



D 7.4 | Platform GUI and functionalities

WP7 – RethinkAction Platform: design, development and deployment

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Abbreviation and Acronyms

Acronym	Description
API	Application Programming Interface
CI/CD	Continuous Integration/Continuous Deployment
CS	Case study
ECV	Essential Climate Variable
EU	European Union
GHG	Greenhouse Gas
GIS	Geographic Information System
GUI	Graphic User Interface
IAP	Integrated Assessment Platform
IAM	Integrated Assessment Model
IDE	Integrated Development Environment
KPI	Key Performance Indicator
LAMS	Land use-based Adaptation and Mitigation Solutions
SQL	Structured Query Language
WILIAM	Within Limits Integrated Assessment Model

Executive summary

Deliverable D7.4 – Platform graphical user interface (GUI) and functionalities presents an update on the development of the RethinkAction platform, GUI and newly integrated features since the last major release reported in D7.5. This deliverable builds on the previously defined architecture and functional modules, describing the latest improvements and additions that enhance the platform’s usability and decision-support capacity for land-based climate adaptation and mitigation.

The RethinkAction platform has been designed as a modular Integrated Assessment Platform (IAP) aimed at supporting decision-makers and citizens in evaluating adaptation and mitigation strategies through land use planning. The GUI has evolved over several iterations, adopting an agile methodology and incorporating user feedback to improve functionality, clarity, and accessibility.

This deliverable focuses on the latest features added across three main tools:

- LAMS Catalogue Tool: Integration of two new solutions – LAMS 61: Freshwater Ecosystems Restoration and Management and LAMS 62: Coastal Zones Management. Additionally, a new recommendation module allows users to view tailored LAMS based on ranked objectives and priorities.
- Local Analysis Tool: Includes a “Best Case Study Selection Algorithm,” interactive module for exploring adaptation and mitigation capacities, defining objectives and priorities, and launching local simulation models. A complete project management interface has also been implemented.
- EU/Global Analysis Tool: While the detailed reporting for this component is limited in this deliverable, global-scale model launching is introduced.

A section outlining the pending implementations and next steps is included, focusing primarily on the remaining functionalities of the Local Analysis Tool and the EU/Global Analysis Tool.

Interactive visual elements such as maps, tables, and graphical summaries are used throughout the platform to support user decision-making. A wide range of visualization types are available to explore outputs (e.g., bar, line, stacked, and radar charts).

This deliverable also documents the technologies used for development (e.g., Angular, FastAPI, Docker), testing strategies using Cypress and Pytest, and integration efforts to ensure smooth interactions between modules. The platform continues to support scalability and modularity, allowing the integration of local dynamic models and upscaling through the model WILIAM.

Finally, the document provides detailed screenshots and descriptions of each new feature, demonstrating the ongoing work to build a usable and scientifically grounded platform for climate action planning. Future work will focus on final refinements and the development of a comprehensive user manual to guide end users through the platform's full capabilities.

1 Introduction

The RethinkAction project aims to actively engage both decision-makers and citizens in the energy transition by supporting climate change adaptation and mitigation through sustainable land use strategies. At the heart of this ambition lies the RethinkAction Platform, a comprehensive and modular Integrated Assessment Platform (IAP) designed to provide accessible, evidence-based tools for planning and decision-making across various sectors and governance levels.

Work Package 7 (WP7) is responsible for the full lifecycle of the platform's development, including its design, implementation, deployment, and validation. Although the platform is not yet finalized, substantial progress has been made, and several functional releases have already been delivered, reflecting the maturity of the current development stage. The platform has been conceived as a modular system, ensuring extendibility, scalability, and alignment with stakeholder needs at both the local and EU levels.

The platform's architecture and initial technical specifications were defined in Deliverable D7.1 – Platform Architecture and Technical Requirements, where the first mock-ups of the graphical interface and the core modular structure were presented. These early visual and structural designs provided the foundation for subsequent development and stakeholder validation. Further refinement of both interface and functionality was reported in RethinkAction D7.5 – “RethinkAction platform prototype”., particularly in Section 4 “Platform Prototype Features” [1], which documented the state of the platform's front-end and back-end capabilities at month 36 of the project.

