northern India has experienced increasingly large rainfall in June since the late 1980s.
- The increase in rainfall appears to be associated with a tendency in the upper troposphere towards amplified short waves.

- The phasing of such amplified waves is tide to increased loading of greenhouse gases and aerosols.
- A regional modelling diagnosis attributed 60 to 90 % of rainfall amounts in the June 2013 event to post – 1980 climate trends.
- Since the beginning of 21st century, leading to weakening of glaciers and increasing the water levels in various river systems.
- This region is not only geologically unstable but also ecologically s

B. Geographical factors-

- Hill state Uttarakhand is geologically unstable and ecologically sensitive.
- Most part of Uttarakhand is covered by Himalayan peaks and glaciers.
- The Himalayas are young fold mountains, formed in few million years ago.
- Tectonic activities are very common here, making the region very unstable and sensitive.
- Uttarakhand has the highest no of unstable zones.
- The adverse geological setting makes the state highly susceptible to intense seismic shaking and landslides.
- Heavy rainfall has wreaked havoc on the region because of the fragile nature of the Himalayan range and poor soil stability in its steep slopes.

C. Man-made reasons-

- During the recent past, due to population growth large scale deforestation has been taken place.
- Heavy traffic of tourists is also alarming in the valleys of the Yamuna, the Ganga and the Alaknanda.
- Pollution, Global warming and violation of environmental laws are also accounted for the melting of glaciers and floods.
- Construction of new roads and reconstruction of roads to accommodate rapidly increasing tourism, especially religious tourism is also a major cause for the unprecedented scale of devastation. As the data of Uttarakhand State Transport Department says no. of registered motor vehicles across Uttarakhand was 643000 in the year 2007 it was increased to more than double i.e., 1460000 in the year 2013 and it is 2137000 in the year 2017.
- The huge expansion of roads and overburden of transport is bringing the mountains in Uttarakhand down. This is a major destabilizing factor and a new phenomenon for the Himalaya.
- After the devastation in Uttarakhand in 2013, many questions were raised about the irresponsible and unethical practices of hydroelectric power projects and dams according to the Jal Vidyut Nigam Ltd. 45 hydropower projects with a total capacity of 3,164 MW are operational in the state and around 199 big and small projects have been proposed in the state. The exploitation of Ganga, Bhagirathi, Alaknanda and their tributaries through dams are resulting challenges in valleys.
- Dynamite blasts are required to cut mountains and pave way for the construction of dams. On a Richter scale, such blasts are equivalent to an earthquake of the magnitude of 4.0, which is responsible to aggravate landslides. These all factors are responsible for frequent landslides.
- Several rivers are being diverted through tunnels for these projects leading to major disasters in the state.

#BURDEN ON THE EARTH

IMMEDIATE FACTORS RESPONSIBLE FOR KEDARNATH DISASTER

A. NATURAL REASONS

1. Heavy incessant rainfall – a trigger for Uttarakhand Disaster –

- From 14th to 17th June ,2013 the Indian state of Uttarakhand and adjoining areas received heavy rainfall due to an approaching well marked cyclonic circulation from Bay of Bengal. Which resulted the rainfall 375 % more than the benchmark rainfall during a normal monsoon.
- According to the IMD (Indian Meteorological Department), the rainfall in the state between 15th and 18th June 2013 was measured at 385.1mm against the normal rainfall of 71.3mm.
- The massive rainfall and cloud burst events were happening at multiple places, including Bhagirathi Basin, Assiganga Basin, Mandakini Basin, Badrinath Region, other places in Alaknanda Region.

2. Collapse of the moraine dammed Chorabari Lake –

- This caused the melting of Chorabari Glacier at the height of 3800 meters and
- triggered the flooding and eruption of Mandakini River.
- Main cause of Chorabari Lake (Gandhi Sarovar Lake) collapse was torrential rains between 14th to 18th June 2013.
- Due to heavy rainfall glacier which is thickly covered by snow rapidly melted due to rainwater allowing large amount of water accumulation in the Gandhi Sarovar Lake.
- There were no outlets in lake to release enormous water. Therefore, millions of gallons of water accumulated in lake within 3 days increased their potential energy and reduced shear strength of dam.
- Ultimately loose moraine dam breached causing an enormous devastation in Kedarnath Valley.
- Which led to heavy floods near Gobindghat, Kedar Dome, Gaurikund, Dharchula, Pindar Valley, Rudraprayag District, Uttarakhand, Himachal Pradesh.

