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Causation, Catastrophe, and the Limits of Explanation: A Philosophical Analysis of Nepal's 26 August 2026 Flash Flood

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Abstract
Nepal's 26 August 2026 flash flood raises fundamental questions concerning causation, catastrophe, and the limits of explanation. Current evidence suggests that rapid slope failure involving a glacier in the Langtang region generated an ice-and-rock debris flow that propagated downstream through connected river systems. But identifying this immediate mechanism does not explain why the collapse occurred, whether it could have been predicted, or whether its consequences could have been prevented. Kant's reflections on the 1755 Lisbon earthquake and Wittgenstein's analysis of the limits of language are brought together as methodological resources for distinguishing observation, inference, and justification. It is argued that "What caused the catastrophe?" encompasses distinct questions of initiation, antecedent conditions, disaster transformation, epistemic accessibility, and responsibility, each requiring different evidential and normative standards.
Keywords: Causal Explanation, Causal Inference, Epistemic Uncertainty, Flash Floods, Human Agency.

Introduction

In this paper, I maintain that the flash flood that struck Nepal on 26 August 2026 presents not merely a question of what happened, but the more difficult question of what it means to explain what happened. Before asking what caused the catastrophe, I first distinguish the event as observed from the physical processes inferred to have produced it. The event was initially experienced and reported downstream as a catastrophic flash flood affecting Nepal's Rasuwa District and the Nepal–China border region, including the Gyirong area of the Tibet Autonomous Region of China.[1] However, the description "flash flood" identifies the form in which the catastrophe appeared; it does not, by itself, establish the physical processes through which it occurred. I therefore begin with an epistemic question about what can be established from the available evidence and where justified inference begins.

The available evidence indicates that the event began with a rapid glacial collapse involving ice and rock in the Langtang region. An ice-and-rock avalanche followed, after which the material entered the Lende (Lhende) Khola and interacted with water and the existing river channel. Additional sediment, boulders, and water were incorporated into the moving mass, producing a highly mobile debris flow that propagated downstream through the Bhote Koshi and Trishuli systems. The USGS accordingly describes the event as a likely glacial-collapse-triggered debris flow and flood.[2] I therefore reconstruct the physical sequence, provisionally, as glacial collapse → ice-and-rock avalanche → debris mobilization → interaction with river channels → downstream flooding. This reconstruction, however, does not by itself answer the causal question raised here. USGS seismic analysis located the principal disturbance in a glaciated mountain cliff on the north side of

[1] Reuters, 2026. "How a glacier collapse triggered a deadly landslide and flooding along the Nepal-China border"; ICIMOD, 2026. "Major flash flood sweeps through Nepal's Rasuwa district."
[2] USGS, 2026. "2026 Nepal Debris Avalanche and Flash Flood." The USGS describes a glacial-collapse-triggered debris flow and flood that traveled approximately 100 km, incorporating additional water and material along existing channels.

Lāngtāng Lirung and associated it with the collapse, estimating energy equivalent to a magnitude-5.2 earthquake.[3] I take this finding to be philosophically significant because an event detected within a causal sequence cannot simply be treated as an independently established cause. On the present evidence, the seismic disturbance is associated with the collapse rather than with an independently occurring earthquake that preceded and initiated it. The case therefore illustrates the need to distinguish temporal sequence, evidential association, and causal dependence.

Chronology also demonstrates the provisional character of causal knowledge according to available evidence. ICIMOD reported rapidly rising water levels in the Bhote Koshi basin on 26 August and described an ice-and-rock avalanche entering the Lende Khola as a suspected trigger, while noting that seismic, hydrological, remote-sensing, and field evidence was still being investigated.[4] I treat the later USGS assessment not simply as an additional description but as a subsequent evidential refinement of what could reasonably be inferred from the initial observations.

