6.58 Avalanche Risk: Snow cover map

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Snow Cover Map	Climate and Natural Hazards
Description and justification	Indicators of Snow Avalanche Risk Resilience sub-criterion will assess the site response to snow avalanche phenomena based on susceptibility indicators: topography, wind, temperature.
Definition	The snow cover was classified by the mean duration of snow cover for each raster cell. A snow cover of less than 10 days was assumed to be a no-risk zone: as the duration relates to the whole year, the snow accumulation is not expected to become unstable and build up avalanches. The land relief was used as second Indicator for avalanche vulnerability. Values in literature define a slope of ± 30° as threshold in starting zones of avalanches (Schweizer & Jamieson, 2000). Due to strong generalization, the threshold for the occurrence of avalanches was assigned at a lower slope value of 15°, to take into account the steeper slope on a smaller scale. A mask was calculated to exclude regions with slope values smaller than 15°. Cells with a slope > 15° were assumed to be in danger of avalanches. The output of the calculation is a raster indicating areas where avalanches could appear, based on snow cover duration and morphology.
Strengths and weaknesses	
Measurement procedure and tool	The vulnerability for avalanches can be calculated based on two data sets: first, a map of snow cover duration; and second, a digital elevation model (DEM).
Scale of measurement	Dimensionless
Data source	
Required data	Snowfall data, topography (GIS/Statistical Data).
Data input type	Quantitative

Data collection frequency	
Level of expertise required	High
Synergies with other indicators	
Connection with SDGs	13
Opportunities for participatory data collection	
Additional information	
References	Schweizer J., Jamieson J.B. (2000). Field observations of skier-triggered avalanches. Proceedings International Snow Science Workshop, Big Sky, Montana, USA, 2-6 October 2000