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Hills, Stop Copying The Plains

Joshimath shows we need a radically different growth model for Himalayan states

Chandra Bhushan



What is unfolding in Joshimath is a tragedy. But this tragedy is not due to climate change; climate change-linked extreme events may have exacerbated the situation, but the sinking of Joshimath is our doing.

The fact is this disaster is not unexpected; it was foretold. Over 50 years, the sinking of Joshimath has been documented by multiple committees of the Supreme Court and the Union and state governments. They warned against haphazard urbanisation, large-scale hydropower development and cutting of hills to widen roads. But time and again, their warnings were ignored.

The result is that the fate of Joshimath is sealed. Even with engineering solutions, a part of this historic city will have to be abandoned, and the rest will struggle to survive. So, how have we reached this stage, and how do we prevent many more Joshimaths in the future?

It is important to understand that Joshimath is a symptom; the disease is the strong push in the Himalayan states to replicate the development model of the plains – big infrastructure projects, wider roads, and high-rise buildings. It is this model that is seriously compromising their environmental security.

Let's look at the hydroelectric projects (HEPs) in Uttarakhand.

- The state presently has 39 large and small HEPs with an installed capacity of 3,600 MW.
- In addition, there are 25 HEPs worth 2,400 MW capacity under construction.
- So, in a couple of years, Uttarakhand will have 64 HEPs of 6,000 MW capacity.
- But what is existing and under construction is just a fraction of what is being planned.
- There are 180 HEPs of 21,200 MW capacity in the pipeline.
- Many have already obtained environmental clearances from the environment ministry and state agencies.
- Even if we assume that only half of these projects reach fruition, Uttarakhand will have 150 HEPs, and its hydropower capacity will increase



fourfold from the present.

- This is plainly unsustainable.

Scientists have warned against building hydropower without comprehensive studies, and government committees have recommended scrapping HEPs. Yet, many projects with questionable feasibility continue to be constructed. Take the case of the Tapovan Vishnugad HEP, which is blamed for the aquifer breach at Joshimath.

- Construction of the 520 MW Tapovan project began nearly 17 years ago and was scheduled to be completed in 2013.
- But, almost a decade later, the project is still 'under construction'.
- Its price tag has more than doubled.
- Moreover, this project has been damaged by floods twice – in 2013 and 2021.
- In 2021 floods caused by an unprecedented avalanche, nearly 200 people died, and many were workers at the project site.
- Tapovan Vishnugad exemplifies the risk of large-scale infrastructure development without proper assessment.

It is well-known that the Himalayas is one of the most unstable mountain ranges and is prone to natural disasters. On top of this, global warming is profoundly impacting the geology and hydrology of the region. Data shows that 90% of earthqua-

In this era of climate change, Himalayan states can create a large number of jobs in the environment sector – biodiversity conservation, high-value organic farming, sustainable forestry, glacier and water body protection etc. And they can be incentivised by the rest of the country to do this

kes, most landslides and a large proportion of cloudbursts in India occur there.

With massive infrastructure development and more people living in vulnerable areas, the economic and ecological losses are mounting and will continue to grow unless we make fundamental changes in the development paradigm.

Change the model

The first change is to stop copying the plains. The domain of environmental science tells us that every place has a carrying capacity. Once this capacity is exceeded, ecological destruction ensues.

- Himalayas have a much lower carry-

ing capacity than plains and thus can sustain much lower human pressure.

- Therefore, better planning and enforcement are essential to ensure that the carrying capacity is not breached.
- But unfortunately, the institutions which can ensure this, like the town and country planning (TCP) department and the environment department, are weak and ineffective in hill states.

In Uttarakhand, for instance, the TCP department is operating with minimal staff and resources, and the reorganisation of the department has not been done since the bifurcation from Uttar Pradesh. Without solid planning and enforcement, the Himalayan states are doomed.

The second is to practise an alternate model of development, an immediate requirement in the tourism sector. It is projected that 250 million tourists will visit these states by 2025; the number was 100 million before the pandemic. This massive growth will exacerbate water scarcity, worsen air quality and lead to forest and land degradation.