The central problem is consequently not exhausted by identifying the immediate physical mechanism. I argue that the question about "What caused the catastrophe?" compresses several distinct questions on what initiated the physical event, what antecedent conditions made it possible, how a physical hazard was transformed into a disaster, what aspects of the causal sequence were epistemically accessible, and whether responsibility can legitimately be assigned. These questions require different evidential and normative standards. An immediate mechanism may be established without its deeper antecedents being known; an antecedent condition may also be causally relevant without being sufficient; and an event may be retrospectively explainable without having been predictably accessible. My philosophical task, therefore, is to examine where justified causal explanation ends and speculation begins. Kant's reflections on the 1755 Lisbon earthquake and Wittgenstein's analysis of the limits of language are brought together as methodological resources for distinguishing observation, inference, and justification. The Nepal catastrophe is thus treated not merely as an event to be explained, but as a case through which the limits of causal explanation, prediction, and responsibility can be examined.

What Caused What?

Having established what happened, I now turn from description to the more demanding question of "what caused what?" I argue that such a distinction matters because a temporal sequence does not constitute a causal explanation. For instance, if *A* occurs before *B*, this establishes only temporal precedence; but to say that *A* caused *B* is to assert a stronger relation of dependence that *B* occurred through a process in which *A* played a causally relevant role. The Nepal catastrophe is especially instructive in this regard because the causal interpretation of the observed seismic disturbance changed as the evidential picture developed. At the earliest stage of the investigation, an earthquake-centered explanation was a reasonable hypothesis rather than an irrational conjecture. A substantial seismic disturbance had been detected in temporal proximity to the destructive flooding, and the possibility was considered that an earthquake had triggered an ice-and-rock avalanche, which subsequently entered the river system. Reuters reported this possibility as part of the initial and still-developing account of the event.[5]

The hypothesis was therefore epistemically intelligible given the evidence then available, even though it was subsequently displaced by a different causal interpretation. The contemporaneous ICIMOD assessment was more cautious where an ice-and-rock avalanche entering the Lende Khola was identified as a suspected trigger, while the relationship between the avalanche, the flooding, and the unusual seismic signals remained under investigation.[6] This qualification is philosophically significant for my analysis because a causal hypothesis should not be assessed solely by its eventual acceptance or rejection; its epistemic status must also be considered relative to the evidence available when it was formulated. This informs why a causal inference may be reasonable at one stage of inquiry without being ultimately justified.

The causal picture was subsequently revised by USGS seismological analysis where the seismic waves were in a glaciated mountain cliff on the north side of Lāngtāng Lirung, and the collapse was estimated to have released

[3] Ibid.

[4] ICIMOD, 2026.

[5] Reuters, 2026. "Nepal's fatal flash floods." The report notes the initial possibility that a preceding earthquake contributed to the ice-and-rock avalanche and flooding.

[6] See ICIMOD, 2026. ICIMOD described the ice-and-rock avalanche as a suspected trigger and stated that its causal relation to the flooding and seismic signals remained under investigation.

energy equivalent to a magnitude-5.2 earthquake.[7] The importance of this finding extends beyond the empirical reconstruction to show that an observation does not carry its causal interpretation within itself. The occurrence of the seismic signal remained unchanged; what changed was its explanatory position within the model of the event. What could initially be interpreted as evidence of an external earthquake became evidence of energy released by the collapse itself. In this sense, the causal structure consequently shifted from the provisional model earthquake → collapse → avalanche → flooding to a branching structure in which collapse → seismic disturbance, while, independently, collapse → avalanche → debris flow → downstream flooding.[8] The distinction demonstrates why temporal succession must be separated from causal dependence. For instance, let *S* represent the seismic disturbance and *F* the downstream flood. The fact that *S* preceded *F* does not establish $S \rightarrow F$. For both may instead be effects of an earlier process, namely the glacial collapse. The relevant causal question is therefore not simply what occurred first, but what physical process produced the phenomenon that followed. This question is timely because causal explanation requires more than chronological ordering; it requires an account of the mechanism connecting events.

