POLITECNICO DI MILANO

PhD in ARCHITECTURAL URBAN INTERIOR DESIGN - 39th cycle

PNRR 117 Research Field: NEO-RURAL ARCHITECTURE: INTEGRATING LAND RENATURATION THROUGH CIRCULAR ECONOMY PROCESSES

Monthly net income of PhDscholarship (max 36 months)
€ 1195.5 In case of a change of the welfare rates during the three-year period, the amount could be modified.

Context of the research activity	
Motivation and objectives of the research in this field	The proposed research refers to Mission 2 of the NRP/PNRR, "GREEN REVOLUTION AND ECOLOGICAL TRANSITION". **Motivations:** behind conducting research in the field of neoruralism, specifically focusing on the integration of land renaturation, organic food production, renewable energy, materials recovery, and sustainable architecture through circular economy processes, are driven by several key factors: 1. Addressing Environmental Challenges: Neo-ruralism offers a promising approach to address pressing environmental challenges such as climate change, loss of biodiversity, and soil degradation. By exploring the potential synergies between land renaturation, organic food production, renewable energy, materials andnutrient recovery and sustainable architecture, we can contribute to the development of sustainable solutions that mitigate these challenges. 2. Promoting Renewable Energy Transition: Rural areas possess vast potential for renewable energy generation.By examining the integration of renewable energy technologies within the neo-rural context, we can contribute to the transition towards a low-carbon energy system, fostering energy independence, reducing greenhouse gas emissions, and creating economic opportunities. 3. Advancing Sustainable Architecture: The built

	environment plays a crucial role in shaping the sustainability of rural communities. By exploring sustainable architectural strategies within the neo-rural paradigm, we aim to promote resource efficiency, resilience, and community well-being, while respecting local cultural and historical contexts **Objectives:** 1. Theoretical Understanding: Gain a comprehensive understanding of the theoretical foundations of neoruralism and its relevance in addressing contemporary environmental challenges. 2. Innovative Approaches: Investigate innovative approaches and technologies for land renaturation, organic food production, renewable energy generation, and sustainable architecture, considering their compatibility, efficiency, and potential for integration within the neo-rural context. 3. Socio-Economic Assessment: Assess the socio-economic impacts of neo-rural initiatives, including job creation, local economic development, community empowerment, less commuting impacts, and enhanced well-being, to demonstrate the tangible benefits of adopting such approaches. By pursuing these objectives, the research program aims to contribute to the academic knowledge base, provide evidence- based recommendations, and empower stakeholders to create sustainable, resilient, neo-rural communities that prioritize ecological integrity, food security, renewable energy, circulareconomy concepts in different applications and sustainable architecture.
Methods and techniques that will be developed and used to carry out the research	To achieve the objectives outlined in the proposed research program a range of methods and techniques will be developed and utilized. These methods and techniques will combine qualitative and quantitative approaches, ensuring a comprehensive and rigorous investigation. The following methods and techniques will be employed: 1. Literature Review: Conduct an extensive review of

academic literature, books, reports, and case studies related to neo-ruralism, circular economy, land renaturation, organic food production, renewable energy, and sustainable architecture. This review will establish the theoretical foundation and identify gaps in knowledge, informing the research design.

2. Case Studies: Analyze and compare existing neo-rural projects from different geographical regions. Case studies will involve in-depth investigation, interviews, and document analysis to understand the strategies, outcomes, and challenges of implementing circular economy processes. Comparative case studies will enable the identification of best practices, success factors, and lessons learned.

3. Fieldwork and Data Collection: Undertake fieldwork in selected neo-rural communities to gather primary data. Fieldwork techniques may include:

- a. Interviews: Conduct structured or semi-structured interviews with key stakeholders, such as community members, policymakers, architects, farmers, renewable energy experts, and local authorities. Interviews will provide insights into the practical implementation, impacts, and challenges of circular economy processes.
- b. Observations: Undertake on-site observations to understand the physical characteristics, spatial dynamics, and social interactions within neo-rural communities. This approach will provide valuable insights into the day-to-day functioning of circular economy processes.

4. Data Analysis: Apply rigorous data analysis techniques to interpret the collected data. The analysis may include:

- a. Qualitative Analysis: Conduct thematic analysis of interview transcripts, field notes, and other qualitative data to identify recurring themes, patterns, and emergent concepts. This will provide a deep understanding of the social, cultural, and environmental dynamics within neorural communities.
- b. Quantitative Analysis: Utilize statistical analysis methods to analyze survey data, enabling the

