



## GNLU Centre for Environment, Sustainability, and Climate Justice

# THE GREENBOOK<sup>1</sup>

### 1. Citing the Environmental Issues

OCTOBER 2023



# TEAM : THE GREENBOOK



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# FOREWORD: CELEBRATING A VISION OF CHANGE

From the Desk of our Faculty Convenor, Prof. (Dr.) S. Shanthakumar

Dear Readers,

It is with immense pleasure and a sense of profound purpose that I extend my warmest greetings to you on the occasion of the release of the Inaugural Issue of the Newsletter, brought to you by the dedicated student members of the Centre for Environment, Sustainability, and Climate Justice at Gujarat National Law University.



In an age where the urgency of environmental conservation and sustainable living has never been more evident, our institution has embarked on a remarkable journey towards fostering a community that is actively engaged in understanding and addressing the multifaceted challenges posed by climate change and environmental degradation. The creation of this newsletter is an embodiment of our commitment to this noble cause.

Throughout these pages, you will find a collection of insightful articles, informed perspectives, and passionate voices that reflect the tireless efforts of our student members to advocate for a sustainable and ecologically responsible future. These young minds are not merely the torchbearers of change; they are the architects of a brighter, more sustainable world.

The content of this newsletter delves into diverse themes: from climate justice and biodiversity conservation to sustainable development practices and eco-friendly initiatives. It is our hope that these articles will not only inform but inspire you to take an active role in preserving our planet for future generations.

The Eco-Club and the Centre for Environment, Sustainability, and Climate Justice at Gujarat National Law University represent the essence of student-led initiatives in the realm of environmental conservation. These passionate and dedicated individuals are a testament to the power of collective action and the impact that students can make when they come together with a shared vision.

As we embark on this remarkable journey through the pages of our Inaugural Issue, let us be reminded of the collective responsibility we bear as stewards of this planet. It is our duty to protect, preserve, and restore the environment for the well-being of all living creatures and

the harmony of our ecosystems. Let us harness the knowledge and inspiration that this newsletter provides to bring about positive change in our communities, institutions, and beyond.

I extend my heartfelt gratitude to all the contributors, editors, and the tireless members of the Eco-Club and the Centre for Environment, Sustainability, and Climate Justice who have made this newsletter possible. Your commitment and passion are truly remarkable, and your dedication serves as a beacon of hope for our future.

As we celebrate this Inaugural Issue, may it serve as a testament to our collective resolve, reminding us that the power to create a sustainable and just world resides within each one of us. Together, we can be the change-makers, the guardians of our planet, and the voices of reason in a world yearning for a sustainable and equitable future.

Thank you for joining us in this noble endeavour. Together, we will continue to champion environmental sustainability, justice, and the preservation of our beautiful planet.

Warm regards,

Prof. (Dr.) S. Shanthakumar  
Director  
Gujarat National Law University  
October 19, 2023

# THE ROUND-UP

## Inculcating Responsibility through Awareness

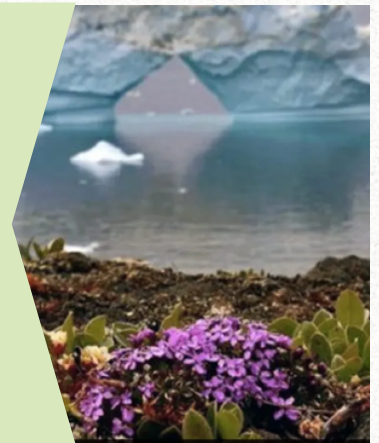
Vedik Bairawa

**Japanese scientists find microplastics are present in clouds:** Japanese researchers find microplastics in clouds with potential climate impacts. Airborne microplastics were found in cloud water from Mount Fuji and Mount Oyama, each liter containing 6.7-13.9 pieces. Microplastic degradation in the upper atmosphere contributes to greenhouse gases. "Plastic air pollution" could lead to irreversible environmental damage and health risks.



**Thousands of penguins die in Antarctic ice breakup:** Emperor penguin chicks in Antarctica die by the thousands due to melting sea ice, a grim harbinger of things to come as climate change accelerates. Over 90% of emperor penguin colonies are at risk of extinction by the end of the century without urgent action to reduce carbon emissions. IUCN proposes upgrading the emperor penguin's conservation status to "Vulnerable" due to the imminent danger posed by climate warming.

**Flowers Are Spreading in Antarctica as Summer Temperatures Soar:** Antarctica confronts alarming changes due to warming temperatures, causing plant expansion and record-low sea ice levels. In 2022, a record-breaking heatwave with temperatures 39°C above normal was observed near the south pole, attributed to climate change. By 2096, temperatures could rise 8°C compared to 1922, endangering the ice. Ice-free land expansion risks irreversible biodiversity loss as foreign species invade. Urgent habitat studies aim to preserve Antarctica's future amidst rapid transformations.



