DESIGN AND TECHNOLOGY. PEOPLE, SYSTEMS, ENVIRONMENT

DM 630/GBC - MIAO - Materials' Infrastructure environmental Assessment and Optimisation

Funded By	MINISTERO DELL'UNIVERSITA' E DELLA RICERCA [P.iva/CF:97429780584] GBC ITALIA [P.iva/CF:02073390227]
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Context of the research activity	The financed resources assigned for the PNRR Infrastructure (25.40 billion €) demonstrate how strategic such an issue is in Italy. According to United Nations objectives (Goal 9), future infrastructures must be resilient, which means designing and building works where mitigating certain environmental aspects (such as greenhouse gas emissions) is crucial. Some types of certification demonstrate the importance of the environmental assessment of an infrastructure. ENVISION and LEED Transit Station constitute, on an international level, environmental certification systems for infrastructure works. Progetto finanziato dal PNRR a valere sul DM 630/2024 sotto condizione, CUP E14D24002360004 The activation of the position with scholarship is subject to the possible allocation of further funding by the MUR.
Objectives	Consistent with PNRR's objectives - designing infrastructures capable of mitigating impacts in the production, transport, and construction cycle - the MIAO proposal aims to develop an assessment system for some relevant environmental aspects of construction. More specifically, MIAO aims to define protocols, indicators and targets to verify: • the greenhouse gas emissions related to the materials used, transport processes and construction equipment; • the waste flows connected with construction and demolition processes; • the use of energy and water resources required for the infrastructure construction; • the use of recycled materials and potential recyclability scenarios; • compensation (off-setting) through appropriate technologies;

	MIAO is structured as a research project with co-funding from the Italian Green Building Council. For the Green Building Council, MIAO represents an opportunity for integration into a broader research and development program to develop a LEED (Leadership in Energy and Environmental Design) system for infrastructures in Europe and Italy.

Skills and competencies for the development of the activity	Technical Skills required: • Environmental Architecture and Design. To understand the environmental impacts of construction. • Life Cycle Assessment (LCA). To evaluate the environmental impacts of products and processes throughout their entire life cycle. • Programming design. To design tools for data analysis and modelling. • Project management. To manage the development of the assessment system. Soft Skills required: • Critical thinking. To evaluate different approaches and make informed decisions. • Communication. To effectively communicate the project's goals and findings to stakeholders. • Collaboration. To work successfully with experts from different fields. • Problem-solving. To identify and address challenges in developing the assessment system.