But there is an alternative to this unsustainable tourism – high-value sustainable tourism. We can follow the example of Bhutan, which has capped the number of travellers by imposing a sustainable development fee of \$200 per day. A part of this fee goes into environmental protection and enhancing livelihood for local residents. A similar sustainable tourism policy is required for our Himalayas too.

Lastly, in this era of climate change, Himalayan states can create a large number of jobs in the environment sector – biodiversity conservation, high-value organic farming, sustainable forestry, glacier and water body protection etc. And they can be incentivised by the rest of the country to do this.

This is because they are major water sources that sustain the plains, and their glaciers, forests and biodiversity are essential for the country's ecological security. While some progress has been made on payments for ecosystem services, a lot more needs to be done so that these states can develop and prosper without destroying themselves.

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The Times of India- 17- January-2023

'Yamuna pollution doubled in 8 years'

Just 9 STPs Meet Standards: LG Office

TIMES NEWS NETWORK

New Delhi: Pollution in the Yamuna has doubled in the last eight years, revealed officials from the LG office after assessing the data presented in a meeting recently.

It was also found that only nine of the 35 sewage treatment plants were functioning as per standard. LG VK Saxena, who is now leading a committee to clean up the river, held a meeting on January 14 with officials of DJB, environment department and DPCC to discuss the current situation.

The officials said that the Delhi government had failed to check untapped sewage being discharged into the Najafgarh drain, which is the main reason for pollution in the river. "The Yamuna has become twice more polluted during the last eight years of Kejriwal government in Delhi. In 2014, at Palla, where the Yamuna enters Delhi, the pollution in the river in terms of biological oxygen demand (BOD) was well within acceptable limits at 2. When the river left Delhi at Okhla Barrage, BOD load in it was 32 in 2014. However, in 2023, while the BOD load at Palla remains at 2, the same at Okhla has gone up to 56," said a source in the LG office.

The officials added that the rise in pollution has been consistent since 2014, with the only exception being 2019, when Haryana, while undertaking repair of the Yamuna canal, released four times more water into the Yamuna from Hathni Kund Barrage, resulting in pollutants getting washed downstream.

"Only nine of the 35 sewage treatment plants comply with the standard

AN OFFICIAL SAYS

The STPs in Delhi have the installed capacity of treating 530 MGD. However, these STPs function at just 69% of their installed capacity

of 10:10 for BOD:TSS (total soluble solids). This means only 145 MGD (27.3%) of the 530 MGD sewage being treated at these STPs is non-polluting. The STPs in Delhi have the installed capacity of treating 530 MGD. However, these STPs function at just 69% of their installed capacity and effectively, only 365 MGD of sewage is treated daily," an official present in the meeting said, adding that the facts came to fore after a presentation made by DPCC, environment department and DJB.

National Green Tribunal had on January 11 asserted its dissatisfaction with the revival of the Yamuna and constituted a high-level committee led by the LG. The committee will have to meet every week, take stock of the situation and give its first report by January 31. The tribunal has also asked the committee to make goals to substantially improve the quality of the river by July this year.

However, a reply from DJB stated that while it is already working towards these legacy problems of Delhi, projects were stalled for six months because the payments were stopped by the finance department. "We request the LG to take action," said Saurabh Bharadwaj, vice-chairman, DJB.

Millennium Post- 17- January-2023

CITES DATA FROM DPCC

Yamuna's pollution load has doubled since 2014: Sources

NEW DELHI: Pollution load of the Yamuna river in Delhi has doubled in the last eight years of the Arvind Kejriwal government, sources in the L-G office said on Monday citing data from the Delhi Pollution Control Committee (DPCC).

The DPCC and the Delhi Jal Board (DJB) gave a presentation to Lieutenant Governor V K Saxena on pollution in the river on Saturday.

The L-G had called a meeting to take stock of the ground situation before the first meeting of a high-level committee set up by the National Green Tribunal on January 9 for the cleaning of the Yamuna. The green tribunal had requested the Delhi L-G to head the committee.

The DPCC data showed that Biological Oxygen Demand (BOD) levels remained within permissible limits at Palla (2 milligram per litre), where the



river enters Delhi, since 2014.

BOD, an important parameter for assessing water quality, is the amount of oxygen required by aerobic microorganisms to decompose organic material present in a water body. BOD levels less than 3 milligram per litre (mg/l) is considered good.

