



## Methodological Framework for Co-Design Activities<sup>1</sup>

*How the Step-by-Step COMPOSE methodology is integrated  
in the CO2 PACMAN cooperative planning approach*

The methodological framework for co-design in the CO2 PACMAN project was developed by progressively linking the **assessment activities** (Rooting Labs, GHG Balance, AskyourcitizenonCaN, Landscape Analysis and the CO2 PACMAN Tool) with the **scenario-development activities** (Youth Think Tank, Open Innovation Collaborative Action, Financing the Transition, Landscape scenarios & Virtual Reality, and The Island I Would Like Labs). Together, these components form a **coherent co-design environment** in which **quantitative evidence**, **spatial analysis** and **stakeholder perspectives** are continuously translated into climate-neutrality scenarios.

In this framework, assessment activities provide the analytical and territorial foundations for co-design: they generate **validated datasets**, **emission baselines**, **landscape capabilities** and **social perspectives**. Scenario-development activities then use these inputs to **co-create** and **test** alternative pathways with **stakeholders**, combining simulation methods, open innovation and immersive visualisation. The CO2 PACMAN Tool serves as the central decision-support interface, while Virtual Reality and landscape visualisations translate scenarios into clear and accessible experiences for all participants in the process.

The methodology has been designed **based on the principles and tools developed in COMPOSE toolbox model<sup>2</sup>**. COMPOSE's holistic and structured approach ensures that all aspects of planning and implementation for climate change mitigation and adaptation are addressed through a participatory and inclusive process, therefore ensuring that stakeholder participation and engagement is embedded within all aspects of the project.

<sup>1</sup> Reference document: **Deliverable D 2.1.1. - Method and evaluation of involvement of PAs in participatory planning and Open Innovation showcase, Interreg Euro-Med CO2 PACMAN Project**

<sup>2</sup> **The Sustainable Energy Planning Toolbox (COMPOSE Toolbox)** is a user-friendly, web-based platform that guides step-by-step local authorities and planners, to a more efficient design, implementation, and monitoring of sustainable energy projects. Developed by the Renewable and Sustainable Energy Lab at the Technical University of Crete under the Interreg MED COMPOSE project, it provides powerful tools, databases, and resources to help unlock local energy potential while balancing technical, environmental, and socio-economic aspects. With more than 2,500 registered users and endorsement from over 300 authorities across 65 Mediterranean regions, the COMPOSE toolbox is helping to drive the green energy transition from the ground up



The COMPOSE toolbox's approach to cooperative planning is structured around **six steps**, and **2 horizontal steps**, developed to reach the ultimate outcome of community-driven climate action and decarbonization Action Plans. Therefore, the CO2 PACMAN project uses these steps as the foundation for its stakeholder engagement process, in order to ultimately ensure the effective and impactful creation of stakeholder-driven climate actions on each of the Pilot Islands. **Table 1** presents each of these steps, how they apply to the CO2 PACMAN stakeholder engagement process, and the actions that will be taken to achieve their main aims.

**Table 1.** Integrating the Step-by-Step COMPOSE methodology in the CO2 PACMAN cooperative planning approach (*D1.2.1 CO2 PACMAN Cooperative Planning Guidelines*)

| STEP                                                                                |                                                | APPLICATION                                                                                                     | ACTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <b>Step 1.<br/>Choosing a problem</b>          | Identify specific climate neutrality challenges for each target island (Brač, Elba, Crete).                     | <ul style="list-style-type: none"> <li>&gt; Conduct preliminary analysis to diagnose the island context, validate available datasets, and identify priority mitigation and adaptation challenges.</li> <li>&gt; Collect quantitative and qualitative evidence (GHG Baseline, Landscape Analysis, AskYourCitizenonCaN responses) to define the key local issues and identify potential challenges, and opportunities</li> </ul>                                                                               |
|  | <b>Step 2.<br/>Creating local action group</b> | Strengthen engagement with local stakeholders to ensure diverse representation in decision-making processes.    | <ul style="list-style-type: none"> <li>&gt; Perform stakeholder mapping assessing stakeholder's potential contributions and dynamics and their potential roles in co-design activities.</li> <li>&gt; Form Local Action Groups for each pilot island, ensuring all relevant stakeholders are represented and actively involved in decision-making (stakeholders' recruitment)</li> <li>&gt; Implement engagement activities and consultation events through Living Labs (namely the Rooting Labs)</li> </ul> |
|  | <b>Step 3. Local Action Plan</b>               | Develop detailed action plans tailored to each island, incorporating data and insights from the initial phases. | <ul style="list-style-type: none"> <li>&gt; Use the CO2 PACMAN Tool to simulate mitigation options, analyse decarbonisation pathways and quantify residual emissions.</li> <li>&gt; Integrate insights from Landscape Scenarios, VR evaluations, Open Innovation solutions, and feedback from multi-stakeholder labs into draft transition scenarios.</li> <li>&gt; Co-develop sets of measures that are socially acceptable, spatially feasible, and technically robust.</li> </ul>                         |
|  | <b>Step 4.<br/>Creating local partnerships</b> | Expand partnerships to include organizations and entities.                                                      | <ul style="list-style-type: none"> <li>&gt; Use Labs as structured spaces to connect municipalities, technical agencies, SMEs, innovators, and environmental organisations.</li> <li>&gt; Identify potential implementers for priority measures and match local challenges with external technical solutions via the Open Innovation Platform and Business Forum.</li> <li>&gt; Build cross-sector alliances strengthening readiness for future project implementation and investments.</li> </ul>           |



