

The Times of India- 15- January-2023

# Joshimath's salvation lies on a new path but will we walk it?

BY INVITATION



MRIDULA RAMESH

Joshimath is sinking. Why? One reason is that the town came up on landslide debris, which was unable to bear the load of houses and roads. Another is that it's located in a seismically active neighbourhood, and Joshimath itself lies next to a fault line. Also, because the rocks are so young, rain and snow melt percolate within, creating aquifers beneath the surface.

Then there are the dams. The Tapovan Vishnugad Hydroelectric project lies a few kilometres away from the town. In 2009, a tunnel boring machine employed in this project punctured an underground aquifer and released about 60-70 million litres of water daily for nearly a month! That's an astounding volume of water — about 5,000 Airbus A-320s worth — that used to sit below the ground. When that water was released, the land over it could potentially sink — almost like a slowly deflating balloon. Next, when we build roads or houses, we blast the hills to flatten out the land and clear trees. Blasting destabilises land. Tree roots act like scaffolding holding onto the land on steep slopes. When we remove them and intense rain falls on a bald slope, it can pull it downward. Finally, water seeping from the soak pits in Joshimath adds to the water-earth merry-go-round of this land. Taken together, we see this sinking was to be expected.

And it was. We've been warned of these dangers many times. By protests and reports over the decades. By landslides, flash floods, lost lives and now, by cracked roads and houses. And the malaise is spreading: There is more water gushing out of one of those cracks and houses in nearby Karnaprayag have recently developed cracks. With the media frenzy, political leaders have to be seen to act. Families have been moved to a safer place and there is talk of compensation amid razing unsafe structures and resettling families. Even as human stories emerge — a lifetime of earnings slipping through the cracks, of resettlement and forced migration (these will become repetitive themes on a larger scale as the climate warms) — let us consider the root causes of the problem. They pertain to the need to reduce carbon, provide water and create jobs within India's democratic realities.

Climate ambition first. India has promised to increase the share of electricity capacity from non-fossil sources from 42% today to 50% by 2030. To do this, India is amping up its solar, wind and to a smaller extent, hydropower capacities. Energy experts believe several more gigawatts of hydro will need to be added by 2030 to stick to our decarbonising goals. That could be dicey given the existing problems with hydro. Of course, we could bring down our carbon footprint in other ways. For example, with agriculture using a good chunk of India's electricity, we could ask those using agricultural connections (not always



**SPOT THE CRACKS:** Pressure to reduce carbon, provide water and create jobs has led to a warped model

farmers) to pay fairly for the electricity, which would better manage demand (and save groundwater). But few politicians will risk being branded anti-farmer by doing this. Moreover, hydropower is alluring for other reasons. Energy can be stored in water and quickly released, making hydro far better for meeting peak loads than the more variable solar and wind. The rent-seeking possibilities with construction can be politically salient. Dams provide drinking water. Everything needed to build a dam is available within the country — important in a geopolitically unsettled world. Lastly, dams are a concrete (pun intended) symbol of development. When someone asks what a leader did for people, s/he can point to the dam.

Moving to roads. The people living in the hill tracts of Uttarakhand have few employment opportunities, and look to elected leaders to correct this. Enter religious tourism and the roads and hotels built to cater to it, which provide livelihoods that people asked for. Reducing the number of tourists while preserving jobs is akin to saying the grace of Lord Badrinath is only for those who can afford a helicopter flight. Not realistic. Reducing the tourism revenue overall means fewer livelihoods. Not politically acceptable. And so, we are stuck. To get unstuck, let us (rightly) descry dams and roads built in sensitive areas, but also ask how Delhi can do without Tehri's water in May 2023, how to secure livelihoods of Joshimath's residents, how to supply low-carbon stable electricity in a raucous democracy. But with the climate changing, the equilibrium is shifting. Who wants a dam that is overwhelmed by constant flooding and who wants to travel on roads which can slip away? The end of this road is approaching, and a new path where roads and homes are built more thoughtfully, fewer dams in fragile areas and better managing how our electricity is consumed and our water managed, is emerging. Down that path lies Joshimath's salvation, but will we walk it? ■

*Mridula Ramesh is a climate and water expert and author of Watershed: How We Destroyed India's Water and How We Can Save It and The Climate Solution*



The Times of India- 15- January-2023

# Arsenic in water raises risk of gallbladder cancer: Study

## 2-Year Survey Conducted In Tertiary-Care Hosps In Assam, Bihar

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**New Delhi:** A two-year study carried out in large tertiary care hospital settings that treat patients across different parts of Assam and Bihar suggests that chronic arsenic exposure in drinking water even at low-moderate levels may be a potential risk factor for gallbladder cancer (GBC).