At the Okhla Barrage, where the river leaves Delhi and enters Uttar Pradesh, the BOD levels rose from 32 milligram per litre in 2014 to a staggering 56 milligram per litre in 2023, an official source said, citing the DPCC data.

The DPCC collects river water samples at Palla, Wazi-

rabad, ISBT bridge, ITO bridge, Nizamuddin Bridge, Agra Canal at Okhla Barrage, Okhla Barrage and Asgarpur every month.

The pollution load in the river has doubled in the last eight years of the Kejriwal government, the source said.

"The year-on-year rise in pollution has been consistent since 2014 with the only exception being 2019, when Haryana released more water into the Yamuna from the Hathnikund Barrage while undertaking the repair of the Yamuna Canal. The same resulted in pollutants getting washed downstream.

"This deadly increase in pollution is mainly on the account of the AAP government absolutely failing to check pollution from the Najafgarh Drain despite persistent directions and monitoring of the Supreme Court and the National Green Tribunal," the source said.

MPOST

{ 'HIGHLY MOTIVATED' } IN THE AFTERMATH OF FEB 2021 DELUGE

HC in 2021 junked plea against projects near Joshimath

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NEW DELHI: A 2021 writ petition citing some of the reasons now being given for the subsidence at Joshimath, and pointing out that repeated floods in the region over the past decade-and-a-half called for new environment clearances for the 105 MW Rishi Ganga and 520 MW Tapovan Vishnugad hydropower projects was dismissed by the Uttarakhand high court, with costs.

Three residents of Raini village, which was devastated by the February 2021 glacier lake overflow flood, and two residents of Joshimath town filed a writ petition in July 2021 against the Union environment ministry, calling for a prohibition on blasting, stone crushing and mining activities in the Dhauliganga-Rishi Ganga sub-basin near Joshimath. One of their main prayers was that the ministry revoke the environment and forest clearances granted to 105 MW Rishi Ganga and 520 MW Tapovan Vishnugad hydropower projects in view of the February 2021 deluge as previous clearances had been rendered redundant.

The high court observed that the petition was "highly motivated" and dismissed it after imposing costs.

"This petition seems to be a highly motivated petition which has been filed at the behest of an unknown person or entity.

The unknown person or entity is merely using the petitioners as a front. Therefore, the petitioners are merely puppets at the hand of an unknown puppeteer," the high court said in an order dated July 14.

"Needless to say, this certainly amounts to abuse of the PIL jurisdiction. Therefore, this court is not convinced with the bona fide of this petition. Hence, this petition is dismissed, while imposing costs of Rs.10,000 on each of the petitioners," the order added.

The petition raised a number of concerns about NTPC's Tapovan Vishnugad project, which have resurfaced in the wake of the Joshimath crisis. The project is located to the north of the Main Central Thrust (a major geological fault in the Himalayas) and near the para-glacial zone (around an altitude of 2,000 to 2,500 metres and above).

On December 5, 2014, the environment ministry submitted an affidavit in the Supreme Court validating recommendations made by a top court-appointed expert body headed by Ravi Chopra. The expert body noted that high sediment load in and around para-glacial zones could pose serious threats to existing and under construction hydropower projects in Uttarakhand, which the ministry had acknowledged, the petition pointed out.

Further, work on NTPC's Tapovan Vishnugad project was



The petition sought revoking of the environment clearance to the under-construction Tapovan Vishnugad hydropower project. PTI

associated with the puncture of an aquifer in 2009, the petition pointed out. "In 2009, while digging a tunnel in Tapovan Vishnugad project, a mountain aquifer was punctured which resulted in loss of precious mountain water spring..."

At the time, the State Disaster Management and Mitigation Centre cited negligence by authorities in this regard.

The petitioners also pointed out that the environment and forest clearances for these projects had become redundant as they were granted prior to the 2013 flash floods in Uttarakhand that killed over 6,000 people. The topography and geomorphology of the region had changed substantially after that

The Supreme Court in 2014 stayed the construction of the proposed 24 new hydropower projects on the Ganga. Thereafter, a committee of experts commissioned by the environment ministry to review six hydro projects — not including the Rishi Ganga and Tapovan Vishnugad projects — which were granted clearances before 2013. The committee, headed by Vinod Tare, an expert member from IIT-Kanpur, recommended that the projects not be taken up in view of their potential impact on biodiversity and hydrological parameters and that the entire process of according clearances be reviewed.