The evidence presently permits a relatively strong conclusion at the level of proximate mechanism. The glacial collapse can reasonably be treated as the initiating physical process from which the avalanche, debris mobilization, and subsequent downstream flooding developed. But this conclusion does not answer the deeper question of why the collapse occurred. Here, a distinction must be made between the process that immediately produced an event and the antecedent conditions that made that process possible. Glacier geometry, geological structure, thermal conditions, precipitation, permafrost stability, and other environmental factors may be relevant to instability, but their general capacity to influence glacial or slope failure does not establish that any factor caused this collapse. Determining whether such conditions played any causal role therefore requires more than establishing their general relevance to instability; it requires evidence that connects them to the failure under investigation. This is the point at which the issue of causal attribution becomes more complex. I therefore argue that the question, "What caused what?" cannot be answered at a single undifferentiated level. A condition may be background, predisposing, contributory, triggering, or proximate, and these forms of causal relevance must not be conflated. The available evidence supports a comparatively determined account of the immediate physical mechanism while leaving the deeper causal history less certain. This asymmetry is not a defect in explanation but an epistemic boundary, since a rigorous causal account must identify not only what can be illustrated but also where the evidence ceases to warrant further attribution. In this sense, explaining the immediate mechanism is not equivalent to explaining the catastrophe in its entirety.

Why Did the Initiating Collapse Occur?

Having identified the glacial collapse as the proximate initiating mechanism of the destructive sequence, I now move one level backward and ask a different question as to why the initiating collapse occurred. I argue that such a question cannot be answered simply by restating what the collapse produced. To explain the avalanche and subsequent flooding is to identify a mechanism within the catastrophe; to explain the collapse itself is to inquire into the conditions under which that mechanism became possible. The available evidence so far provides comparatively strong grounds for treating rapid glacial collapse or slope failure as the starting point of the destructive physical sequence. The USGS describes the event as a likely glacial-collapse-triggered debris flow and flood and identifies the collapse as occurring in a glaciated mountain cliff north of Lāngtāng Lirung.[9]But this establishes only the proximate mechanism; it does not, by itself, explain why the glaciated mass became unstable or why failure occurred at that particular place and time. This distinction reveals a difficulty easily concealed by speaking of "the cause" in the singular, since different conditions may enter the causal history of an event at different levels. Background conditions provide the broader circumstances that make a particular type of event possible; predisposing conditions alter the state of the system in ways that increase its susceptibility to failure; contributing factors further influence the likelihood, timing, or severity of the particular failure; and proximate mechanisms are the immediate physical processes through which instability is converted into failure and its downstream effects. The causal progression is therefore not from one single cause to one single effect, but from a set of enabling and predisposing conditions, through more event-specific contributing factors, to the mechanism that directly produces the observed outcome. These

[7] See USGS, 2026.

[8] The branching causal structure is an analytical reconstruction of the evidential sequence reported in the sources cited above. It is used here to distinguish the seismic effect of the collapse from the avalanche-and-debris-flow pathway leading to downstream flooding.

[9] See USGS, 2026. "2026 Nepal Debris Avalanche and Flash Flood."

forms of causal relevance should not be conflated since a condition may make failure possible without making it likely, increase susceptibility without triggering failure, or contribute to instability without determining when failure will occur. I therefore maintain that in cases such as this one, one must be able to distinguish the difference between background conditions, predisposing conditions, contributing factors, and proximate mechanisms. These categories are not proposed as fixed scientific classifications but as an analytical framework for tracing different levels of causal dependence and preventing them from being collapsed into a single attribution.[10]

The difficulty becomes particularly clear when climate change is introduced into the causal account. Scientific evidence establishes that climatic warming can alter glacier, snow, and permafrost conditions and thereby affect the stability and dynamics of high-mountain hazards.[11] This establishes a general causal pathway between climatic change and cryospheric instability, but it does not, by itself, establish that such a pathway operated in the present case. A stronger claim would require evidence that climatic changes altered the physical condition of the glaciated mass involved in the 26 August 2026 collapse. A still stronger claim would be that those changes contributed to the occurrence, timing, or severity of failure. Attributing that contribution specifically to anthropogenic climate change would require a further step: establishing that the relevant climatic changes were attributable to human-caused warming. The causal progression therefore runs from general causal capacity, through site-specific physical influence and event-specific causal contribution, to attribution to anthropogenic climate change. This distinction is not merely conceptual; it is borne by a closely comparable case from the same region.