**The toxic legacy of the Ukraine war:** One year after Russia's invasion of Ukraine, devastation continues. UN Environment Programme (UNEP) reports a toxic legacy with thousands of pollution incidents, ecosystem damage, and risks to neighbours. UNEP aids Ukraine in remote monitoring and plans field impact assessments. International support is vital for recovery, environmental mitigation, and the return of displaced Ukrainians. Nuclear plants, energy, industrial, and water facilities are damaged, leading to pollution. Cleanup is complex, involving hazardous materials and military pollution.

# POTENTIAL ENVIRONMENTAL CONSEQUENCES FROM THE MUMBAI-DUBAI UNDERWATER TRAIN CONSTRUCTION

Samyuktha Anuram

The United Arab Emirates (UAE) is actively developing plans for an underwater railway system that would establish a groundbreaking 1,200 mile (2,000 KMO) link between Mumbai and Dubai. This enormous project aims to provide a cutting-edge transportation link between these two significant cities, facilitating the swift movement of not only people but also of essential goods like water and oil.

While initial discussions about the Dubai-Mumbai underwater train project surfaced in 2018 as informal chatter, recent developments have seen the UAE's National Advisor Bureau actively engage in the formulation of a viable blueprint for the railway system, as well as the design specifications for the necessary trains. This endeavour underscores the strong and amicable relationship between the UAE and India.

It is worth noting that while underwater train systems are not without precedent, with the Channel Tunnel connecting the UK and France being the most globally renowned underwater railway tunnel, the Dubai-Mumbai project is poised to distinguish itself significantly from existing counterparts.



The Channel Tunnel, also referred to as the Eurotunnel or Chunnel, is an impressive feat of engineering that connects France and the United Kingdom beneath the English Channel. Although it has many advantages for transportation and the economy, its development and maintenance have had certain environmental effects. In 2006, Rebecca Clements authored a thesis that focussed on the environmental damage stemming from the presence of the Channel Tunnel.

An environmental concern that drew the attention of both environmentalists and the general public was the utilization and transformation of agricultural land. Considerable amounts of vegetation were eradicated on parcels of land temporarily and permanently acquired for the construction and subsequent operation of the Channel Tunnel. The tunnel's construction necessitated extensive excavation and land disturbance on both the British and French sides, leading to the disruption and loss of habitats, which had adverse effects on the local plant and animal species. Wetlands and coastal regions, in particular, bore the brunt of these impacts.

Throughout the tunnel's construction phase, there were apprehensions regarding potential water contamination in the English Channel due to the release of construction materials such as drilling fluids and sediments into the marine environment. While efforts were made to minimize these effects, it was acknowledged that some degree of pollution was unavoidable.

The rationale provided for selecting the Channel Tunnel project was its purported minimal effect on marine ecosystems. Because the Channel Tunnel was built beneath the seabed of the English Channel, it was believed to have a relatively minor impact on marine life and the environment. Nonetheless, the processes of drilling and tunnelling underwater had the potential to cause disturbances to the Channel's aquatic ecosystems. The noise and vibrations generated during construction could conceivably disrupt underwater organisms, including fish and marine mammals.

Additionally, the operation of trains within the tunnel emitted air pollutants, including particulate matter and greenhouse gases. Although these emissions were comparatively modest in scale when juxtaposed with other forms of transportation, they still made contributions to air pollution. Furthermore, the operation of trains within the tunnel had the potential to generate noise pollution, both underwater and on the surface, which had the potential to disrupt local wildlife and nearby communities.

Having shed light upon the environmental repercussions resulting from the Channel Tunnel, I would now like to present the potential harm that may be inflicted by the upcoming Mumbai-Dubai underwater train drawing inferences from the Channel tunnel.

The Excavation and construction activities have the potential to disturb local ecosystems, particularly in coastal and underwater areas, leading to habitat disruption for various species. These construction operations, which may involve dredging, could pose risks to coral reefs, seafloor habitats, and aquatic life. Also, building terminals and related infrastructure for an underwater train might necessitate the extraction of natural resources like sand and gravel, impacting local ecosystems and landscapes.





Construction activities may result in the release of pollutants, sediments, and construction materials into the marine environment, potentially causing water pollution. The increased shipping traffic associated with such a project can also elevate the risk of oil spills, chemical waste disposal, and other forms of water pollution, which can have detrimental effects on marine life and coastal ecosystems. Changes in water flow and sediment transport patterns due to construction could potentially exacerbate coastal erosion in the vicinity.