On February 25, 2019, in a

meeting convened by the Prime Minister's Office, under chairmanship of then principal secretary, Nripendra Mishra, the Centre took a policy decision that no new hydropower projects would be allowed on Ganga and its tributaries, and that in-progress projects, where 50% of the construction was not yet complete, would be scrapped. Tapovan Vishnugad and Rishi Ganga were allowed to go ahead.

In February 2021, a glacier breach in the sub-basin led to extensive damage to these two hydropower plants and killed over 200 people, while also damaging Raini village. Raini was declared unsafe for habitation as cracks appeared in several houses.

"The respondents are liable to bear the loss to human lives as well as ecology," the petition said, praying for a direction from the high court for safe rehabilitation of Raini villagers and ecological restoration of the region.

The petitioners asked the high court to direct the scrapping of the Tapovan Vishnugad and Rishi Ganga projects for future safety and order the ministry of Jal Shakti to initiate ecological restoration of the entire watershed.

The residents also wrote to the ministry in July 2021 flagging how the 2021 flood itself had changed the river morphology and floodplain features and that the hydropower projects needed a review. A letter sent by RS Bora, under secretary to the

state government dated July 19, 2021 to the environment ministry's regional office in Dehradun, seen by HT, acknowledged warnings by residents and requested the regional office to verify whether the conditions set during the environmental clearance of these projects were being met by visiting the site. The environment ministry did not answer queries on whether these conditions were being met; it was considering a reassessment of these conditions; and the subsidence at Joshimath.

"The home ministry is handling the situation in Joshimath. We will not be able to comment," a senior environment ministry official said in response.

The Union government has refuted suggestions by environmentalists and some geologists that tunnel restoration work associated with NTPC's 520 MW Tapovan Vishnugad Hydropower project near Joshimath town led to an aquifer burst that may have triggered land subsidence in the holy town.

In a letter drafted to be sent to the Uttarakhand government, the Union power ministry has stated that sub-surface seepage erosion by natural drainage, occasional heavy rainfall, periodic seismic activities and increased construction activities appear to be the main causes of subsidence, while stating that the NTPC tunnel is not passing under Joshimath town. The tunnel is at a horizontal distance of around 1.1km from the

outer boundary of Joshimath town and vertically around 1.1km below the ground level. Construction of the tunnel in this stretch has been done through Tunnel Boring Machine (TBM) which causes no disturbance to the surrounding rock mass, the letter dated January 11, 2023 said. HT has seen a copy of the letter.

"We have absolutely no doubt that NTPC's tunnelling has suddenly exacerbated land subsidence in Joshimath. The tunnelling was done earlier but restoration work in the tunnel started after the February 2021 Rishiganga deluge. In November 2021, 14 houses complained of cracks, now 678 houses have cracks. This is directly and certainly linked to restoration works in the tunnel," said Mallika Bhanot, member of Ganga Ahvaan.

"Tapovan Vishnugad project is affected by glaciers in the upper reaches which was proved in 2021 tragedy. Now locals are saying they started blasting again to restore their tunnel after the February 2021 disaster which led to seepage of water into and around Joshimath. This clearly needs to be investigated as this is what locals have observed," said Hemant Dhyani, an environmentalist who was part of the Supreme Court's high-powered committee for the Char Dham Project.

NTPC did not respond to a query on January 13 from HT on the concerns raised by residents.

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{ YAMUNA POLLUTION }

‘Just 9 of 35 sewage plants along river in sync with norms’



The BOD in Yamuna is 2mg/l when it enters New Delhi, but rises to 56mg/l when it exits the Capital.

HT PHOTO

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NEW DELHI: Only nine out of 35 sewage treatment plants (STPs) currently comply with the appropriate standards of 10:10 for biological oxygen demand (BOD) and total soluble solids (TSS) in the Yamuna, officials from the lieutenant governor's office have said, citing data from different agencies involved in the clean-up of the river.