In trying to understand GBC risk factors, a rare yet lethal digestive tract cancer, not fully understood so far, scientists from Public Health Foundation of India and Centre for Chronic Disease Control from Delhi, B Borooah Cancer Institute, Guwahati and IIT-Kharagpur collaborated with the London School of Hygiene and Tropical Medicine. They investigated exposure to arsenic in drinking water, with gallbladder cancer risk among participants for residency durations of 15-70 years in two of the arsenic-affected states of India where both GBC and arsenic contamination in drinking water are significant public health problems.

In the study areas, researchers observed that participants exposed to arsenic concentrations averaging 1.3-8.9 µg/L in groundwater



Getty Images/iStockphoto

**HIDDEN DANGER:** The study assessed arsenic exposure of the patients based on their residential history since childhood and the average concentration of groundwater arsenic at district level

had a two-times greater risk of GBC, while those exposed to even higher arsenic levels (9.1-448.3 µg/L) experienced a 2.4 times increased risk of gallbladder cancer. Over a third of the study participants were exposed to levels more than WHO guideline limit of 10 µg/L, and 6% were exposed to levels more than or equal to 50 µg/L. More participants in regions with the highest levels of arsenic reported to be consuming tube-well water with sediments and with unsatisfactory colour, odour, and taste than those in regions with the lowest levels of arsenic.

The paper 'Exposure to ar-

senic through drinking water is possibly linked to an increased risk for gallbladder cancer in known arsenic-contaminated regions in India' has been published in the Cancer Epidemiology, Biomarkers & Prevention journal of the American Association for Cancer Research.

The study assessed arsenic exposure of the study participants based on their residential history since childhood and the average concentration of groundwater arsenic at district-level. "Obtaining long-term residential history since childhood with information on potential sources of drinking water is

an important contribution of this study to the existing evidence base. Preliminary insights from this study can also be useful for similar country contexts that experience a high burden of gallbladder cancers and arsenic contamination in drinking water," said the lead author, Krithiga Shridhar, senior research scientist and associate professor, PHFI.

Assam and Bihar are two states in the country that report a high burden of GBC and high arsenic contamination in groundwater used for drinking (next to West Bengal and Punjab). Scientists evaluated if there are any links between the two in these regions.

According to the study, the data offer preliminary insights on a risk factor with a potential preventive strategy for GBC. Based on earlier recent surveys of household water levels it is estimated that 18-30 million people in rural and urban India (Podgorski et al 2020), "including in our study regions, consume arsenic above 10 µg/L and up to 1,500 µg/L in 2020. Thus, these findings may inform Jal Jeevan Mission-2024 fully aligned with Sustainable Development Goals of equitable clean and safe drinking water."

# Govt cautions experts over U'khand theories

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**NEW DELHI:** The Centre has asked all government agencies and institutions involved in the rescue, relief and analysis works of the Joshimath ground subsidence to refrain from sharing any details publicly, citing the possibility of "confusion" that it can lead to.

On the ground at the hill town, demolition crews worked gingerly on Saturday to bring down two precariously standing hotels in Joshimath, amid fears that they could collapse and lead to widespread destruction.

The order, issued by the National Disaster Management Authority (NDMA) on Friday, came as assessments and reports purported to show the gravity of the problem, and that some signs may have gone unnoticed.

## JOSHIMATH

5.4cm in a little under 13 days till January 8.

The report, "Joshimath subsidence: Satellite-based preliminary results" was no longer available on



Officials oversee the demolition of a hotel that was marked unsafe in Joshimath on Saturday.

PTI

One of these was a preliminary report by the ISRO'S National Remote Sensing Centre (NRSC) in Hyderabad uploaded on January 11. It found that in the

seven months between April and November 2022, Joshimath recorded subsidence of 8.9 cm, but the rate grew to an alarming

continued on →15

the website on Saturday.

