

Dear Reviewer, the figures and tables related to our response are shown below.

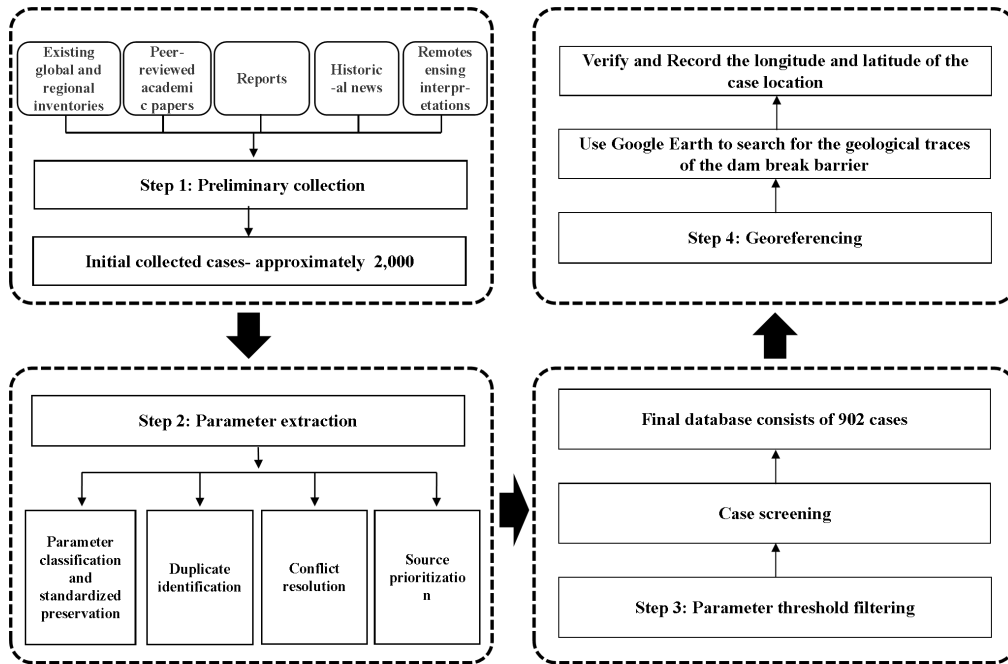


Figure 1. Methodological flowchart for the compilation of the global landslide-dam inventory, illustrating the main workflow from multi-source data collection to parameter extraction, case screening and georeferencing.

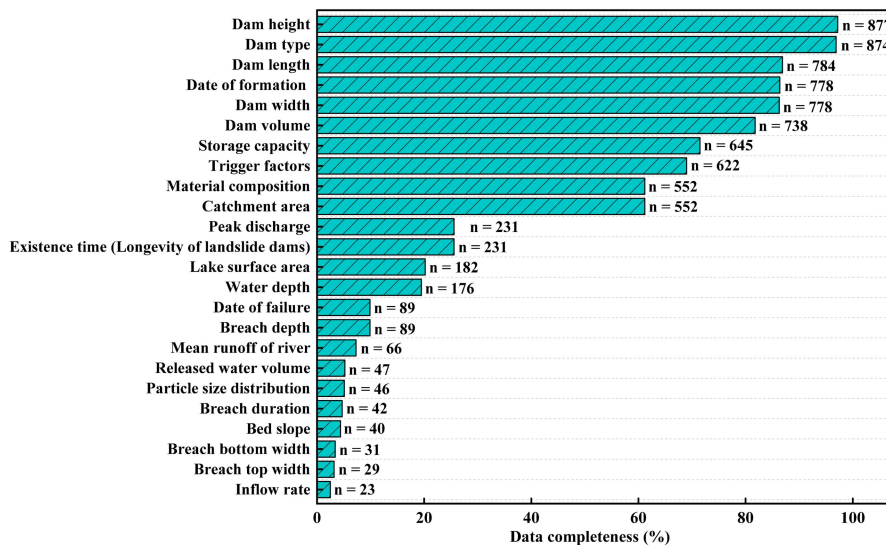


Figure 2. Completeness of parameters in the global landslide-dam inventory. Bar lengths indicate the percentage completeness of each parameter among the 902 compiled cases, and labels at the end of the bars indicate the corresponding number of valid records. The letter n represents the number of landslide dam cases.

