Geoingegneria

Malpasset Dam

failure of December 2, 1959 and references to similar Italian cases". Geoingegneria Ambientale e Mineraria (in Italian). 47 (1): 53–80. ISSN 1121-9041. - The Malpasset Dam was an arch dam (convex surface facing upstream) on the Reyran River, north of Fréjus on the French Riviera. It collapsed on 2 December 1959, killing 423 people in the resulting flood. The breach was caused by a tectonic fault in the impermeable rock base, which had been inadequately surveyed. Nearby road-building works, using explosives, may also have contributed to the disaster.

Stream restoration

Suolo e Degli Acquiferi, Proceedings IV Convegno Internazionale di Geoingegneria, Torino, 10–11 March 1994: 161–172. Ollero, A. (2010). "Channel changes - Stream restoration or river restoration, also sometimes referred to as river reclamation, is work conducted to improve the environmental health of a river or stream, in support of biodiversity, recreation, flood management and/or landscape development.

Stream restoration approaches can be divided into two broad categories: form-based restoration, which relies on physical interventions in a stream to improve its conditions; and process-based restoration, which advocates the restoration of hydrological and geomorphological processes (such as sediment transport or connectivity between the channel and the floodplain) to ensure a stream's resilience and ecological health. Form-based restoration techniques include deflectors; cross-vanes; weirs, step-pools and other grade-control structures; engineered log jams; bank stabilization methods and other channel-reconfiguration efforts. These induce immediate change in a stream, but sometimes fail to achieve the desired effects if degradation originates at a wider scale. Process-based restoration includes restoring lateral or longitudinal connectivity of water and sediment fluxes and limiting interventions within a corridor defined based on the stream's hydrology and geomorphology. The beneficial effects of process-based restoration projects may sometimes take time to be felt since changes in the stream will occur at a pace that depends on the stream dynamics.

Despite the significant number of stream-restoration projects worldwide, the effectiveness of stream restoration remains poorly quantified, partly due to insufficient monitoring. However, in response to growing environmental awareness, stream-restoration requirements are increasingly adopted in legislation in different parts of the world.