"It is observed that various government institutions are releasing data related to the subject matter in social media platform and also they are interacting with media with their own interpretation of the situation," said the NDMA order. "It is creating confusion not only among affected residents but also among citizens of the country. The issue was highlighted during a meeting chaired by Honorable Union Home Minister (Amit Shah) on January 12, 2023," it added.

Joshimath has been declared a disaster zone and all agencies working in connection with it are bound to follow directions of the NDMA.

The Centre has already formed a team of experts from the NDMA, National Institute of Disaster Management, Geological Survey of India, IIT Roorkee, Wadia Institute of Himalayan Geology, National Institute of Hydrology and Central Building Research Institute to study and give recommendations on the Joshimath situation.

Asserting that an expert group is already looking into the incident, NDMA asked concerned departments to avoid sharing details on social media or interact with media.

"You are requested to sensitise your organisation about this matter and refrain from posting anything on the media platform until the final report of the expert group is released by NDMA," it added.

A senior NDMA official, asking

not to be named, said: "It is just a precautionary letter to convey that sharing details separately can create confusion and panic among residents. We must wait for final report of the expert group to know what happened".

On Saturday, residents and government officials who asked not to be named told HT that they believe an aquifer – a layer of water underground – may have been punctured, causing rocks above to move due to the flow. This, they said, likely happened between January 2 and 3, when several houses developed cracks overnight.

District magistrate of Chamoli, Himanshu Khurana, did not react to the theory, saying: "I don't know what escalated the situation after January 3. Only experts and scientists can tell."



The Indian Express- 15- January-2023

## ● ISRO pulls down report

were not available for comment on why the report had been taken down. An email sent to the ISRO spokesperson did not elicit a response.

But Uttarakhand cabinet minister Dhan Singh Rawat told The Sunday Express that there was panic in Joshimath over the ISRO report, so he spoke to the ISRO director and asked him to remove the report.

"There was this thing on the website that there is land subsidence, and that created a lot of panic here (in Joshimath). This is why I asked him to only give official statements and not post anything on the website just like that... I asked them to only speak the truth... and if that is not the case, then remove it from the website. I requested them to give official reports and not create panic unless there is an official report," Rawat said.

He said the NDMA letter was issued after the Uttarakhand government told the agency that any report regarding Joshimath should first get approval from the Centre or the state government.

"We have requested the NDMA. I have personally spoken to the ISRO director... The main motive behind this is to make sure there is no panic among people. People here are already troubled," Rawat said.

The NDMA office memorandum prohibiting interaction with the media or sharing of data on social media regarding Joshimath was issued Friday. It was marked to the Director, Central Building Research Institute (CBRI), Roorkee; DG, Geological Survey of India (GSI), Kolkata; Director, NRSC-ISRO, Hyderabad; Chairman, Central Ground Water Board (CGWB), New Delhi; Surveyor General of India, SOI, Dehradun; Director, Indian Institute of Remote Sensing (IIRS), Dehradun; Director, National Geophysical Research Institute (NGRI), Hyderabad; Director, National Institute of Hydrology (NIH), Roorkee; Director, Wadia Institute of

Himalayan Geology (WIHG), Dehradun; Director, IIT Roorkee; ED, National Institute of Disaster Management (NIDM), New Delhi; Secretary, Uttarakhand State Disaster Management Authority (USDMA), Dehradun.

The NDMA said in its office memorandum: "It is observed that various Government Institutions are releasing data related to the subject matter in social media platforms and also they are interacting with media with their own interpretation of the situation. It is creating confusion not only among affected residents but also among citizens of the country."

It stated that "the issue was highlighted during a meeting chaired by Honourable Union Home Minister on 12th January 2023".

"Accordingly it was also discussed during a meeting chaired by Member Secretary, NDMA, held on 12th January 2023. Also an expert group has been formed for assessment of ground subsidence at Joshimath," it stated.

"You are requested to sensitize your organization about this matter and refrain from posting anything on the media platform until the final report of the expert group is released by NDMA," the NDMA said.

Questioning the NDMA order and the Uttarakhand government's role in it, state Congress president Karan Mahara accused the state government of "hiding the fact that they never listened to the experts and none of the expert suggestions were ever implemented".