	identification of correlations, trends, and statistical significance. Quantitative analysis will provide insights into the prevalence, preferences, and impacts of different circular economy processes. The combination of these methods and techniques will enable a comprehensive investigation of the integration of land renaturation, organic food production, renewable energy, and sustainable architecture.
Educational objectives	Educational objectives: focus on the development of knowledge, skills, and capacities in the researcher and the broader academic community. The educational objectives of the research program are as follows: 1. Researcher Development: The research program aims to provide the PhD candidate with an opportunity for comprehensive professional and personal development. By engaging in rigorous research activities, the candidate will: •Develop advanced knowledge in the fields of neo-ruralism, land renaturation, organic food production, renewable energy, sustainable architecture, and circular economy processes. •Acquire expertise in research methodologies, including literature review, case study analysis, data collection techniques, data analysis, and modeling. •Refine skills in academic writing, scientific communication, and presentation to effectively disseminate research findings to both academic and non-academic audiences. •Cultivate interdisciplinary thinking by collaborating with experts from various disciplines, such as architecture, landscape architecture, environmental science, and sociology. 2. Knowledge Transfer and Dissemination: The research program seeks to contribute to the academic community by generating new knowledge and insights. The educational objectives related to knowledge transfer and

	dissemination include: •Publish research findings in high-quality peer-reviewed journals, contributing to the academic discourse in the fields of architecture, landscape architecture, sustainable development, and circular economy. •Present research findings at conferences, seminars, and workshops, facilitating knowledge exchange and stimulating discussions among researchers, practitioners, and policymakers. 3. Capacity Building: The research program aims to build capacity within the academic community and beyond by sharing knowledge and expertise. The educational objectives related to capacity building include: •Mentor and supervise undergraduate and graduate students, providing guidance and support in their research activities related to neo-ruralism, circular economy, and sustainable development. •Foster interdisciplinary collaborations and knowledge exchange among researchers, practitioners, and policymakers working in the fields of architecture, landscape architecture, environmental science, and sustainable development. By focusing on these educational objectives, the research program aims to contribute not only to the advancement of knowledge but also to the development of future generations of researchers and professionals equipped with the necessary expertise to address the complex challenges of creating sustainable and resilient neo-rural communities.
Job opportunities	The proposed PhD research program presents numerous job opportunities in various sectors. The research program equips graduates with a unique skill set and knowledge base that aligns with emerging trends and demands in the following areas: 1. Research and Academia: Completing a PhD research program provides a strong foundation for pursuing a career in academia and research. Graduates can

pursue postdoctoral positions, become research fellows, or secure faculty positions at universities and research institutions. They can contribute to the academic field by conducting further research, publishing scholarly articles, and teaching architectural technology.

2. Sustainability Consultancy: There is a growing demand for professionals with expertise in sustainable development and circular economy practices. Graduates can work as sustainability consultants, providing expertise and guidance to businesses, organizations, and government agencies on integrating sustainable practices into their projects and operations. They can advise on land renaturation, sustainable agriculture, renewable energy, and sustainable architecture.
3. Government and Policy: Government agencies and policy-making bodies require professionals who can provide expertise on sustainable development and circular economy practices. Graduates can work as policy analysts, sustainable development officers, or environmental consultants, shaping policies and regulations that promote sustainable land use, organic farming, renewable energy adoption, and sustainable architecture.
4. Architectural and Engineering Firms: Architectural and engineering firms increasingly prioritize sustainable design and construction practices. Graduates can work as sustainability consultants or specialists within these firms, contributing to projects that integrate land renaturation, organic food production, renewable energy systems, and sustainable architectural design.
5. Non-Governmental Organizations (NGOs): NGOs focused on sustainable development, rural development, and community empowerment often engage in projects that align with the principles of neo-ruralism. Graduates can work with such organizations, implementing projects that promote sustainable

	agriculture, renewable energy adoption, and sustainable architecture, while fostering community development and resilience. These job opportunities reflect the increasing global emphasis on sustainability, circular economy practices, and the need to address environmental challenges. Graduates of the proposed research program will be well-positioned to contribute to these fields and make a positive impact on the transition toward more sustainable and resilient neo-rural communities.
Composition of the research group	1 Full Professors 3 Associated Professors 1 Assistant Professors 1 PhD Students
Name of the research directors	Alessio Battistella

Contacts
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Additional support - Financial aid per PhD student per year (gross amount)	
Housing - Foreign Students	--
Housing - Out-of-town residents (more than 80Km out of Milano)	--

Scholarship Increase for a period abroad	
Amount monthly	597.76 €
By number of months	6

National Operational Program for Research and Innovation	
Company where the candidate will attend the stage (name and brief description)	Simbiosi srl
By number of months at the company	6
Institution or company where the candidate will spend the period abroad (name and brief description)	To be defined
By number of months abroad	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information

Specific information on the AUID program at
https://www.auid.polimi.it/

Complete information on the application, enrolment, and general regulations at
https://www.dottorato.polimi.it/en/phd-programmes/architecture/architectural-urban-and-interior-design

Teaching Assistantship
It is allowed to be appointed at one assistantship per academic year.

Personal Budget
(funding for participation in conferences, courses, summer schools, workshops, and purchase of study books and material)
1st year: max **1.603,64 euro**
2nd year: max **1.603,64 euro**
3rd year: max **1.603,64 euro**

Workspace
In the AUID hall, on the 4th floor of Bldg 12 in Leonardo Campus, are available workstations for shared use.
All the Ph.D. students can use their laptops with a wireless connection.
Workstations and other equipment are available in the various departmental laboratories (Dastu) linked with the doctoral Program.