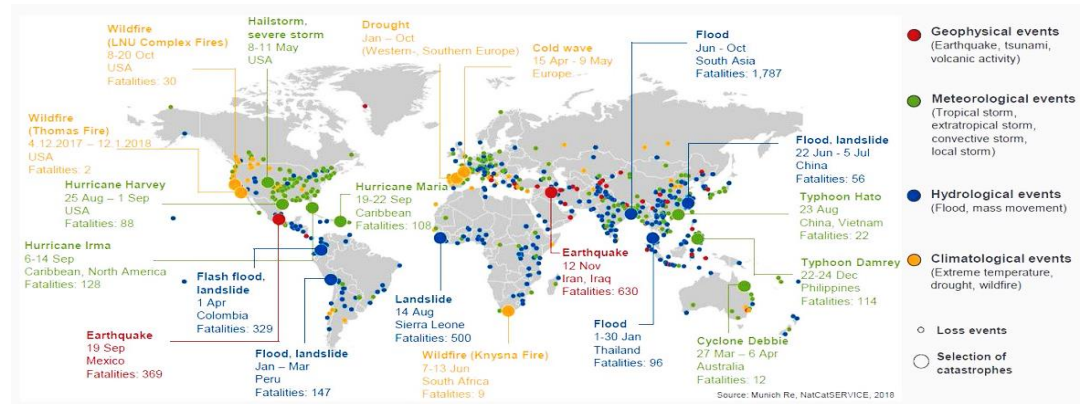


WP 1 – BE and SUOD: State of the Art (SoA), risks and human behaviour

T1.1 - SoA-based definition and characterization of BE as network of buildings, infrastructures, connecting space in reference to SUOD occurrence and users' typologies

D1.1.1 – BE PRONE TO SUOD DEFINITIONS REPORT

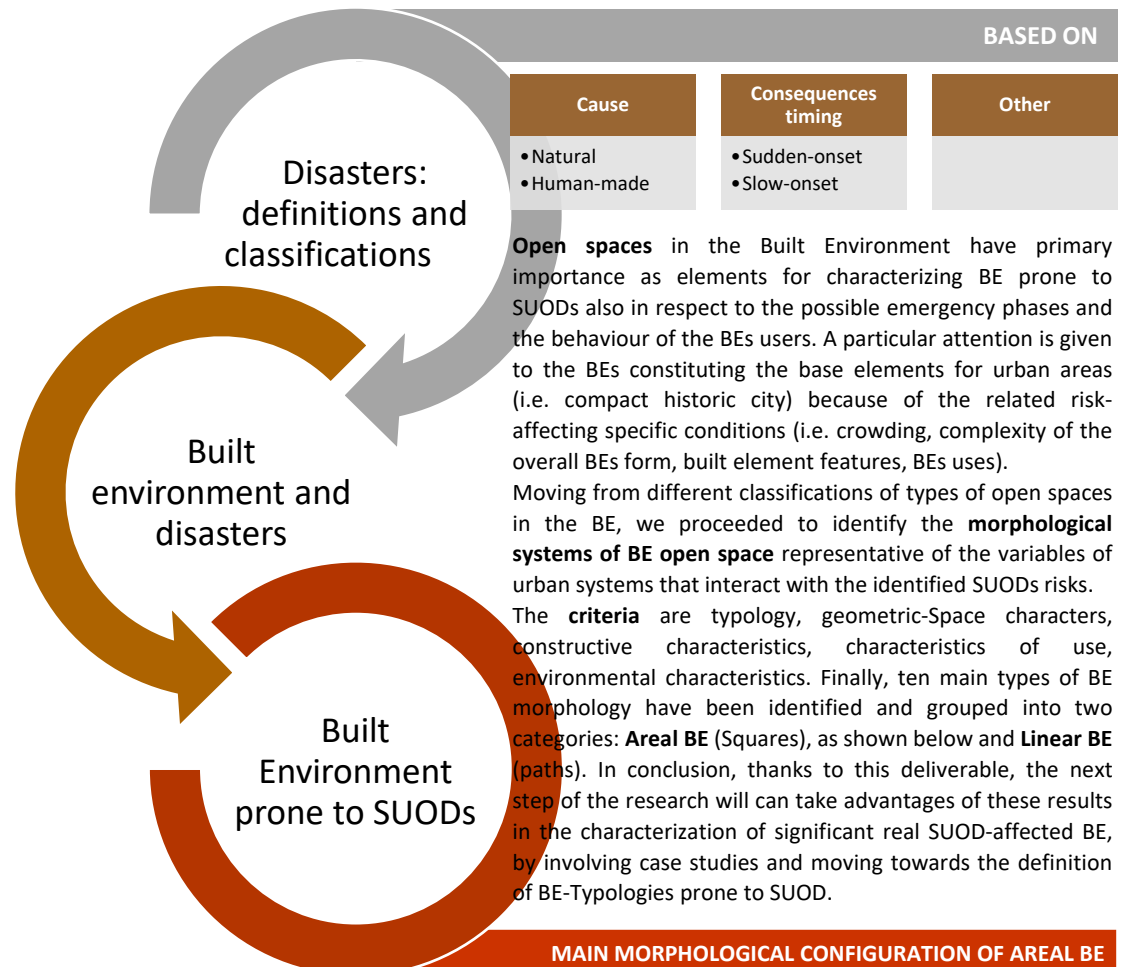
One of the most significant categorizations of disasters distinguishes between SUOD and SLOD (Slow-Onset Disasters) according to the timing of the consequences, while other ratings consider source, frequency, scale, and predictability. When considering the risk associated with Sudden-onset disasters (SUOD) in the Built Environment (BE) it is essential to investigate human behaviour.