B. MYTHOLIGICAL REASONS

Media Report cited some mythological causes about the Kedarnath tragedy 2013.

This is a superstition or co-incidence but TRUE

- First and foremost, of them is displacement of the idol of DHARI MATA. People & locals still believe it some religious leaders also raised their voice against the shifting of Goddess. They believe Kali Avtaar Dhari Devi unleashed the floods for revenge if the idol of Dhari Devi was not displaced, there would have not been any catastrophe in Kedarnath Valley. DHARI DEVI is considered the avtaar of MAA KALI who is believed to be the guardian of GODDESS of Char Dham, mountains and pilgrims according to Srimad Bhagwat Dhari Mata is one of the 26 shaktipeeths of Uttarakhand. It is a known fact that in the evening of June 16,2013 at 6:00 P.M. the idol of the GODDESS was uprooted from its ancient temple, located near Srinagar (Garhwal) for a hydel-power project. Just after two hours the idol was moved the devastation on a massive scale hit the Kedarnath Valley.
- Second cause is opening of the doors of Gangotri and Yamunotri after the auspicious time (muhurta) on 13 May, 2013. Normally the journey of Char Dham yatra begins with the opening of the doors of Gangotri and Yamunotri on the Akshaya Tritiya. The Muhurta in which the yatra started was PITRA PUJAN muhurta. In this Muhurta worship of deity and auspicious work is prohibited. Hence the inauspicious time is said to be cause of disaster.
- Third cause is the belief that the devastation occurred due to lack of faith in the devotees in the pilgrimages. Rich people have started coming here for holidaying and enjoying just for change and entertainment polluting the pious environment of holy temples.
- Fourth cause is the belief of Hindu mythology that the Ganga is the holiest river of the world which has descended to earth from SWARG (heaven) because of a royal sage Bhagirath, aided by the Lord Shiva. Lord Shiva had assured to maintain the dignity and purity of the Ganga which is believed to be the mother of all mankind. It is believed that Ganga could not bear the constant humiliation caused by building dams and dirt by human beings. So angered Ganga has shown its rage in the form of devastation in Kedarnath Dham.

IMPACT OF THE DISATSTER

A. Affected areas-

- Although the Kedarnath Temple itself was not damaged, its base was inundated with water, mud, and boulders from the landslides, damaging its perimeter.
- The entire state was hit by the disaster. Though all the 13 districts of the state were hit, but 5 districts were the worst affected namely – Bageshwar, Chamoli, Pithoragarh, Rudraprayag and Uttarkashi.
- Other reasons affected by the disaster were National Capital Region – New Delhi, Gurugram, Faridabad and surrounding areas. Uttar Pradesh – 23 districts were affected. Himachal Pradesh and Nepal were also affected.

B. Flood-

- Large rivers like the Ganga, Kali, Saryu, Ramganga, the Yamuna and their tributaries rivers Bhagirathi, Alaknanda, Mandakni, breached their danger marks.
- Floods affected every part of the state, rural and urban areas alike.

C. Landslides-

- ISRO (Indian Space Research Organization) identified 2395 landslides in various parts of the Mandakni, Alaknanda and Bhagirathi water sheds. Roads and telecommunication links were severely affected.
- The overall impact was that heavy erosion and accumulation of large volume of water and sediment accumulation in major rivers caused extreme run-off of loose debris, moraine and boulders with excessive force washing off all that came in its way.

D. Loss of infrastructure-

- Infrastructure in the form of roads, bridges, power lines, irrigation cannel.
- 145 Bridges and 2302 Roads were destroyed by the devastating flood.
- 3360 numbers of pucca and kutcha houses collectively destroyed by the flood.

E. Economic Loss –

- Major roads telecommunication system was destroyed.
- Tourism constitutes above 30% of the state income which was lost.
- More than 20000 crores loss was reported which may be in the form of destruction.

F. Life and livelihoods-

- The human tragedy resulting from the disaster is grimmer. The disaster caused heavy loss of precious life. More than 9 million people were affected.
- As far as casualty to human lives is concerned more than10000 people lost their lives, more than 10000 were injured approx.5000 missing. Over 1 lakh locals and more than 70000 tourists were stuck in various regions of the state.
- 4200 villages were victims of the flood. More than15400 animals' loss their lives.
- More than 11000 livestock were lost.