Former Chief Minister Harish Rawat said, "This is unfortunate. What is happening in Joshimath is something that requires a lot of public awareness. All kinds of views should come. Only when all kinds of views and suggestions will come to the front, the other agencies will get into crystallising things. If alternate views are not welcomed, then this is not a good thing."

### CREATES CONFUSION: NDMA

## Joshimath: ISRO pulls down report, Govt tells top expert bodies not to speak to the media

Unfortunate, says ex-CM Rawat, there is no panic, all agencies should pool in

### EXPRESS NEWS SERVICE

DEHRADUN, NEW DELHI,  
JANUARY 14

THE NATIONAL Disaster Management Authority (NDMA) has instructed a dozen government institutes and scientific organisations not to interact with the media or share data on social media regarding ground subsidence at Joshimath in Uttarakhand, saying their "interpretation of the situation" is "creating confusion not only among affected residents but also among citizens of the country".

A preliminary report released Friday by the Indian Space Research Organisation's National Remote Sensing Centre, showing a "rapid subsidence" event in parts of Joshimath, was taken down from the NRSC website.



A survey at Sunil village in Joshimath, Saturday. ANI

According to the preliminary report, while "slow subsidence" up to 8.9 cm within Joshimath town was recorded over a period of 7 months since April 2022, Cartosat-2S satellite data acquired by ISRO recorded "rapid subsidence" of around 5 cm in just 12 days since December 27.

On Saturday, NRSC officials

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The Hindu- 15- January-2023

# Don't share details of Joshimath survey with media: NDMA

**Ishita Mishra**  
NEW DELHI

After the Indian Space Research Organisation (ISRO) said in a report that Joshimath sank 5.4 cm between December 27 and January 8, the National Disaster Management Authority (NDMA) on Friday directed all departments and organisations involved in survey and data collection in the Uttarakhand town hit by land subsidence not to interact with the media or share data on social media.

"Various government institutions are releasing data related to the subject matter (Joshimath) on social media and are interact-



A scientist surveying a house in Joshimath on Saturday. ANI

ing with media with their own interpretations. It is creating confusion not only among the affected residents but also among citizens of the country," the NDMA said.

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## 'Don't share details on Joshimath with media'

It said the issue of institutions talking to the media was highlighted during a meeting with Home Minister Amit Shah, and added that an expert group had been formed to assess the situation in Joshimath.

The communication by the NDMA was directed to officials of the Wadia Institute of Himalayan Geology, Dehradun; Indian Institute of Technology, Roorkee; Central Building Research Institute; Roorkee; Geological Survey of India, Kolkata; National Remote Sensing Centre of the ISRO; National Institute Of Disaster Management, New Delhi; Indian Institute Of Remote Sensing, Dehradun; National Geographical Research Institute, Hyderabad; Central Ground Water Board, New Delhi; and Surveyor General Of India.

"You are requested to sensitise the organisation about this matter and refrain from posting anything on social media until the final report of the expert group is released," the order said.

Separately, Uttarakhand Cabinet Minister Dhan Singh Rawat said told *The Hindu* that the State government had spoken to the ISRO and other organisations and told them not to share reports that could create panic among residents. Chief Minister Pushkar Singh Dhami also asked the media not to portray images that Joshimath was "literally sinking".



Amar Ujala- 15- January-2023

# भय का माहौल न बने, इसलिए जोशीमठ में भू-धंसाव की सूचनाओं पर लगाई रोक

राज्य सरकार के कहने पर इसरो ने भी हटाई तस्वीर, विशेषज्ञ समिति की रिपोर्ट से पहले कोई सूचना जारी नहीं होगी

अमर उजाला ब्यूरो

नई दिल्ली। राष्ट्रीय आपदा प्रबंधन प्राधिकरण (एनडीएमए) ने देश की 12 एजेंसियों और विशेषज्ञ संगठनों को जोशीमठ के बारे में कोई भी जानकारी सोशल मीडिया प्लेटफॉर्म या मीडिया को जारी करने पर रोक लगा दी है। विभिन्न स्रोतों से अलग-अलग तरह की सूचनाओं के कारण देशभर में भ्रम की स्थिति पैदा होने और घटना प्रभावित निवासियों में डर बढ़ने का हवाला देते हुए यह रोक लगाई गई है।