The 2015 Langtang avalanche demonstrates how climatic conditions can occupy a causally significant position within a disaster without constituting its initiating cause. Zhuang et al. show that the Gorkha earthquake triggered the rock–ice avalanche, while anomalous snowfall and elevated temperatures subsequently affected its mobility and destructive dynamics.[12] Climate-related conditions therefore contributed to the behavior and severity of the event without constituting its proximate trigger. The Langtang case consequently provides an important empirical analogue for the present analysis by showing that identifying a non-climatic initiating mechanism does not exclude climatic influence elsewhere in the causal sequence, while the existence of such influence does not, without further evidence, justify attributing the initiating failure itself to climate change. Accordingly, the 2026 collapse should not be described simply as "caused by climate change" unless the relevant links in this causal chain are established. Nor should the identification of a proximate mechanism be taken to exclude climatic influence at an antecedent level. I argue that the appropriate question is not whether climate change can produce instability in general, but whether the available evidence warrants attributing a specific causal role to it in this failure.

How Did a Physical Hazard Become a Disaster?

Having distinguished the proximate mechanism of the physical event from the antecedent conditions that may have contributed to it, I now turn to a different causal question as to how did a physical hazard become a disaster for human beings? Understanding this is fundamental in this analysis. The collapse of ice and rock is a physical event; the destruction of lives, settlements, infrastructure, and livelihoods belongs to the history of what occurred when that physical process encountered an inhabited and organized environment. Reports of extensive destruction along the affected river systems, including damage to roads, bridges, buildings, power infrastructure, and the Gyirong border area, make this distinction especially important.[13] I approach this question through the concepts of hazard, exposure, and vulnerability. A hazard is a physical process capable of producing harm; exposure concerns the presence of people, infrastructure, settlements, and other assets within the potential reach of that process, while vulnerability concerns the conditions that affect the susceptibility of exposed people or assets to harm, including their physical, social, economic, and institutional circumstances.[14] These concepts do more than provide a vocabulary for describing disaster risk. They identify different elements in the transition from a physical process to realized human loss.

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[10] This distinction is my analytical framework for differentiating forms of causal relevance. It does not imply that these categories constitute universally fixed scientific classifications.

[11] See Ding *et al.,* 2019. "Global warming weakening the inherent stability of glaciers and permafrost"; Zhuang *et al.,* 2024. "An earthquake-triggered avalanche in Nepal in 2015 was exacerbated by climate variability and snowfall anomalies."

[12] See Zhuang et al., 2024.

[13] See Reuters, 2026. "Chinese Rescue Team Finds 'Nothing but Ruins' at Flood-hit Himalayan Border Crossing."

[14] United Nations Office for Disaster Risk Reduction (UNDRR), 2015. Sendai Framework Terminology on Disaster Risk Reduction.

This transition can therefore be represented, provisionally, as physical process → hazard → exposure and vulnerability → realized harm. The arrows, however, should not be understood as expressing one uniform kind of causation because the first relation is predominantly physical where collapse produces an avalanche, which contributes to debris mobilization and flooding. The subsequent relations are relational and socio-physical as destructive flow becomes a disaster of a particular magnitude because people and material assets are situated within its reach and because their susceptibility to harm varies. In the current case, exposure does not explain why the glacier collapsed, but it helps explain why the consequences of that collapse took the form they did. Vulnerability, similarly, does not produce the hazard itself, but it can affect the severity and distribution of its consequences.

To understand how a physical hazard turned to disaster, I turn to a further level of the causal analysis that clarifies why the expression "natural disaster" can be philosophically misleading when treated as a complete explanation of the 26 August 2026 Nepal flood. The initiating physical process produced a cascade of ice, rock, debris, and water that propagated downstream through the Bhote Koshi and Trishuli corridors. But identifying that physical process does not, by itself, explain why the event produced such extensive human losses and infrastructural destruction. As the hazard encountered settlements, roads, bridges, hydropower facilities, and other infrastructure, its consequences were shaped by patterns of human exposure and vulnerability. The physical process therefore explains the origin and operation of the hazard, but not, by itself, the scale and distribution of its consequences. On the other hand, the presence of communities and infrastructure within the hazard pathway does not imply that they caused the physical event. This is why causal contribution to the occurrence of a hazard must therefore be distinguished from causal contribution to the severity and distribution of its consequences.