The operation of an underwater train, besides the construction phase, presents its own set of environmental concerns. Noise and vibrations generated during construction and train operations may disrupt marine life in the area, affecting fish and other aquatic organisms, including marine mammals. Likewise, the operation of underwater trains may cause noise pollution in the ocean, which may have an effect on fish, other aquatic life, and marine mammals that depend on sound for communication and navigation.

In terms of air contamination, underwater trains typically employ diesel engines for power, emitting greenhouse gases and other air pollutants. The continuous operation of these engines could contribute to air pollution along coastal areas. In addition, the use of fuel by underwater trains results in the generation of carbon dioxide, which contributes to climate change. The adoption of alternative energy sources or the utilization of cleaner fuels should be prioritized in order to reduce these emissions.

In light of the potential environmental impacts, it is imperative that underwater trains and associated infrastructure be designed to withstand the effects of climate change, including rising sea levels, more severe storms, and increased coastal erosion.

In order to tackle the potential environmental damage, it is essential for the proposal to undergo an exhaustive evaluation through an Environmental Impact Assessment. This assessment would identify potential environmental risks and propose measures to minimize or offset them. Such measures could encompass the adoption of cleaner technologies, the implementation of stringent pollution control measures, and investments in conservation efforts to protect affected ecosystems.





## THE DILEMMA OF INDIA'S HILLS: A DISASTER IN THE MAKING?

Sudarshana Mahanta, Adyaa Mohapatra

India is known all over the world for the natural beauty of its forests, rivers, mountains, and hills. The land of Kashmir has been called 'paradise on earth' since the Mughal era. In the caves of Amarnath and Badrinath lie cornerstones of Hindu worship. Consequently the states of Uttarakhand and Himachal, as well as the union territory of Kashmir have always attracted scores of tourists and pilgrims. It is only natural that the government would want to capitalise on such tourism opportunities and roll out massive development plans for our hills. However, one must spare some thought as to whether such immense commercialisation of eco-fragile zones have led to the flash floods and landslides frequently occurring in these regions.

### The Effect of The Rapid Growth of Tourism

With the increase in summer temperatures, retreats to hill stations have become increasingly common. People pack their bags and head to hill stations like Darjeeling, Shimla, Nainital, Mussoorie, Manali, Kullu, Dharamshala, etc., for religious pilgrimage, trekking, sightseeing and escaping the heat. A report by the Ministry of Tourism, Government of India, points out that the Indian Himalayan Region (IHR) has seen a four-fold increase in tourist influx from 2001 to 2019. It also mentions that the contribution of tourism is high in IHR states, reaching as high as 22% of the state GDP. Recently, there has been a further surge in the number of tourists owing to the opening up of COVID-19 restrictions. People who had canceled their vacations have started making plans to travel again. Moreover, some people have started to prefer domestic travel over international trips.



The upward trend in tourism to the hills, unfortunately, comes with an entire set of negative consequences, one of the foremost being the impact on climate change and environmental degradation. The problem is evidenced by the increased number of vehicles and frequent traffic jams. For instance, officials in Shimla had to deploy as many as 120 cops to manage traffic in the area. A lack of parking spaces and parking of vehicles on the roadside aggravates this problem. Accompanying this is the problem of air pollution. In cities like Ooty, deforestation is a primary concern. The need for infrastructural development in order to support this rapid rise in tourism has necessitated the clearance of vegetation and forestlands.

With the number of tourists rising, the amount of waste generation has also spiked up. There is a severe problem of waste management. Further, littering and improper waste disposal have led to water and land pollution. To take an example, 200 kilos of dry garbage are separated in Dharamshala every day, while the city creates 25 tonnes of rubbish every year. Because there is insufficient land for composting, biodegradable garbage is transported to Sudher village. This has sparked outrage among Sudher village inhabitants, who fear that the open waste would release hazardous and toxic substances into the soil and air. Because filthy soil is pushed into rivers by rainfall, the rivers become polluted .



Carbon monoxide, sulfur oxides, and benzenes are only a few toxic compounds discharged into the environment due to garbage.

A 2021 report by the Intergovernmental Panel on Climate Change emphasizes that mountain regions will become more prone to glacier lake outburst floods like the Chamoli disaster in Uttarakhand and cloudburst-like rains in Himachal Pradesh.

Tourism at the expense of the environment is taking place, and this cannot continue. States should ensure that tourism does not contribute to the deterioration of our environment. Better resource management, trash management, and applying rules are all practices that must be implemented, particularly in states with a high tourist footfall, which happen to be India's mountain states. Otherwise, the day is not far when we would run out of our cool summer retreats.