This was revealed at a meeting held between the Raj Niwas officials and those from Delhi's environment department, the Delhi Pollution Control Committee (DPCC) and the Delhi Jal Board (DJB) on Saturday, people aware of the matter said.

The analysis of data based off a presentation made by DPCC, DJB and the environment department, shared by Raj Niwas officials, showed that the non-compliance of such a large percentage of STPs means that only 145 million gallons per day (mgd) or 27.3% of the 530mgd sewage treated at these STPs is non-polluting.

"Delhi generates 768mgd of sewage every day. The STPs in Delhi have the installed capacity of treating 530mgd. However, these STPs function at just 69% of their installed capacity and hence, effectively, only 365mgd of sewage is treated every day," an official said.

A DPCC official, part of the meeting, said a detailed action plan to trap sewage has already been prepared, with agencies working to meet these timelines.

"The increase in BOD is down to the sewage being released. Once completely trapped, it will dip significantly," the official said.

Officials also noted that as per the data, pollution levels in the Yamuna have risen considerably since 2014 in terms of BOD in the river.

The Yamuna enters Delhi at Palla, snakes through the city, and exits it from the Okhla barrage. According to the data shared by Raj Niwas officials, the BOD level of the Yamuna at Palla in 2014 was at an acceptable limit of 2mg/l -- as opposed to national standards of 3 mg/l or less -- and increased to 32mg/l as the river exited the Capital.

However, in 2023, while the BOD level at Palla remained the same, it spiked to 56mg/l at the Okhla barrage, the data showed.

"While in 2014, the BOD at ISBT, just after the Najafgarh drain falls into Yamuna, was 26, in 2017, this rose to 52 and remains at a high of 38 even today," said an official in the LG's office.

This continued rise in pollution has largely been attributed to pollution from the Najafgarh drain, which is yet to be tapped despite directions from the National Green Tribunal (NGT) and the Supreme Court.

Najafgarh drain accounts for 68.71% of waste water being discharged into Yamuna, followed by Shahdara drain with 10.90%, data shared in the meeting showed. If these drains were tapped completely, sewage flowing into the Yamuna will drop considerably, officials added.

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National aquifer mapping to be completed in a year, says Clean Ganga official

Centre's emphasis is on wastewater as a resource. Work towards banning use of freshwater for non-potable purposes will be carried out, says Director-General, National Mission for Clean Ganga

The Hindu Bureau
CHENNAI

The National Aquifer Mapping and Management programme, which is aimed at delineating aquifer and water availability, is set to be completed in a year, G. Asok Kumar, Director-General, National Mission for Clean Ganga, Union Ministry of Jal Shakti, said in Chennai on Monday.

Mr. Kumar inaugurated a three-day conference on 'Water Reclamation and Reuse', organised by the Federation of Indian Chambers of Commerce and Industry (FICCI) and the International Water Association (IWA), in the city.

Elaborating on the Central government's initiatives to resolve issues of water management and water governance, Mr. Kumar said the aquifer mapping would help in developing plans for



G. Asok Kumar, Director General, National Mission for Clean Ganga, Union Ministry of Jal Shakti. M. KARUNAKARAN

groundwater management. Noting that the policy on reusing of treated wastewater had found resonance in many States, Mr. Kumar said the Central government's emphasis was on wastewater as a resource rather than as waste. Work towards banning freshwater use for non-potable purposes would be carried out.

Pointing to the national framework for safe reuse

of treated water, he said the focus now was on reuse and recycling of wastewater and monetisation of sludge and treated sewage. He also spoke about the Jal Jeevan Mission to provide tap connections to all households by 2025 and the Namami Gange programme that aimed at a cleaner Ganga and enhanced sewage treatment capacities.

City's new initiatives

Experts also spoke about how Chennai was fast-emerging as a manufactured water capital in the country, with its recent wastewater reuse initiatives.

Rajiv Mittal, CMD and Group CEO, VA Tech Wabag Ltd., a company that has executed desalination and tertiary treatment projects for Chennai, said besides adding desalination plants with treatment capacities of 550 million

litres a day, projects were being planned for the optimum supply of recycled water and use of tertiary treated water for indirect potable purpose through the recharge of lakes.

