Finanziato dall'Unione europea NextGenerationEU
Ministero dell'Università e della Ricerca
Italiadomani PIANO NAZIONALE DI RIPRESA E RESILIENZA

multi-Risk sciEnce for resilienT commUnities undeR a changiNgclimate

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Field-to-Num_Lab: experiencing innovative solutions for a real-time digital twin between in-site monitoring and numerical computation systems

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Technical references

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* PU = Public

PP = Restricted to other programme participants (including the Commission Services)

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CO = Confidential, only for members of the consortium (including the Commission Services)

Document history

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0.2	24.07.2023	Enrico Paolucci (UNIBO), Fabio Rollo (UNIROMA1)	Critical review and proofreading
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Abstract

The project RETURN focuses on the study of natural risks and their effects on human and natural environment in view of the recent challenges associated with the climate changes. Among the other phenomena, Vertical Spoke 2 (VS2) addresses the theme of ground instabilities, in terms of landslides, sinkholes, subsidence and liquefaction. To analyze these occurrences, the whole process is schematized into three main classes of factors, dealing with different phases of the instability onset: predisposing, preparatory and trigger.

In the first year of activity, RETURN aims at building a Proof of Concept (PoC), e.g., a "synthesizer" of the factors leading to instability, moving from the available studies (learning phase). This goal is reached in different steps, that are here described: at first, the definition of an inventory of cases (the Learning Examples, LE), addressing the phenomena with different approaches and techniques; then, from this database a set of preparatory processes are identified and outlined; finally, the individual contribution of each LE to the process is characterized, describing its level of quantification and the constraints of applicability of such tool.

This document illustrates the different phases of the rationalization process, describing the procedure adopted to collect the tools contributing to the PoC and highlighting the main critical points rising from this kind of analysis.