

NAME OF THE PROJECT: DEVELOPMENT OF A SUPPORT SYSTEM FOR IMPROVED RESILIENCE AND SUSTAINABLE URBAN AREA TO COPE WITH CLIMATE CHANGE AND EXTREME EVENTS BASED ON GEOSS AND ADVANCED MODELLING TOOLS



SHORT NAME: HARMONIA

PROGRAM: EUROPEAN UNION'S HORIZON 2020 RESEARCH AND INNOVATION PROGRAMME

STARTED AT: 01/06/2021

DURATION: 44 MONTHS

ALL ABOUT THE PROJECT: <https://harmonia-project.eu/>

SUMMARY: Urban areas are currently facing significant new and/or aggravated existing challenges due to the impacts of climate change, including increased frequency and intensity of extreme weather events, urban greenness loss, urban flash floods, air quality degradation, and increased greenhouse gas emissions, geo-hazards, and urban heat fluxes among others. To address these challenges **HARMONIA** will provide a resilience assessment platform to help urban stakeholders understand and quantify Climate Change (CC) effects. In order to develop and apply the diverse methodologies and applications, four European cities are participating, **Milan, Piraeus, Sofia, and Ixelles**. Based on satellite and multidimensional urban context data, the HARMONIA platform will offer a user-friendly knowledge base, dispensing detailed information on a local neighborhood and building block level. This will support **local decision-making** and foster a wide range of applications dedicated to climate change adaptation and mitigation. Specifically, HARMONIA will focus on two types of Climate Change (CC) effects: **Natural and human-made hazards** intensified by CC, including urban flooding, soil degradation, geohazards (landslides, earthquake, ground deformation), heat islands, urban heat fluxes, air quality, and gas emissions.

Geosystems Hellas (GSH) is responsible **for a variety of different technical tasks**, as well as for **leading an integral work package** and being the **supportive partner** of two of the Pilot European Cities, Piraeus, and Ixelles. GSH has collected, evaluated, and analyzed in a GIS environment a large variety of diverse and multidimensional urban context data, aiming to provide up-to-date information on the current state of the pilot cities. The collected and integrated datasets are related to the environmental, land use, socioeconomic and transportation aspects of the urban environment. Furthermore, GSH based on its long-term experience in developing and maintaining WebGIS applications and geospatial platforms, **leads the development efforts of a novel urban planning Decision Support System (DSS)** based on a comprehensive and holistic risk assessment methodology approach developed under **HARMONIA**. The urban planning DSS is functionalized to provide urban planning recommendations to policy-makers founded upon a multiple hazard risk assessment methodology to eventually enable the transition to more resilient and sustainable urban environments. In addition, the urban planning DSS will be offered as a web-based application with a user-friendly interface leveraging cutting-edge technologies, able to efficiently handle and visualize multidimensional (4D) geospatial information. The overall methodology and the capabilities of the DSS will be applied and demonstrated in all of the HARMONIA Pilot Cities.

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CONSORTIUM:

