2025 Student Research Case Study Challenge
Dam Data Dictionary

A Dam Challenge
January 17, 2025

The dam dataset is a repository of 20,806 dams and reservoirs located in Tarrodan and maintained by the Tarrodan Dam Authority (TDA).

Feature Name	Description	Type	Values / Mean	Notes
ID	Official TDA identification code	Categorical	Alphanumeric (e.g., SOA00072, SOA01198)	Unique for each record
Region	Geographical region where dam is located	Categorical	Flumevale, Lyndrassia, Navaldia	
Regulated Dam	Indicator of whether dam is regulated	Categorical	Yes, No	
Primary Purpose	Main purpose for which dam is used. If more than one type, the dominant is used.	Categorical	E.g., Recreation, Flood Risk Reduction, Irrigation, etc.	12 purposes
Primary Type	Type of dam. If more than one type, the dominant is used.	Categorical	E.g., Earth, Gravity, Concrete, etc.	12 types
Height (m)	Vertical distance between the lowest point of the excavated foundation and the top of the dam.	Numerical	11.3	Measured in meters
Length (km)	Length along the top of the dam	Numerical	0.4	Measured in kilometers
Volume (m³)	Volume occupied by the materials used in the dam structure	Numerical	211,241	Measured in cubic meters
Year Completed	Year when the original dam structrue was completed	Numerical	1748—2023	
Years Modified	Year when major modifications or rehabilitation of dam were completed	Categorical	Alphanumeric (e.g., 1987, 2003S; 2012H)	
Surface (km²)	Surface of the impoundment at its normal retention level	Numerical	2.4	Measured in square kilometers
Drainage (km²)	Area that the dam drains on a river or stream	Numerical	1,976	Measured in square kilometers
Spillway	Spillway type	Categorical	Uncontrolled, Controlled	
Last Inspection Date	Date of most recent TDA inspection by the of the dam	Date	DD-MM-YYYY	
Inspection Frequency	Scheduled frequency interval in years	Numerical	2.1	

Feature Name	Description	Type	Values / Mean	Notes
Distance to Nearest City (km)	Distance from the dam spillway to a city	Numerical	19.7	Measured in kilometers
Hazard	Potential hazard to the downstream area resulting from failure or erroneous operation of the dam	Categorical	Low, High, Significant, Undetermined	
Assessment	Best description of the condition of the dam	Categorical	Not Rated, Satisfactory, Fair, Not Available, Poor, Unsatisfactory	
Assessment Date	Date of most recent TDA assessment of the dam	Date	DD-MM-YYYY	
Probability of Failure	Independent probability of failure within a ten-year period, resulting in significant flooding	Numerical	0.47	
Loss given failure – prop (Qm)	Estimated costs incurred to repair the dam structure	Numerical	132	Measured in millions of Qalkoons
Loss given failure – liab (Qm)	Estimated cost of damage caused to third parties, including environmental damage	Numerical	185	Measured in millions of Qalkoons
Loss given failure – BI (Qm)	Estimated annual revenue loss due to business interruption	Numerical	4.5	Measured in millions of Qalkoons