

Climate Resilience Challenges In Mediterranean Coastal Cities: Insights From Tétouan, Venice, And Marseille

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Collaborative Project

Timeframe: 2020 - ongoing

France

Ecole Nationale Supérieure d'Architecture, ENSA Marseille, France (Coordinator)

AVITEM, The Agency for Sustainable Mediterranean Cities and Territories, Marseilles, France

Métropole Aix-Marseille-Provence, France

Atelier KLIMA, France

Parc Naturel Régional de Camargue, France

Italy

Università IUAV di Venezia, Venice, Italy

Belgium

Université Libre de Bruxelles (ULB), Belgium

Morocco

Ecole Nationale D'architecture (ENA) de Rabat, Morocco

Agence Urbaine de Tétouan, Morocco

Funding

ERASMUS + funded project

Urban Challenges Tackled

Multidisciplinary coastal resilience frameworks

Culturally grounded design for the Mediterranean

Innovative educational methodologies

Venice_SLR & protections : "Venice, See level rise and protections", Barbara Zu, Amir Zoulim, Mélimed, ENSA Marseille, 2022.



2022 workshop Venice: "Field trip in the lagoon of Venice", IUAV, 2022.

Mélimed is an ERASMUS + funded project that addresses the challenges of building resilient Mediterranean coastal metropolises in responses to climate change through three case studies: the region of Tétouan, the Venice Lagoon and the heart of the Aix-Marseille-Provence metropolis.

The project brings together four architecture and urban design higher education schools around the Mediterranean, all of which share a commitment to understanding and addresses the impact of global warming on the Mediterranean highly urbanised coast.

Although the Mediterranean region is warming faster than the rest of the world, with severe repercussions especially for coastal territories, today architecture schools in the region still lack dedicated training on these issues.

students and teachers to exchange, compare and refine their initial hypotheses leading to proposals for resilient projects for these coastal metropolises.

Melimed helped develop innovative teaching methods through a series of workshops designed to generate tailor-made solutions for the region. These solutions are enriched by the cross-fertilisation of skills and methods of an international group of scholars participating in this project.

Mélimed.2 is the funded continuation of the initial project. Its goal is to revisit the work accomplished over three years within the framework of the first Mélimed partnership (atlas and design solutions). Cross-fertilisation of practices between students and scholars from the four schools will take place during three on-site workshops, two in Venice and one in Marseille, where students will explore the territories, test earlier hypotheses, and develop new resilient design solutions to climate change. Teachers' seminars will enrich these thematic explorations and help reassess the outputs from the Mélimed 1.

Melimed 1 and 2 are funded by the EU KA.220 HED Cooperation partnerships in higher education ERASMUS + funding scheme.

The pedagogical approach is structured around three axes, during key moments of intensive knowledge exchange where the respective design practices are shared. First each school conducts design explorations using collaborative cartographic tools, to build a shared understanding of local contexts. Second, this knowledge is confronted with the reality during immersive, and intensive collective workshops in each place. Finally, a "return workshop", held in the following semester, enables

The students' work will further expand these materials through cross-institutional and collaborative productions. The multiplicity of materials targets different audiences, both academic (teachers, students, and even researchers) and professional. This link between the university and the socio-professional sector is conducive to the renewal of design practices while reinforcing students' future employability.

The Trans-Disciplinary Dimension

The process

The initial program was co-designed by ENSAM and AVITEM, following by contributions from the other partners.

The project was structured around a series of progressive international workshops, organised twice a year in different sites of the Mediterranean region. In the first phase, participants developed collaborative cartographic tools to build a shared understanding of each territory. The second phase consisted of intensive on-site immersions, during which these tools and initial analysis were tested and refined. In the final phase, during the 'return' workshop in the following semester, scholars reconvened on-site to exchange visions and consolidate the resilient design solutions tested throughout the process.

Each partner was responsible for a specific task, and each workshop was hosted and organised by the partner institutions, ensuring contextual relevance. A steering committee was set up to ensure coordination between the partner institutions. It is composed of team leaders from each institution, mainly schol-

ars from ENSAM, ULB, and IUAV, who ensured the educational and scientific quality of the programme.

The production of intellectual outputs (the atlas and project booklets) was coordinated by a lead partner with the participation of the others. This collaborative model facilitated transfer of knowledge and know-how among both students and academic staff, strengthening pedagogical innovation and interdisciplinary capacity across the consortium.

Competences and Skills

A multidisciplinary team of urban planners, architects, researchers, landscape designers was involved in the project. The participating scholars were involved in the project for their in-depth knowledge of the territories object of study, as well as for their analytical perspectives and interpretative framework. The pedagogical model relies on cross-disciplinary and transdisciplinary approaches, requiring the involvements of architecture and urban planning scholars, with the contributions of landscape architects, sociologists, and geographers.

Leadership and coordination were jointly assumed by the main academic partners, ENSAM, ULB, and IUAV, each bringing specific methodological strengths, institutional experience, and thematic expertise. AVITEM played a key role as facilitator for the relations with local stake holders.

Following this experience, a new EU project was submitted in 2025 focusing on the lagoons of the Mediterranean coast (Lalimed), which has been accepted.

The Open Science Dimension

Inclusivity

The activities ensured targeted inclusive teaching methods to encourage debate, discussion and the sharing of experiences; valued students' contributions as an essential part of the programme, integrating them into collective group works; integrated good examples and best practices specific to the students' countries of origin. This pedagogy engages students in cross-analysis and qualitative reflection, improving their awareness and skills based on field experience at the Euro- Mediterranean level.

Equity

A gender equity policy is employed, and there is usually the same amount of male and female students in workshops.