To general objective of the research requests a preliminary study on risk categories and BE morphology. The activities are divided in two parts, so as to outline a consolidated state of the art on the two issues, and a first characterization of main factors characterizing the relation between BEs, their composing elements and the risks (i.e. SUODs).

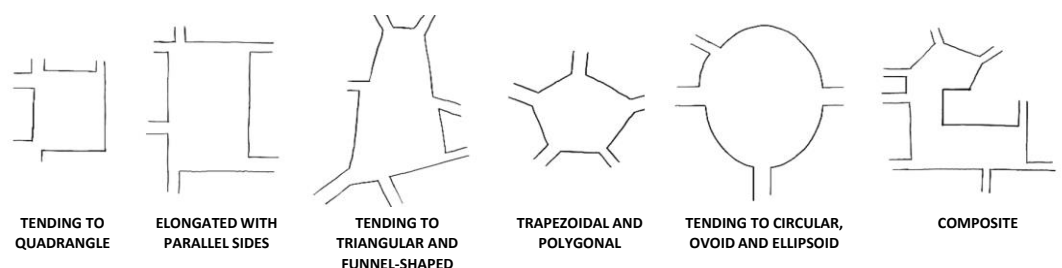
A first part of the investigation involves the detection and transposition of the various classification of risks of the scientific literature and international disaster risk reduction and assessment organizations. A second step interested the BE, which can be defined as human-made surroundings that provide a setting for human activity, ranging in scale from personal shelter to neighbourhoods, and large-scale civic surroundings.

The Sudden-onset disasters are those events: whose occurrence cannot be predicted far in advance (e.g. from seconds for earthquakes, to weeks or months for volcanos activities); as an alternative definition, which take a short time to produce emergency conditions.



Open spaces in the Built Environment have primary importance as elements for characterizing BE prone to SUODs also in respect to the possible emergency phases and the behaviour of the BEs users. A particular attention is given to the BEs constituting the base elements for urban areas (i.e. compact historic city) because of the related risk-affecting specific conditions (i.e. crowding, complexity of the overall BEs form, built element features, BEs uses). Moving from different classifications of types of open spaces in the BE, we proceeded to identify the **morphological systems of BE open space** representative of the variables of urban systems that interact with the identified SUODs risks. The **criteria** are typology, geometric-space characters, constructive characteristics, characteristics of use, environmental characteristics. Finally, ten main types of BE morphology have been identified and grouped into two categories: **Areal BE** (Squares), as shown below and **Linear BE** (paths). In conclusion, thanks to this deliverable, the next step of the research will can take advantages of these results in the characterization of significant real SUOD-affected BE, by involving case studies and moving towards the definition of BE-Typologies prone to SUOD.

MAIN MORPHOLOGICAL CONFIGURATION OF AREAL BE



Considering natural and technological disasters, the SUOD affecting BE are organized on: predictability reaction time to alarm, source of risk for humans, influence between built environment and safety, and the reciprocal correlation between a couple of SUODs (primary/secondary). The task brought to the identification of Areal BE (beside) and Linear BE.