The damage was so enormous and extensive that it was also termed as Himalayan Tsunami by the media.

EMERGENCY RESCUE AND RELIEF OPERATIONS

Rescue and relief operations during Uttarakhand disaster were the most difficult operations carried out in the Indian history of disaster management.

- The efforts of the Indian Air Force, the Aviation Corps of the Indian Army and the civil helicopters engaged by the Civil Aviation Department of the State Government played a stellar role in the rescue operations.
- Various Central and State level government and non-government agencies played a significant role in making this operation successful, despite difficult terrain, adverse weather conditions, disrupted roads and lack of telecom connectivity.
- Several ministries/agencies of the Central Government, departments/agencies of the State Government, governments of other states, NGOs, and corporate sectors, all helped in the evacuation/relief operations.
- The Indian Red Cross Society, supported by the International Federation of Red Cross and Red Crescent Societies (IFRC), has assisted in the response since the flooding began. Over 100 volunteer emergency first medical responders have been providing first aid to those affected by the disaster.
- The organization is also working closely with the local authorities, helping in evacuation and rescue efforts as well as setting up relief camps, providing supplies and establishing the restoring family links service.

- Red Cross volunteer Kushpal Singh walked for five hours from Uttarkashi to Bhatwadi immediately after hearing about the needs in the area. He walked 28 kilometres through jungle, over hills and blocked roads to reach those stranded in Bhatwadi. Through the restoring family links service, supported by the International Committee of the Red Cross (ICRC), Kushpal was able to provide details of these survivors to their relatives, a vital community service considering the number of people still unaccounted for.
- The National Society is transporting emergency relief items including tents, blankets, and clothing for 10,000 people by road to Uttarakhand from its warehouse in Delhi. An additional 1,600 body bags, provided by the ICRC, have been dispatched to local authorities.
- Disaster response teams are conducting assessments to get a more accurate picture of the humanitarian needs in the region. As many areas remain inaccessible and communications are problematic across much of the state, it will be some time before a true picture of the damage and its effect on local populations is realised.

GOVERNMENT OF INDIA INITIATIVES

A. Financial Assistance-
   - Prime Minister Of India undertook an aerial survey of the affected areas and announced Rs. 1000 crore Aid Package for disaster relief efforts in the state.
   - Government also announced Rs. 2 lakhs for total damaged houses in flood.

B. Several State Governments also announced financial assistance-
   - Uttar Pradesh Government – 25 Crore.
   - The Govt of Haryana, Maharashtra, and Delhi- Rs.10 Crore each.
   - The Govt of Tamil Nadu, Odisha, Gujrat, Madhya Pradesh, and Chhattisgarh- Rs. 5 Crore each.

C. Financial Assistance By Red Cross Society –
   - The IFRC has committed over 479,000 Swiss Francs (390,000 Euros) to support the Indian Red Cross Society's efforts through its Disaster Response Emergency Fund. These funds will be used to support the distribution of emergency relief items and to provide safe water for up to 25,000 people.

D. International Assistance-
   - The US Ambassador to India extent a financial help of USD $ 150000 through the United States Agency.
   - Also, US Announced that the US will provide further financial aid of USD $ 75000.

GOVERNMENT OF UTTRAKHAND INITIATIVE

- During the entire crisis period, the Uttarakhand Government did its best to manage the calamity after the disaster the State Government initiated massive rescue and evacuation operations with the help of various Central and State Government agencies.
- The State Government requisitioned the services of the Army, Air Force and Central Paramilitary Forces (ITBP, NDRF).
- 1,20,000 persons stranded/ trapped in different locations were safely evacuated and taken to the relief camps.
- A total of 69 relief camps were run, where 1,51,629 pilgrims/ local residents were looked after.
- Forty-three medical teams comprising of 313 doctors and 4977 para-medical staff, were deployed and essential medicines, bleaching powder and chlorine were regularly supplied.
- The Health Department of the State coordinated the effort to prevent outbreak of any epidemic.
- The State Government established a Missing Persons Cell on June 27 at the Disaster Mitigation and Management Centre (DMMC) at Dehradun.

ROLE OF MEDIA

A. Pre-Disaster-

The role of media is to disseminate information at all stages of Disaster.

- Awareness and information to people.
- Promotion of training aspects. Keep a check on various agencies.
- Planning and encourage people to face the situation.
- Removing fear of unknown.
- Building partnerships between media and other organization.