Wastewater an asset

Wastewater must be treated as an asset and incentives like carbon credits must be provided for reuse and recycling of wastewater. Reclaimed water would ensure drought-proof water availability, food security and sustainable socio-economic development, Mr. Mittal added.

Earlier, Naina Lal Kidwai, chairman, FICCI Water Mission, spoke about the significance of investing in water recycling.

Josef Lahnsteiner, chair, IWA Reuse Specialist Group; Thomas Michael Mollenkopf, IWA president and G.S.K. Velu, chairman, FICCI Tamil Nadu State Council, also spoke.

FIRST COLUMN

HUMAN GREED SINKS TOWNS IN HIMALAYAS

Scientific warnings were ignored in Uttarakhand



SHIVAJI SARKAR

Heaven is literally falling to greed. It is just not Joshimath but even Tehri Garhwal, Karnaprayag, and Mussoorie that are also sinking and so may be many other parts at the crest of the Uttarakhand Himalayas. The Rs 12,000-crore Char Dham (CD) all-weather road projects spurring real estate are gobbling up all.

Latest reports say that still the earth movers are digging around Joshimath and other areas even as over 4,000 persons have been evacuated and most houses are crumbling. Tragedies do not stop the road to hell. In 2013, the Uttarakhand Government had sought Rs 21,000 crore for ruthless reconstruction after the Himalayan deluge. It seems to be the catalyst for the present disaster.

The Tehri district is the latest to report cracks and land subsidence. An IIT Roorkee team is studying Karnaprayag. Chamba in the Tehri, around a CD tunnelling is the worst hit with houses crumbling. Seepages at Tehri dam are common, reports SP Rai of National Institute of Hydrology. Now a road from Mana to Lipulekh through sensitive hills with rare virgin forest is the latest to be in danger. In June 2013, after the Kedarnath tragedy this scribe mentioned "in all there are 244 hydel projects (HEP) of var-



ious sizes planned to be constructed in the state. Some of these are already on the streams. Others are coming up. Pancheswar dam being planned in Tanakpur is likely to be bigger than Tehri and biggest in India. Does that mean more disasters are awaiting the region?" Unfortunately, it is so. Nobody listened to the cries of former minister Uma Bharati to not dislodge the image of presiding deity, Dhari Devi before the June 18, 2013 cloudburst. The CAG reviewed 42 hydel projects in 2009.

It noted that over 200 more projects were coming up – almost every five to seven km. The yearning for making Uttarakhand the "Urja Pradesh" has led to reckless development. Ravi Chopra, former head of the High-Power Committee for CD roads, says that a bypass around Joshimath was opposed by the townspeople. The 10-metre-wide road all around the state weakens the hills with digging, blasting, removal of green cover and aquifers. In 2010, HNB Garhwal University study said a tunnel boring machine punctured an aquifer on December 24, 2009, releasing millions of litres of water daily from NTPC's Tapovan-Vishnugad 520 MW hydel project.

The researchers warned of the mishap's potential for "initiating ground subsidence". It was forgotten till December 2022 when the looming nightmare became a reality around Joshimath. This punctured aquifer gushing out water is the cause for Joshimath sinking, confirms Garhwal Commissioner Sushil Kumar. In February 2021, around 200 people went missing as Dhauliganga and Rishibhanga rivers flooded Tapovan head race tunnel. Warnings of 1930 Swiss scientists, 1976 Commissioner MC Mishra on haphazard constructions and the Supreme Court appointed committee of 2013 for seismically sensitive Main Central Zone advice against hydel projects were ignored.

Incidents of glacial lake outburst floods (GLOF), a UNDP and European Commission study mentioned, are happening regularly. Notable incidents occurred in 1997, 2000 and 2005 in the Sutlej basin and in 1970 and 1978 in Alaknanda and Bhagirathi basins. In 2000 and 2005, it hit the Pong Dam, in Himachal, severely damaging roads, habitations and scores of bridges. The Himalayas all around are crumbling. Dams and roads benefit the industry-real estate mafia damning the sensitive geology and livelihood. If unchecked it may have disastrous consequences and even desertify the cradle of the civilisation in the Ganga valley. The country must rise to stop it.

(The author is a senior journalist)