Once this distinction is established, the analysis can move from causal explanation to the more demanding question of responsibility. To say that exposure or vulnerability contributed to the severity of losses is not yet to say that those losses were preventable, negligent, or wrongful. Such judgements require a further normative inquiry into what risks were knowable, what protective measures and warning systems were available, what responsibilities were reasonably applicable, and what alternatives could have been pursued.[15] The Nepal case therefore demonstrates why causal explanation must precede, without itself determining, normative judgement.

What Could Have Been Known Beforehand?

Having distinguished the immediate mechanism from its antecedent conditions, I now turn to a different question: what could reasonably have been known before the catastrophe of 26 August 2026? This is not simply another question about causation; it concerns the epistemic conditions under which prediction, anticipation, warning, and precaution could have been justified. The distinction is crucial because the event can now be reconstructed from satellite imagery, seismic records, field observations, and its downstream effects, whereas much of this evidence became available only after the event. The USGS reports that the disaster involved rapid slope failure incorporating glacier material, generating seismic energy equivalent to a magnitude-5.2 earthquake, and produced a debris flow and flood that travelled approximately 100 kilometres. It also cautions that it remains unclear whether the initial failure should be classified as a landslide incorporating glacier material or as a glacial collapse.[16] Retrospective explanatory coherence, however, cannot establish equivalent prospective predictability. Hempel's distinction between explanation and prediction is therefore relevant: although explanation and prediction may employ related forms of reasoning, explain an already-observed event and anticipate an event before it occurs are epistemically distinct achievements.[17] This temporal asymmetry becomes especially important when assessing foreseeability. Once the outcome is known, antecedent conditions can appear more predictive than they actually were, encouraging the inference that because the event is now intelligible, it must previously have been identifiable.[18]The relevant question is therefore not whether a coherent causal narrative can now be constructed, but what the evidence available before the event warranted at the time. In Nepal, general knowledge of glacial, slope, and flood hazards

[15] This distinction is developed analytically here. A finding that exposure or vulnerability contributed causally to realized harm does not, without further evidence, establish negligence or responsibility. Such a conclusion would require consideration of foreseeability, available alternatives, relevant knowledge, institutional capacity, and applicable standards of conduct.

[16] See USGS, 2026.

[17] Hempel, 1970. Aspects of scientific explanation and other essays in the philosophy of science.

[18] Fischhoff, 1975.Hindsight ≠ foresight: The effect of outcome knowledge on judgment under uncertainty.

establishes a risk environment; it does not establish that failure of this glaciated slope was imminent. Nor does knowledge that an area is hazard-prone establish the timing, magnitude, trajectory, or downstream consequences of a particular failure.[19]

At the same time, the experience of Tribhuvan Trishuli Secondary School shows that limited short-term warning of the flood's consequences was possible given that after receiving information about rapidly approaching floodwaters, the principal evacuated more than 900 students and staff before the school was swept away.[20] This demonstrates the practical value of timely warning, but it does not establish that the initiating collapse itself was predictable. The epistemic task is therefore to distinguish general hazard knowledge from event prediction and both from effective warning. This is important since uncertainty does not amount to complete ignorance; and precautionary action may be justified even where precise probabilities cannot be established.[21] I therefore propose that foreseeability in this case be assessed through separate questions of whether the general hazard was known; whether the location was recognised as exposed; whether observable signs indicated increasing instability; whether imminent failure was reasonably inferable; whether downstream consequences could have been anticipated; and whether available warning systems could have provided sufficient notice for effective action. These distinctions preserve the temporal standpoint of pre-event knowledge and prevent the completed catastrophe from being used as evidence of what should necessarily have been known beforehand.

What Follows for Responsibility?