B. During Disaster-

Media organizations take lead in relief and rehabilitation projects. The media plays the roles of relaying the measures being taken.

- Providing latest information and update.
- Broadcast for the assistance of the Medical, Police, Civil Defence.
- Make announcements of the disaster and the preventive measures to be taken by the search & rescue.
- Food, water, medicines, and other immediate need material. Sanitation and hygiene in the effective area and camps.
- Identify needy spots and cautioning the affected people of the dos and don’ts. Establishing contacts, informing, and assuring the affected ones of the assistance and the measures of relief.

C. Post Disaster-

Monitoring re-settlement. Technical and material aid in reconstruction.

- Providing financial aid.
- Mobilization of state, National and International Resources.

Thus, media plays an informative role in pre disaster, during disaster and past disaster stage.

ROLE OF THE ARMED FORCE

THE INDIAN ARMY OPERATIONS

THE INDIAN AIR FORCE OPERATIONS

THE INDIAN NAVY OPERATIONS

INDO TIBETIAN BORDER POLICE (ITBP)

NATIONAL DISASTER RESPONSE FORCE (NDRF)

RESCUE RELIEF OPERATIONS

- The Army, Air Force, Navy, Indo- Tibetan Border Police (ITBP), Border Security Force, National Disaster Response Force (NDRF), Public Work Department and local administrations worked together for quick rescue operations.
- Several thousand soldiers were deployed for the rescue missions.
- Activists of political and social organizations were also involved in the rescue and management of relief centres.
- Helicopter were used to rescue people, but due to rough terrain, heavy fog, and rainfall, manoeuvring them was a challenge.

- By 21 June 2013, the Army had deployed 10000 soldiers and 11 helicopters, the Navy has sent 45 naval drivers, and the Air force had deployed 60 aircraft including 36 helicopters.
- From 19 June to 30 June 2013, the IAF airlifted a total of 18424 people-flying a total of 2137 stories and dropping/landing a total of 336930 kg of relief material and equipment.
- The woods had been brought to the site with helicopter for the funeral of the people who died in Uttarakhand flood.
- Special trains were employed by the government all over the country to cater the needs of the flood victims.
- ITBP Jawan's distributed medicines to stranded pilgrims during Uttarakhand rescue operation.
- Local people distributed food to rescue pilgrims near IAF base camps in Dharasu.
- Indian Army showed extreme levels of courage in saving the people. In this rescue mission operation 'Rahat' one helicopter got crashed and 20 bodies were found on the site.
- Indian Red Cross Society © Shri Gulam Nabi Azad, Honourable Chairman of the Indian Red Cross Society flagged off the trucks carrying relief materials for the victims of the Uttarakhand flood disaster on the 21 June 2013.

The Martyrs who sacrificed their lives during the rescue operations –
Indian Air Force – 5, ITBP – 6, and NDRF-9.

MEASURES TO MITIGATE THE INTENSITY OF SUCH DISASTERS

Though the disasters essentially occurred due to natural hazards, but the vulnerability to the disaster was enhanced manifold by anthropogenic activities. The disaster revealed several infirmities in our preparedness which need to be rectified at the earliest. Some of the lessons learnt or measures to mitigate the intensity of such disasters are-

A. Protection of environment-

- Protecting the environment can only be the way to reduce the intensity of such disasters.
- A new mountain range like the Himalaya will remain steady if not tempered with much.
- There is a reduction in forest cover, the forest cover in Uttarakhand in 1970 was 84.9% this got reduced to 75.4% in 2000. So a strict check is necessary on deforestation.
- It is a well-known fact that unplanned development is destroying the ecology of the mountains so environmental laws should be implemented strictly.
- Blasting for developmental activities should be avoided.

B. Control and Management of pilgrims and tourists-

- Putting cap on number of vehicles because as per data shared by the USTD the number of vehicles registered were jumped in last decade.
- It is an established fact that there is a straight co-relation between tourism increase and higher incidents of landslides.

- ❖ Control over number of tourists may be a solution which reduces the construction of hotels, expansion of roads, number of vehicles etc.
- ❖ There is a permit system for the management of crowd like Amarnath, Man Sarovar, and for Vashon Devi yatra to control and manage the crowd in tourist places and Char Dham.
- ❖ Tourisms related development should not be allowed along the riverbanks.
- ❖ An effective pilgrims control and regulatory body should be constituted for control and management of pilgrims/tourists.

