

WP 2 – BE and SLOD: SoA, Risks and human behavior

T2.2 – SoA on SLOD (heat wave and pollution) in BE and their effect on health and wellbeing of its users. Methods for data collection and analysis (on medium/long term datasets). Correlation between pollution and climate data (e.g. wind, rain, fog). Current mitigation solution analysis. Identification of BE features and users' (inappropriate) behaviors modifying SLOD effects/risk levels. Development of indicators and relative weights for selected SLOD risk levels assessment

D2.2.1 – Climate data collection and analysis report

ABSTRACT. Slow Onset Disasters (SLOD) are responsible for the production of systemic effects on the urban ecosystem and can seriously harm people who live in cities. Therefore, the agents underpinning the SLODs must be carefully analyzed to acquire a good knowledge of the effects that they may produce on the citizens and investigating how these agents are related to the Built Environment (BE) characteristics. Abnormal weather parameters may produce severe effects on SLODs and especially if combined with air pollution in dense BE could worsen the negative impact on citizens. This report follows a structured process to analyze a specific climate, the city of Milan, Italy (which could be replicated in any other context); and, presents these analyses which used the Lombardy region's open database. These studies allow to identify the trends of the weather conditions in the BE.

The city of Milan was studied from 2016 to 2019 by monitoring the air temperature, precipitation level, relative humidity, and global horizontal radiation. To facilitate the analysis, the analysis was scaled down to a mesoscale study area where the Universal Thermal Climate Index (UTCI) has been estimated to evaluate the thermal stress to which citizens could be subjected, employing data from the nearest weather station to the case study. This index allows to evaluate the outdoor comfort condition over the considered period of analysis and in different hours of the day. Eventually, weather data have been combined in a risk indicator allowing to assess their compound effect on citizens. The report concludes summarizing the results of the analyses and providing a brief insight on the joint trends of weather data and main air pollutants (in-depth analyses on air pollution are presented in D2.2.2).