Sustainability

The Mélimed project promotes sustainability in the training of future architects and urban designers, addressing climate change impacts on highly urbanized Mediterranean coasts. Through collaborative, cross-institutional workshops and design exercises, students develop context-specific, resilient solutions that integrate environmental, social, and cultural considerations. By linking academic research with professional practice and fostering knowledge exchange across four Mediterranean schools, Mélimed strengthens capacity for long-term, adaptive urban planning. The project's iterative approach, combining field exploration, immersive workshops, and cross-institutional review, ensures that proposed interventions are both ecologically responsible and socially inclusive, contributing to sustainable coastal urban development.

Changes in practices occurred with the implementation of new teaching programmes, and the update of existing ones to incorporate MELIMED's findings. New Master's programmes have been set up in ENSAM and ENAR as part of the new educational programme.

The attractiveness of Master's programmes increased due to global mobility between partners.

Salin de giraud_ENSAM_2025: "territorial resilience, the future of a submersible territory, the Giraud salt marshes", Zoé Devoille, Eloise Nardo, Thibault Polguer, ENSAM, 2025.



The Knowledge Valorisation Dimension

- **Educational Value:** The project advanced architectural and urban design education through innovative tools and methods, including an e-studio platform, surveys, and fieldwork during workshops.
- **Economic/Capacity-Building Value:** By linking teaching to the con-

tinuing professional development of civil servants, the project enhanced practical skills and professional competencies. This integration of academic training with applied, real-world challenges, builds capacity among both students and professionals, contributing to a more skilled workforce capable of addressing resilience and sustainability in coastal urban environments.

Outputs & Impacts

Outputs

Overall Melimed produced twenty-four intellectual outputs, six training booklets for workshops, four atlases, wiki pages, four training booklets on resilient projects, a Master's guide, three videos, and two exhibitions in Rabat and Marseille. The web platform is the repository of open-source material produced: www.Melimed.eu

Examples of publications:

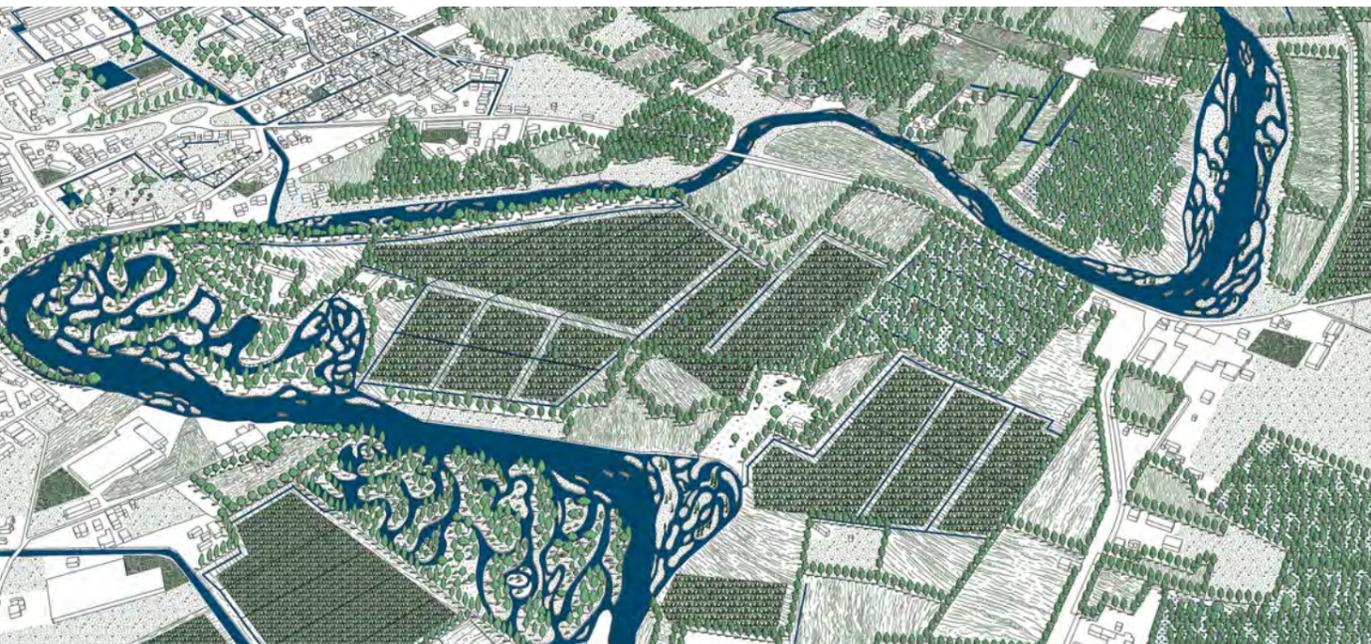
- "Mélimed, Métropoles du littoral méditerranéen,

[enjeux climatiques et solutions de résilience 2020-2023](#)".

- "Water scarcity paradoxes towards sustainable landscape construction. Overlapping strategies for the Venice and Marseille territories".
- "La voix des méditerranéens".

Impacts

Practice: the result of MELIMED was incorporated in training programmes of [AVITEM](#), since 2022, targeting the civil society.



ABSORPTION VENISE_IUAV : "Rewilding the Sile river in Veneto", Francesco Finotta, Marco Pantarotto, Martina Quagiotto, Giancarlo Serman, Jacopo Vianello, IUAV, 2022.

The project unfolds through a sequence of progressive international workshops across Mediterranean sites, culminating in a 'return' workshop where participants reconvene to refine insights and consolidate resilient design solutions developed during earlier phases.

Through design explorations using collaborative cartographic tools, the project employs mapping as a revealing instrument to build a shared understanding of local contexts, culminating in an atlas that synthesizes these insights.



2023 workshop in Camargue - étang de Berre: "Workshop in Camargue - étang de Berre", ENSAM, 2023.