एनडीएमए ने सीबीआरआई, रूड़की और आईआईटी रूड़की समेत इन संस्थाओं के प्रमुखों को शनिवार को पत्र भेजकर सूचनाओं पर रोक लगाई। प्राधिकरण ने सभी संस्थाओं से कहा, इस मामले में और संवेदनशीलता बरतें। मामले के आकलन के लिए विशेषज्ञ समिति का गठन किया गया है। जब तक इस समिति की अंतिम रिपोर्ट नहीं आ जाती, मीडिया में कुछ भी साझा करने से बचें। भू-धंसाव से संबंधित कोई डाटा भी न साझा करें। वहीं,



जोशीमठ में भूकंप की दस्त का सर्वे करते जीबी पंत नेरानल इंस्टीट्यूट के वैज्ञानिक। एजेंसी

## 12 संस्थाओं को रोक से संबंधित पत्र भेजा

■ सीबीआरआई, रूड़की ■ जीएसआई, कोलकाता ■ एनआरएससी-इसरो, हैदराबाद ■ सीजीडब्ल्यूबी, नई दिल्ली ■ एसओआई, देहरादून ■ आईआईआरएस, देहरादून ■ एनजीआरआई, हैदराबाद ■ एनआईएच, रूड़की ■ डब्ल्यूआईएचजी, देहरादून ■ आईआईटी, रूड़की ■ एनआईडीएम, नई दिल्ली ■ एसडीएमए, देहरादून

उत्तराखंड सरकार के आग्रह के बाद जोशीमठ में पिछले 12 दिनों में भू-धंसाव तेज होने के बारे में इसरो के सैटेलाइट फोटो को भी इंटरनेट से हटा

दिया गया है। राज्य सरकार ने इसरो से कहा, जोशीमठ के बारे में सिर्फ अधिकृत तस्वीर ही जारी करें।

## सूचनाएं नहीं...अपने हिसाब से विश्लेषण

एनडीएमए ने अपने पत्र में कहा कि विभिन्न संस्थानों की अलग-अलग सूचनाओं से भ्रम व भय की स्थिति का मामला 12 जनवरी को गृह मंत्री अमित शाह के साथ हुई उच्चस्तरीय बैठक में भी उठा। आधिकारिक स्रोतों ने कहा कि कई संस्थाएं सिर्फ सूचनाएं नहीं दे रही, बल्कि भू-धंसाव की घटना का अपने-अपने हिसाब से आकलन और विश्लेषण कर रही हैं।

## अनुमति लेकर जारी करें सूचना : राज्य सरकार

राज्य सरकार ने भी विभिन्न संस्थाओं से कहा है कि बिना उचित मंजूरी के सूचनाएं जारी करने से जमीनी स्तर पर चल रहे काम प्रभावित हो रहे हैं। लोगों में बेचैनी बढ़ रही है। यदि कोई सूचना जारी करनी है तो केंद्र के संबंधित विभाग या राज्य से अनुमति लें।

## कांग्रेस ने की सूचना पर रोक की निंदा

कांग्रेस ने जोशीमठ से जुड़ी खबरों पर रोक लगाए जाने पर सरकार की आलोचना की है। पार्टी अध्यक्ष मल्लिकार्जुन खरगे ने इसरो को लिखे पत्र को साझा करते हुए कहा कि संकट सुलझाने के बदले सरकारी एजेंसियां इसरो रिपोर्ट को प्रतिबंधित करने में जुटी हैं।

## प्रदेश के मंत्री ने की इसरो निदेशक से बात

उत्तराखंड के मंत्री डॉ. धन सिंह रावत ने अमर उजाला को बताया कि इसरो की रिपोर्ट की तस्वीरें वायरल होने और उससे जुड़ी खबरें टीवी चैनलों में प्रसारित होने के बाद जोशीमठ शहर के लोगों के बीच घबराहत की स्थिति बन गई थी। इस बारे में उन्होंने इसरो के निदेशक से बात की। उनके अनुरोध पर इसरो ने अब वेबसाइट से पूरी रिपोर्ट हटा दी है।