## The Effect of Government Policies & Development Initiatives

Urbanisation was slow to begin in the hills, and recent times have demonstrated the need for scientific developments for their conservation and sustainability. The development of the hills in Kashmir as 'summer capitals' began during the British Raj. Anthony D. King explains the development of 'hill stations' by reference to the three main variables of culture, technology and the dominance-dependence relationship of colonialism.

Post-independence, multiple hill stations developed for the rich to visit in an attempt to escape from the hot summers of the plains. This led to an increase in infrastructure and population. Shimla, for example, began as a city for 25,000 persons. In 2023, the population of Shimla metro region was 2,35,000. The trees that cover the hills are being rapidly cut to replace them with brick and concrete throughout the past three decades.

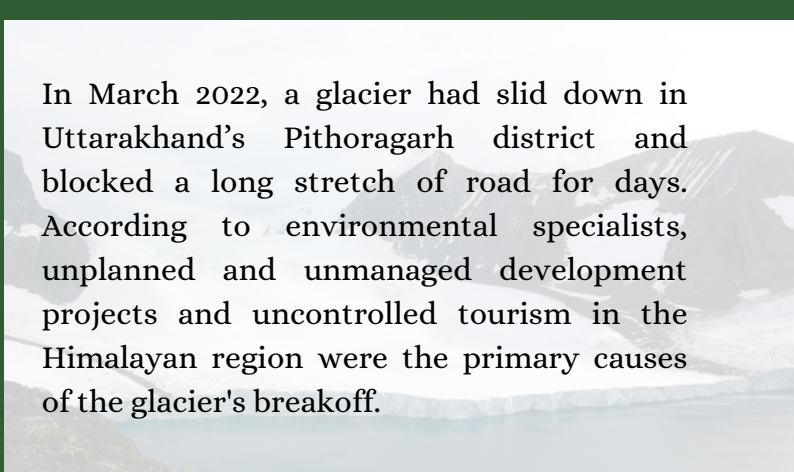
Due to the abundance of Hindu shrines in this region, transport facilities have been rapidly scaled up in the past two decades leading to an influx of pilgrims. Prime Minister Narendra Modi personally visited Kedarnath in 2019 shortly after his historic political victory and stayed in a cave house that was built there.

He launched the Char Dham Mahamarg Vikas Pariyojana, which entails expanding the railway line to its farthest point, in 2023. Geologists and other ecologists have advised against doing this. It will certainly lead to an adverse impact on the region.

In 2023, the Uttarakhand government continued the widening of roads through sensitive zones and reserve forests, despite protests from local environmentalists. Such activities have caused havoc in the valleys of the holy rivers- Vyas, Satluj, Ganga, and Yamuna. The Haryana government has also undertaken an amendment to the Punjab Land Act – which will open up large tracts of the Aravalli hills to infrastructure development and forest diversion.

The government has planned massive tourism activities such as the Char Dham project. Hemant Dhyani, an environmental activist and former member of the Supreme Court-appointed High-Powered Committee on the Char Dham Project, has been quoted by a news portal saying, "We are looking at the Himalayas as a major economic resource and exploiting it beyond its carrying capacity. This carrying capacity assessment was never done."

The hills are clearly in dire need of a sound habitat policy. The cries of environmental activists seem to be falling on deaf ears, where the Central and State governments are concerned. Collective action needs to be taken before the advent of widespread destruction in this region, cracks of which are already starting to show.



In March 2022, a glacier had slid down in Uttarakhand's Pithoragarh district and blocked a long stretch of road for days. According to environmental specialists, unplanned and unmanaged development projects and uncontrolled tourism in the Himalayan region were the primary causes of the glacier's breakoff.

# CROSSWORD

## Across

- 4. State of water pollution where algal bloom is developed over water body due to excess nutrient
- 6. Loktak lake with floating islands is in which state
- 7. An important parameter of Air quality index (AQI)
- 10. Total number of Tiger Reserves in India
- 11. September 16, International Day for the preservation of Ozone layer commemorates the signing date of which protocol/convention
- 14. Chemical responsible for the decline of Vulture population in India

## Down

- 1. Gas leaked in Vizag Gas Tragedy
- 2. Ozone found at this layer is harmful
- 3. Community of western India known for its dedication towards toward Environment
- 4. Complex process required to be done before initiating a mega project to assess the reversible/irreversible loss to the environment
- 5. Greenhouse gas and a fuel
- 8. State animal of Delhi
- 9. Number of Biogeographic Zones of India
- 12. Tribal Community from southern India, specialized in catching venomous snakes like cobra
- 13. *Prosopis juliflora* is an \_\_\_ species for the floral diversity of Delhi.




Answers to be released in the next issue.

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