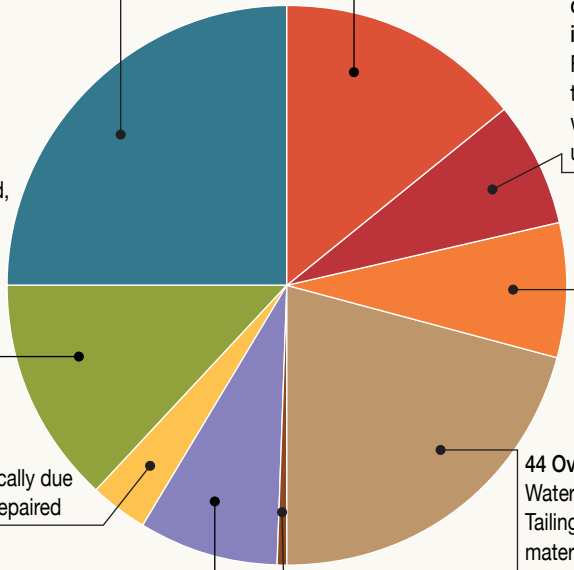
Causes of tailing dams failures 1915-2016



52 Unknown
Many of the older dam failures that were not sufficiently documented may fall into this category.

30 Slope instability - static failure
A constant load that causes deformation, to the point at which a dam partially or completely fails. Often caused by partial saturation of areas of the dam that are designed to remain dry.

15 Foundation - structural and foundation conditions, foundations with insufficient investigations
Failure related to building the dam on a surface that does not provide sufficient support for the weight of the dam. An example is a layer of clay under a dam.

27 Earthquake - seismic instability
Dams are designed to withstand earthquakes, but if the earthquake is larger than that which was anticipated, the structure can be destroyed by the shaking.

16 Structural - structural inadequacies, inadequate or failed decants
Design errors or failure of a designed component to function as designed. Failed decants (which drain water from the impoundments) are a common cause.

7 Erosion - external erosion
Simple erosion of a dam face, typically due to precipitation run-off that is not repaired

44 Overtopping
Water flowing over the top of a dam. Tailings dams are made of erodible material, and overtopping will cause erosion.

17 Seepage - seepage and internal erosion
Erosion of dam material due to water passing through areas of the dam that are designed to remain dry.

1 Mine subsidence
If the dam or impoundment is built above an underground mine, collapse of the underground mine workings can lead to release of the impounded tailings.

Source: ICOLD 2001, Chambers 2017

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