| STEP |                                                         | APPLICATION                                                  | ACTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------|---------------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | <b>Step 5.<br/>Implementation procedures</b>            | Implementing the climate neutrality plan                     | <ul style="list-style-type: none"> <li>&gt; Translate co-designed scenarios into implementable solution sets by analysing feasibility, financial mechanisms and enabling conditions in the “Financing the Transition” activity.</li> <li>&gt; Use participatory workshops to refine roles, responsibilities, and investment priorities</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                     |
|      | <b>Step 6.<br/>Monitoring and evaluation</b>            | Identify key indicators related to stakeholders' engagement. | <ul style="list-style-type: none"> <li>&gt; Evaluate participatory processes using multi-source feedback (surveys, interviews, workshop observations, VR interaction responses).</li> <li>&gt; Assess stakeholder learning outcomes, inclusion dynamics, and usefulness of tools (CO2 PACMAN Tool, VR, design prototypes).</li> <li>&gt; Use findings to refine methods for future Labs, strengthen transferability, and improve the final Climate Neutrality Transition Roadmaps.</li> </ul>                                                                                                                                                                                                                                                         |
|      | <b>Step A.<br/>Empowering local skills and policies</b> | Identify and enhance local skills and capabilities.          | <ul style="list-style-type: none"> <li>&gt; Deliver training activities across schools (YTT), public authorities (PACMAN Tool sessions), SMEs (OI Labs), and community groups (VR exhibitions, AskYourCitizen engagement).</li> <li>&gt; Enhance understanding of RET integration, climate modelling, GHG accounting, and landscape-sensitive spatial planning.</li> <li>&gt; Promote long-term institutional capabilities for evidence-based decision-making.</li> </ul>                                                                                                                                                                                                                                                                             |
|      | <b>Step B.<br/>Awareness raising</b>                    | Engage local communities to raise awareness.                 | <ul style="list-style-type: none"> <li>&gt; Launch public awareness campaigns, organize experiential activities, and hold public forums to educate stakeholders about the importance of and their role in achieving climate neutrality.</li> <li>&gt; The 3 day labs will act as a powerful tool to build the awareness and sense of ownership over climate planning held by the local stakeholders.</li> <li>&gt; Ongoing engagement activities will keep stakeholders informed of the project and key issues the project addresses. The engagement activities and tools utilized in the pilot labs will further provide opportunities for experiential learning and communication of the role of local stakeholders in climate planning.</li> </ul> |

**Annex 1** summarises how each of the activities contributes to the co-design process and how different stakeholder groups are engaged.



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## Annex 1- Co-design activities and stakeholder engagement