C. Early warning system-

- ❖ The early warning System purpose is mainly to prepare for the danger and act accordingly to mitigate against or avoid it.
- ❖ During the Monsoon Season State Emergency Operation Centre disseminates the monsoon season reports.
- ❖ Monitoring, forecasting, and early-warning systems in the Met department are very poor in the whole of India and Uttarakhand specially.
- ❖ The existing emergency communication system be reviewed regularly to ensure last mile connectivity during disaster.

D. Check on rapid growth of hydro power projects –

- ❖ Rapid growth of hydroelectricity dams that disrupt water balances should be balanced in scientific manner.
- ❖ Diversion of rivers through tunnels for these projects should be stopped because it is leading to major disasters.
- ❖ For clearance of all hydro-power and other mega projects in ecologically sensitive regions like Uttarakhand, the Disaster Impact Assessment (DIA) should also be made compulsory besides Environmental Impact Assessment (EIA).

E. Effective Disaster Management plan –

- ❖ Disaster management plans be regularly reviewed and updated to ensure a functional structure and accountability for all actions initiated by the State Government to enhance preparedness.
- ❖ Landslide risk zonation mapping be completed on priority.
- ❖ Flood Plain Zoning Act regulating construction within the flood plain of a river should be implemented strictly.
- ❖ The mechanism of Incident Response System be established at relevant levels and be dovetailed into the disaster management plans.

CONCLUSION

Life is a rare phenomenon gifted to the planet EARTH. It is due to the presence of atmosphere made of OZONE LAYER 15-60 km. above earth. The layer protects life on earth surface from harmful UV radiation. Due to man's folly this ozone layer has started depleting gradually. Its cause is imbalance in the ecology of nature created by man in the name of progress.

It should never be forgotten that life on the planet is more important than progress. Progress is a priority for the prosperity and wellness of mankind. Without it the world economy would be jeopardized. But it should not disturb, damage, or compromise with the ecology of nature. If it does, it is purposeless and futile.

On February7, 2021 floods caused by a glacier burst caused major damage to two hydropower projects in Chamoli district. National Thermal Power corporation's (NTPC) Tapovan Vishnugad project and Rishi

Ganga Power Corporation Ltd. project with a planned capacity of 520 MW and 13.2 MW respectively, have been completely washed away. Rescuers have retrieved 38 dead bodies and at least 166 are still missing and feared dead following the tragedy caused by flash floods on February 7, 2021. Now river experts, geologists and environmental activists have sought accountability for the mishap. It is evident that government has not learnt any lesson from Kedarnath Tragedy, 2013.

Indiscriminate development (hydropower projects and dams in the Himalayan region), deforestation of Himalayan ranges on a mass scale to accommodate wider roads and power projects, illegal mining, insensitive tourism, and perverted secularism have been responsible for the nation-wide ecocide of our natural heritage. Protecting India's ecological heritage is the sacred duty of every Indian. Our commitment should be to adopt and live an eco-friendly life.

Unfortunately, the 2013 experience has erased from our memory. In July 2020, the Centre approved the zonal master plan (ZMP) for the Bhagirathi eco-sensitive zone that stretches from Gaumukh to Uttarkashi (4179.59 sq. km). It covers four pilgrimage sites of Gangotri, Yamunotri, Kedarnath and Badrinath. The project work is going on despite protests it and scientific evidence of region's instability. The GSI of India has reiterated that construction work disturbs the natural slope of mountains leading to landslides. While it is true that better connectivity improves lives and livelihoods of people of the state (tourism being a major source of revenue) but fragility of the area is also a reality. The government must calculate the region's carrying capacity and then draw up its development and tourism plans. In an era of the CLIMATE CHANGE this road map is a prerequisite, not a choice.

On February 11,2021 addressing the World Sustainable Development summit (WSDS) P.M. Modi reiterated that two things will define how the progress journey of humanity will unfold in the times to come— "health of our people and health of our planet, both of which are interlinked." The road to fighting CLIMATE CHANGE is through CLIMATE JUSTICE. There is always tug-of-war between developed and developing countries on who needs to do more to save the environment by reducing EMISSIONS. But the sad reality is that environmental changes and natural disasters impact the poor the most. So, climate justice need be inspired by a VISION OF TRUSTEESHIP where growth and prosperity come with greater compassion for the poorest.

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