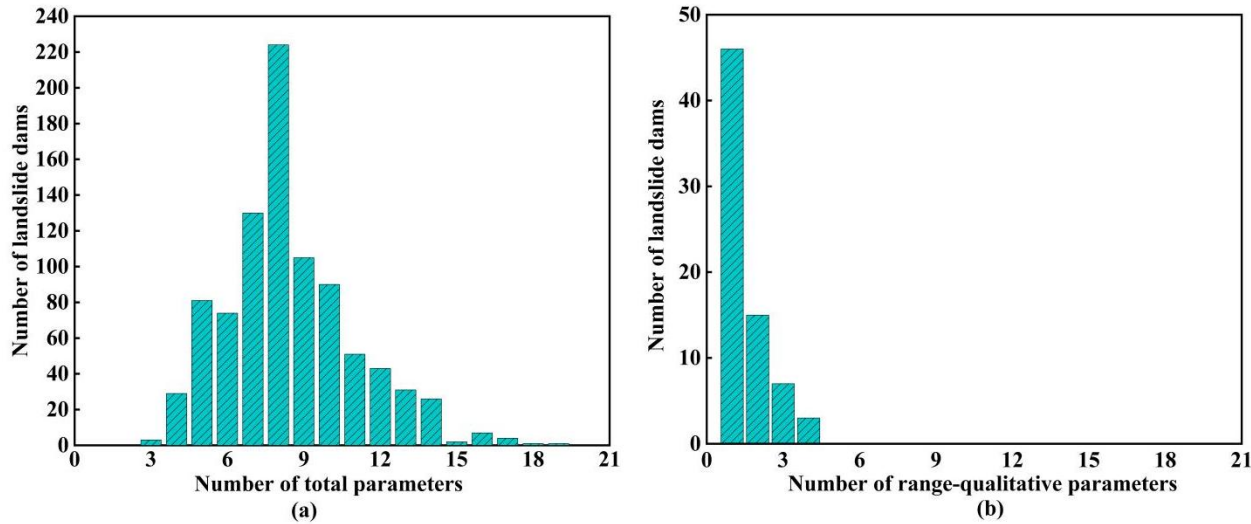


Figure 5. Case-level data richness and distribution of range-qualitative parameters. (a) Number of valid parameters recorded for each landslide-dam event. (b) Number of parameters recorded as numerical ranges or qualitative descriptions rather than exact values. These records indicate the presence of non-exact values that should be considered when applying the dataset.

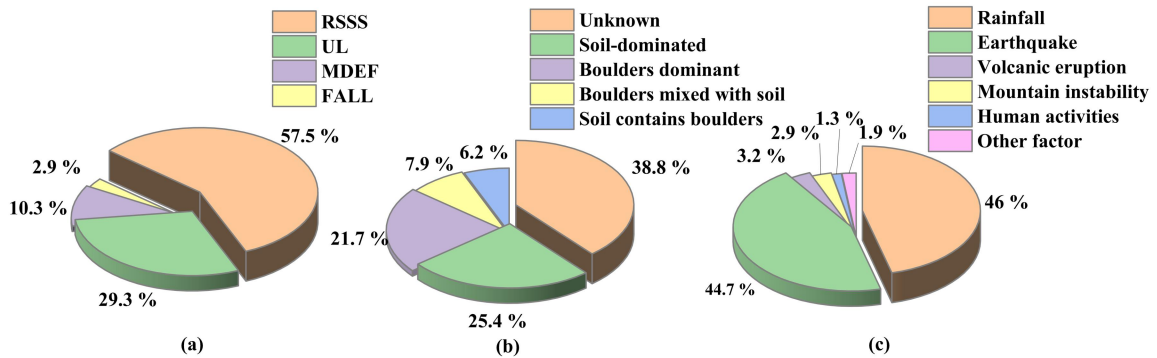


Figure 6. Statistical proportions of qualitative categorical attributes across the compiled database. (a) Primary dam-forming mechanisms: RSSS (Rock and debris avalanches; Rock and soil slumps and slides), UL (Undifferentiated landslides), MDEF (Mud, debris, and earth flows), and FALL (Falls). The classification method from Costa and Schuster (1988) was referenced (b) types of landslide dam material compositions. The landslide dam materials are qualitatively categorized into four types, as referred to in the Chinese industry code for emergency response and risk assessment of barrier lakes (Yang et al.(2021)): Soil-dominated, Boulders dominant, Boulders mixed with soil, and Soil contains boulders. The "Unknown" indicates historical records with unidentified internal geological structures. (c) presents the primary triggering factors responsible for landslide dam formation.

Table 1. Database parameter definitions.