**Table 17.** CO2 PACMAN co-design activities and stakeholder engagement

| Activity                                     | Phase / type                                      | Main function in co-design                                                                                                                                                                    | Key stakeholder groups involved                                                              | Co-design outcomes                                                                                                                                                                                                               |
|----------------------------------------------|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Rooting Labs</b>                          | Assessment – participatory lab                    | Three-day workshops to build a shared diagnosis of the island, validate data, map challenges and identify priority themes for climate neutrality.                                             | Local and regional authorities, utilities, SMEs, tourism operators, NGOs, schools, citizens. | <ul style="list-style-type: none"> <li>• Common baseline for co-design;</li> <li>• Validated datasets;</li> <li>• First list of transition ideas and priority sectors.</li> </ul>                                                |
| <b>GHG Balance</b>                           | Assessment – analytical                           | IPCC-based inventories that quantify emissions and uptakes by sector, forming the numerical baseline for scenario simulations.                                                                | Project partners (technical experts and data providers), municipal departments, utilities)   | <ul style="list-style-type: none"> <li>• Identification of emission hotspots;</li> <li>• Quantitative reference for mitigation potential and scenario comparison in the CO2 PACMAN Tool.</li> </ul>                              |
| <b>Landscape Analysis</b>                    | Assessment – spatial                              | Landscape scenarios are developed directly from the assessment-phase results by combining land-use classes with Renewable Energy Technologies (RETs) that received suitability ratings (A–C). | Project partners (landscape and spatial analysts), Rooting Lab participants.                 | <ul style="list-style-type: none"> <li>• Spatial constraints and opportunities for RET deployment;</li> <li>• Selection of sample sites for later design and VR prototyping.</li> </ul>                                          |
| <b>AskyourcitizenonCa N &amp; Vox Populi</b> | Assessment – social                               | Structured citizen survey and interviews to assess awareness, perceptions, willingness to change and acceptance of measures.                                                                  | Citizens across age and socio-economic groups                                                | <ul style="list-style-type: none"> <li>• Social readiness profiles; Priorities from citizens' perspective;</li> <li>• Inputs for design and communication in Labs and YTT.</li> </ul>                                            |
| <b>CO2 PACMAN Tool</b>                       | Assessment / Scenario – modelling & visualisation | Interactive platform that integrates GHG data, land use and 28 policy options to simulate decarbonisation pathways and residual emissions.                                                    | Public authorities, planners, SMEs, schools, citizens (in workshops and classes)             | <ul style="list-style-type: none"> <li>• Quantified scenarios;</li> <li>• Understanding of policy impacts;</li> <li>• Common language for comparing options during Youth Think Tank and The Island I Would Like Labs.</li> </ul> |



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|-----------------------------------------------------------------------|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Youth Think Tank (YTT)</b>                                         | Scenario development – educational co-design     | Learning and co-creation format where students use the CO2 PACMAN Tool to explore strategies and articulate youth visions for a climate-neutral island.                   | Secondary-school and university students, teachers, facilitators.                                             | <ul style="list-style-type: none"> <li>• Youth-generated scenarios and ideas;</li> <li>• Increased climate literacy;</li> <li>• Inputs feeding into The Island I Would Like Labs and local debates.</li> </ul>           |
| <b>Open Innovation Collaborative Action &amp; Solution Catalogue</b>  | Scenario development – innovation pathway        | Challenge-based process linking island needs with solutions from SMEs, start-ups and research centers; generation of a catalogue of applicable technologies and services. | Local authorities (“challengers”), SMEs and innovators (“solvers”), citizens and businesses at Business Forum | <ul style="list-style-type: none"> <li>• Portfolio of concrete solutions for local challenges;</li> <li>• Options to integrate into transition scenarios and investment pipelines.</li> </ul>                            |
| <b>Financing the Transition</b>                                       | Scenario development – financial dimension       | Exploration of funding instruments, financial models and procurement aspects to assess feasibility of proposed measures.                                                  | Public administrations, financial experts, SMEs, innovators                                                   | <ul style="list-style-type: none"> <li>• Better understanding of costs, funding routes and barriers;</li> <li>• Alignment of co-designed scenarios with realistic implementation pathways.</li> </ul>                    |
| <b>Landscape Scenario for the energy transition &amp; Prototyping</b> | Scenario development – spatial design            | Translation of suitability results into descriptive territorial futures and site-specific prototypes (plans, sections, 3D models) for RET integration.                    | Project partners (landscape and spatial analysts).                                                            | <ul style="list-style-type: none"> <li>• Spatially explicit narratives that show how different options change the landscape;</li> <li>• Technical base for VR simulations and discussions on trade-offs.</li> </ul>      |
| <b>Virtual Reality &amp; Visualisation Tools</b>                      | Scenario development – immersive co-design       | 3D environments that allow users to “enter” future landscapes, compare options, and discuss visual and spatial impacts of RETs and measures.                              | Citizens, youth, planners, policy-makers, SMEs, NGOs                                                          | <ul style="list-style-type: none"> <li>• Experiential understanding of scenarios;</li> <li>• Richer dialogue and joint evaluation of alternatives</li> </ul>                                                             |
| <b>The Island I Would Like Labs</b>                                   | Scenario development – integrative co-design lab | Second round of participatory workshops where stakeholders use CO2 PACMAN Tool to co-create climate-neutrality roadmaps.                                                  | Public authorities, businesses, citizens, youth, schools, NGOs                                                | <ul style="list-style-type: none"> <li>• Co-create, evidence-based transition scenarios;</li> <li>• Prioritised measures;</li> <li>• Shared vision that feeds into the Climate Neutrality Transition Roadmap.</li> </ul> |