Having distinguished the causal structure of the catastrophe from the limits of what could have been known beforehand, I can now ask what, if anything, follows for responsibility. This question requires particular care because responsibility cannot simply be read off from causal sequence. The glacier may have collapsed, the avalanche may have produced the debris flow, and the debris flow may have caused destruction downstream; none of these relations, by themselves, identifies an agent responsible for the resulting harm. Yet the natural origin of a hazard does not exclude human responsibility for how risks are monitored, communicated, managed, or mitigated. Responsibility arises only when causal relations are connected to agents, knowledge, duties, capacities, and choices.[22] This distinction rules out what might be called responsibility by consequence because the fact that terrible harm occurred does not establish that someone was blameworthy for failing to prevent it. Nor can responsibility be inferred merely from the observation that, with the benefit of hindsight, a different decision would have produced a better outcome. What matters is whether a different action was reasonably required at the time, given what the relevant agent knew, what duties applied, and what could practically have been done. The problem of moral luck sharpens this point where the severity of an outcome may depend partly on circumstances beyond an agent's control, so judging responsibility solely by consequences risks confusing bad luck with culpable action.[23] But avoiding retrospective blame must also not become an excuse for avoiding responsibility altogether. The impossibility of predicting the precise timing or magnitude of a glacial collapse does not imply that nothing could reasonably have been done. For instance, a region may be recognized as exposed to serious hazards even when no failure can be predicted. Under such conditions, responsibility may concern preparedness, monitoring, warning, land-use decisions, infrastructure, or evacuation rather than prevention of the physical event itself. The relevant normative question is therefore not whether the catastrophe could have been predicted with certainty, but what degree of precaution was justified by the knowledge available beforehand. Precaution under uncertainty does not require certainty about an event; it requires a defensible relationship between the seriousness of the risk, the available evidence, the feasibility of protective action, and the burdens imposed by that action.[24]

This yields an important distinction between responsibility for causing a hazard and responsibility for managing a risk. The two may coincide, but they need not since an institution could have no role in producing a glacial collapse while nevertheless possessing obligations concerning warning systems or emergency

[19] Blaikie et al. 2004. At risk: Natural hazards, people's vulnerability and disasters (2nd ed.). These sources distinguish hazard, exposure, vulnerability, and disaster risk.

[20] See Associated Press, 2026. "This principal in Nepal evacuated 900 students before flooding swept away their school."

[21] Knight, 1921. Risk, uncertainty and profit.

[22] Hart and Honoré,1985. Causation in the Law. The work is relevant to distinguishing causal attribution from responsibility; its application here is my own.

[23] Williams, 1981. Moral luck. In: Moral luck: Philosophical papers; Williams and Nagel, 1976. Moral luck. Proceedings of the Aristotelian Society, Supplementary Volume, 50.

[24] Cranor, 2013. Legally poisoned; Tickner, 2002. Precaution, environmental science, and preventive public policy.

preparedness. Conversely, an agent could contribute causally to a harmful outcome without thereby being morally blameworthy. In this sense, the object of responsibility must therefore always be specified such as responsibility for what, owed to whom, and under which conditions?

I argue that, every assessment of the Nepal's flash flood should consequently proceed through a sequence of questions: What was knowable? What was reasonably foreseeable? What options were available? What duties applied? And what response could reasonably have been demanded? These questions cannot be answered by a single causal attribution because they concern different relations among knowledge, agency, obligation, and harm. What was technically possible may not have been practically available; what was possible may not have been required; and what was required may depend upon the seriousness and imminence of the risk. The appropriate philosophical position is therefore neither premature blame nor premature exoneration. Responsibility should be attributed only where the evidence establishes a defensible connection between what an agent could know, what the agent could do, what the agent was obliged to do, and what the agent did. This is especially important in a catastrophe that involves both powerful natural processes and human vulnerability.

To acknowledge the force of nature is not to absolve institutions of every obligation; equally, to identify humanly manageable aspects of the disaster is not to make human beings responsible for the glacier's collapse. The question that finally matters is thus not simply "Who caused the disaster?" It is given what was knowable, what was reasonably foreseeable, what capacities and duties existed, and what action could fairly have been required? Only by asking the question in this form can causal explanation be transformed into a legitimate judgment of responsibility without allowing either nature or hindsight to do the work of moral argument.