Parameter	Definition
Location	The specific country where the landslide dam is located.
Bed slope	The average longitudinal gradient of the original riverbed at the dam site.
Dam type	The classification of the landslide dam based on the primary geological hazard that directly triggered its formation.
Reference	The original literature from which the case data were extracted.
Casualties	The direct or indirect human fatalities and injuries resulting from the formation or breaching of the landslide dam.
Dam name	The specific appellation used in historical literature or official reports (e.g., Tangjiashan landslide dam). If a single hazard event forms multiple landslide dams within the same basin and the literature only provides geographical descriptions without specific names, they are named and numbered sequentially based on their geographical location and river basin (e.g., [River Name] Landslide Dam 1, 2, 3).
Trigger factors	The external dynamic forces (e.g., rainfall, earthquake, snowmelt) that induced the slope failure or mass movement resulting in river blockage.
Material composition	The primary geological materials constituting the dam body.
Particle size distribution	Reported grain-size range or representative particle-size values of the dam materials.
Longitude and latitude	The precise geographical coordinates of the landslide dam.
Breach duration	The elapsed time of the physical breaching process, measured from the onset of significant overflow or breach initiation to the point when the water level stabilizes.
Existence time	The total longevity of the dam, measured in days from the complete blockage of the river to the occurrence of breaching or artificial mitigation.
Date of failure	The specific date (year, month, day) when the landslide dam breached.
Date of formation	The specific date (year, month, day) when the slope failure occurred and blocked the river.
Dam height	The maximum vertical relief of the dam body, measured from the lowest point of the original riverbed at the blockage section to the lowest overtopping point or effective crest elevation before failure or artificial breaching.
Dam width	The cross-valley extent of the dam body measured approximately perpendicular to the original river channel, from one valley side to the other across the blockage. This field corresponds to the valley-blocking or transverse dimension of the dam rather than the longitudinal extent along the river.
Dam length	The longitudinal extent of the dam body measured approximately parallel to the original river channel, representing the upstream–downstream thickness of the blockage

		along the valley floor. This field is distinct from the cross-valley dam length.
Breach depth		The maximum vertical incision depth of the breach channel, measured from the pre-failure dam crest or overtopping level to the final breach invert after the breaching event.
Breach top width		The width of the eroded breach channel measured at or near the pre-failure dam crest elevation after breaching.
Breach bottom width		The width of the eroded breach channel measured at the lowest breach bottom after breaching.
Dam volume		The total volume of the landslide or avalanche mass constituting the blockage dam.
Water depth		The average water level (or average water depth) of the barrier lake prior to failure or under stable conditions.
Catchment area		The total upstream drainage area contributing surface runoff to the control cross-section of the landslide dam.
Lake surface area		The maximum water surface area when the barrier lake reaches its highest water level prior to failure.
Inflow rate		The discharge of the upstream river flowing into the lake area during the formation of the landslide lake or prior to failure.
Mean runoff of river		The multi-year average flow rate of the blocked river under normal conditions or based on historical records.
Peak discharge		The maximum instantaneous flow rate of the water released through the breach channel during the dam failure process.
Storage capacity		The total volume of water impounded within the barrier lake prior to failure.
Released water volume		The total volume of impounded lake water discharged downstream through the breach channel during the dam-failure process.

Table 2 Comparison of standardized parameter fields among the present inventory and existing landslide-dam datasets.

Dataset	Numb-er of cases	Types of landslide dam parameters	Landslide dam parameters	Types of breach parameters	Breach parameters
This study	902	11	Dam volume, Dam length, Dam width, Dam height, Material composition, Dam type, Trigger factors, Particle size distribution, Date of formation,	6	Peak discharge, Released water volume, Breach duration, Breach top width, Breach

			Existence time, Date of failure		bottom width, Breach depth
Tacconi Stefanelli et al (2015)	300	10	Dam height, Dam length, Dam width, Dam volume class (Dam volume Level), Dam area, Dam evolution, Dam condition, Date of formation (Date of damming), Date of failure, Existence time (Lake life time)	0	-
Wu et al (2022)	779	9	Status of dam, Duration from formation to flood, Dam type, Material composition, Interpreted trigger factor (Interpreted cause), Reported trigger factor (Reported cause), Dam height, Dam length, Dam width	3	Mean flow velocity, Peak flow velocity (Peak discharge), Breach duration
Shi et al (2022)	2783	8	Dam height, Dam length, Dam width, Dam volume, Trigger factors, Material composition, Dam stability (Stability), Date of formation (Date of damming)	0	-
Costa and Schuster (1991)	463	7	Dam length, Dam width, Dam height, Dam type, Material composition, Date of formation, Existence time (Time to failure)	1	Breach dimensions

Standardized parameter names are used for cross-dataset comparison, with original source terms provided in parentheses where they differ from the terminology adopted in this study. Parameters were matched according to their physical meanings rather than by exact wording.