Kant, Wittgenstein, and the Method of Causal Inquiry

At this stage, the argument requires methodological clarification. I do not invoke Kant and Wittgenstein as authorities on contemporary geology, but because their philosophies illuminate a more fundamental question: What must be true for causal inquiry to be possible at all? Kant directs attention to the conditions under which we are entitled to move from phenomena to causal claims; Wittgenstein directs attention to the conditions under which the questions through which we make those claims are intelligible. If a causal explanation is to be more than retrospective storytelling, then both conditions must be satisfied: the inference must be warranted, and the question must identify a determinate object of inquiry.[25]

Kant's writings on the Lisbon earthquake of 1755 provide a useful historical point of departure. His geological explanations are obsolete, but his manner of inquiry remains philosophically instructive. Faced with an extraordinary catastrophe, Kant sought natural explanations that could be brought into relation with observable phenomena rather than treating the event itself as evidence for whatever explanation happened to be imaginable.[26] The important principle is therefore methodological where if a causal hypothesis is to explain an event, then the phenomena must provide grounds for preferring that hypothesis over its relevant alternatives. Explanation cannot consist merely of attaching a possible cause to an observed effect.

The Nepal case makes the point unusually clear. The seismic disturbance was real; what changed was its causal interpretation. Initial reports allowed an earthquake hypothesis to enter the explanation, whereas subsequent USGS analysis located the seismic source in the glaciated mountain cliff and interpreted the released energy as generated by the collapse itself.[27] If this interpretation is correct, then the earlier observation has not been discarded; rather its place within the causal structure has been revised. This matters philosophically because it shows that temporal precedence is insufficient for causal direction.

If an event can precede another without producing it, then chronology alone cannot establish causation. What must be established is the relevant physical dependence between them. Wittgenstein exposes a different

[25] The use of Kant and Wittgenstein here is methodological: Kant concerns the justification of causal inference, while Wittgenstein concerns the clarification of the questions and concepts through which such inference is expressed.
[26] Kant, 2012a. "On the causes of earthquakes on the occasion of the calamity that befell the western countries of Europe towards the end of last year (1756)," in Kant: Natural science; See also Kant, 2012b. "History and natural description of the most noteworthy occurrences of the earthquake that struck a large part of the Earth at the end of the year 1755 (1756)," See Kant, 2012c. "Continued observations on the earthquakes that have been experienced for some time (1756)," in Kant: Natural science. My use of Kant is methodological: I draw on his mode of inquiry into natural events, rather than on his now-superseded geological theory.
[27] See USGS, 2026.

difficulty. Philosophical confusion can arise when an apparently ordinary word is made to perform several different functions without those differences being acknowledged.[28]

This is precisely what can happen with a cause*.* If I ask, "What caused the disaster?" I may be asking what initiated the physical collapse, what made the system susceptible to failure, what transformed the hazard into widespread destruction, what could have been known beforehand, or whether some agent ought to have acted differently. If these questions concern different relations, then no single answer can be expected to resolve them all. This has an important consequence for the structure of the present investigation; to say that the collapse caused the avalanche is to make a proximate physical claim. To ask what made the collapse possible is to investigate antecedent conditions. To ask why the hazard produced patterns of destruction concerns the interaction between physical processes and human environments.

To ask what could have been known beforehand concerns epistemic access. To ask what ought to have been done concerns normative judgment. These questions are connected, but their connection does not erase their differences. If the object of inquiry changes, then the evidence required to establish the claim must change with it. This is why I regard conceptual clarification as part of causal methodology rather than as a preliminary exercise in terminology. Before asking whether something caused the disaster, we must know what kind of causal relation we are attributing. Otherwise, the same word can conceal a shift from physical mechanism to historical condition, from prediction to possibility, or from causation to responsibility. A conclusion may then appear stronger than it is simply because several different propositions have been allowed to borrow authority from one another.

The combined lesson from Kant and Wittgenstein is methodological. If causal explanation requires evidentially defensible dependence, then observation cannot be confused with interpretation. If meaningful inquiry requires questions whose terms distinguish the relations under investigation, then causal vocabulary must be clarified before conclusions are drawn. And if both conditions are necessary, then catastrophe analysis must proceed by separating its empirical, epistemic, and normative claims while examining how they subsequently connect. This also determines what further investigation should look like. The unresolved question is not simply "what else caused the collapse?" but which specific hypothesis is being tested, what evidence would support it, what evidence would count against it, and what degree of causal confidence that evidence permits.

Geological investigation may therefore concern the physical conditions preceding failure; hazard research may examine whether instability was detectable; disaster analysis may investigate how exposure and vulnerability shaped the consequences; and normative inquiry may ask what actions were reasonably required given the knowledge then available. These are not competing explanations of one thing. They are investigating different relations within one unfolding event. The deeper philosophical implication is that causal inquiry has limits that are themselves conditions of its legitimacy. I do not strengthen an explanation by extending it beyond the evidence, nor do I clarify a problem by forcing several questions into one. The discipline is instead to identify what relation is being claimed, what grounds that claim, and what remains unresolved. Kant, therefore, teaches me to make explanations answerable to phenomena. Wittgenstein teaches me to make the question answerable to its own distinctions. Their convergence provides the methodological foundation for what follows: where the evidence determines, I should explain; where it merely permits, I should qualify; and where the question remains open, I should investigate rather than pretend to have answered it.

Conclusion

This paper began with a deceptively simple question: what caused Nepal's 26 August 2026 catastrophe? The analysis has shown why no single answer can bear the explanatory weight that question initially appears to demand. The evidence presently supports a relatively clear proximate sequence: a glacial or ice-and-rock collapse initiated an avalanche, the moving mass became incorporated into the river system, and the resulting debris and water propagated downstream to produce catastrophic flooding. Yet establishing this sequence does not establish why the initiating collapse occurred, whether its occurrence could have been anticipated, or why the resulting hazard produced such extensive human loss. The explanation therefore becomes more rigorous, not less complete, when it distinguishes the questions that the evidence can answer from those it cannot yet answer.

[28] Wittgenstein, 2001. Philosophical investigations. The application of Wittgenstein's method to the causal vocabulary of this paper is my own.

The central finding of the paper is that causal explanation is layered. The cause of the physical disturbance is not automatically the cause of the disaster's human consequences; the conditions that made collapse possible are not necessarily the conditions that triggered it; and retrospective reconstruction is not equivalent to prospective prediction. Each transition introduces a new question and therefore a new evidential burden. If this distinction is correct, then the phrase "the cause of the disaster" is insufficiently precise for serious inquiry. We must ask instead: because of what, at what level, through what mechanism, and on what evidence? This is where the epistemic and normative dimensions of the analysis become decisive.

The catastrophe can now be investigated with evidence that was unavailable beforehand: seismic records, imagery, field observations, and the physical traces left by the event. But this retrospective richness must not be mistaken for prior predictability. What is intelligible after an event may not have been sufficiently knowable before it. Consequently, responsibility cannot be inferred simply from the fact that harm occurred or that, with hindsight, another course of action can be imagined. If responsibility is to be attributed, it must be connected to what particular agents or institutions actually knew, what they could reasonably have known, what capacities they possessed, what duties applied, and what action was realistically available at the time.

The paper therefore rejects two equally inadequate conclusions. If the catastrophe was naturally initiated, then it does not follow that every human question disappears. If human vulnerability and preparedness affected the severity of the consequences, then it does not follow that human beings caused the collapse. The proper task lies between these errors: to preserve the distinction between natural process and human agency while investigating the points at which they interact. The most important work now lies ahead. Further investigation should establish, as precisely as the evidence permits, the physical conditions preceding the collapse; test competing explanations of its initiation; determine whether climatic, geological, hydrological, or cryospheric changes played an event-specific causal role; reconstruct what monitoring and warning information existed before the event; establish what could realistically have been detected in time; and examine how exposure, infrastructure, preparedness, and institutional decisions shaped the resulting losses. These investigations should not be treated as attempts to manufacture one grand explanation. Their purpose is to test different causal and epistemic claims and to determine where, if anywhere, they legitimately connect.

The ultimate purpose of this paper is therefore not to provide the comfort of a final cause. It is to establish the conditions under which a final judgment could deserve our confidence. A catastrophe demands explanation, but suffering also demands intellectual honesty: we should not mistake possibility for proof, hindsight for foresight, correlation for causation, or causal contribution for responsibility. The next stage of inquiry must therefore be neither speculation nor premature closure, but disciplined investigation. What happened is increasingly knowable; why it happened remains partly open; what could have been known remains to be reconstructed; and what ought to have been done must be demonstrated rather than assumed.

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