1.1 Purpose of the document

This current deliverable reports on the progress made since D7.5 [1], with a particular focus on the implementation of new functionalities and interface enhancements. While an overview of previously described features will be included for context, these elements will not be elaborated on in depth; instead, the reader will be referred to the original document wherever applicable. The objective is to avoid redundancy and ensure continuity in reporting. All the information collected in D7.4 and D7.5 related to the graphical interface will be consolidated, expanded, and presented in user manual format

in Deliverable D7.6, ensuring practical guidance for end users in operating and understanding the platform.

1.2 Structure of the document

The document is structured as follows:

- **Section 1: Introduction** - Presents the context, objectives, and structure of the deliverable.
- **Section 2: Platform GUI Overview** - Describes the background of the platform GUI, the technologies used, the development methodology, and testing strategies.
- **Section 3: General Features (Path 0)** – Recaps the general interface of the platform, which integrates the three core tools and was fully reported in D7.5 [1].
- **Section 4: LAMS Catalogue Tool** – Details the integration of new LAMS (61 and 62), and the recommended features based on user-defined objectives and priorities.
- **Section 5: Local Analysis Tool** – Describes several new functionalities, including: Best Case Study Selection Algorithm, Adaptation and Mitigation Capacities, Define Objectives and Priorities, Launch Local Models.
- **Section 6: EU/Global Analysis Tool** – Introduces the interface and functionalities for launching global-scale models.
- **Section 7: Next steps** – Summarizes the pending developments and planned actions required to complete the platform, with a focus on the remaining functionalities of the Local Analysis Tool and the EU/Global Analysis Tool.
- **Section 8: Conclusions** – Summarizes the current status of the platform, progress made and next steps.
- **References.**

2 Platform GUI overview

2.1 Context

As explained in the introduction, this deliverable is intended as an update to the previous release of the platform GUI presented in Deliverable D7.5, Section 4 [1], where the general features of the platform (Path 0) were described, including the user interface for login, registration, role selection, and tool selection. D7.5 [1] also covered the three main tools of the platform—LAMS Catalogue, Local Analysis,



and EU/Global Analysis—along with their respective interfaces. For this reason, only the new features added to each tool since that release will be explained in detail in this deliverable.

The Platform is available at: <https://tools.cartif.es/rethinkaction>

2.2 Technology used

The RethinkAction platform is developed using a set of well-established technologies chosen to support performance, scalability, and consistency across environments. This section describes the main tools, frameworks, and libraries used during the development and operation of the platform.

For programming and debugging, developers use Integrated Development Environments (IDEs). Git is used for version control, allowing collaboration, tracking of changes, and code review. Docker is used for containerization, so that applications can run the same way in development, testing, and production.

The **front-end** of the platform is developed using Angular, a framework based on TypeScript. Several libraries are used to display interactive charts and maps, including:

- D3.js for custom data visualizations,
- Chart.js, Leaflet, and Plotly for different types of charts and geospatial representations.

Finally, Cypress is used for automated testing of the front-end.

The **back-end** is built with FastAPI, a Python framework for creating APIs. SQLAlchemy is used to manage database interactions in Python. The platform stores its data in PostgreSQL, a relational database that supports complex queries. Geospatial data is managed and published using GeoServer. More information about the structure and integration of the platform's databases can be found in RethinkAction D7.2 – “Synthesis of the integration of databases for the RethinkAction data layer”.[2].

Finally, to test the back-end, developers use Pytest, a testing tool for Python.

2.3 Development

The development of the RethinkAction platform followed a structured approach based on agile methodology and a clear development life cycle, ensuring adaptability, continuous feedback, and alignment with project goals.

An agile approach was adopted, organizing the work into short development cycles or sprints (typically 2–4 weeks). Development was divided into four parallel paths, each covering key platform functionalities:

- Path 0: General functionalities



- LAMS Catalogue Tool Path
- Local Analysis Tool Path
- EU/Global Analysis Tool Path

These paths progressed at different speeds based on platform needs and stakeholder input. All development was managed through a GitLab repository, which enabled collaboration, version control, and continuous integration/deployment (CI/CD) workflows.

The platform's development life cycle includes the following stages:

- **Planning and Requirements Gathering:** Platform needs were defined based on D2.7 (user requirements) [3] and further detailed in D7.1, section 5. [3]
- **Design and Architecture:** The system structure, including data, business logic, and application layers, was defined in D7.1, sections 4 and 7. [3]
- **Development and Implementation:** Platform features were implemented iteratively, allowing ongoing refinement. This process is covered in D7.5 section 5.1 [1] and sections 3-9 of this deliverable.
- **Integration and Testing:** Modules were integrated and tested (unit and functional testing) to ensure a consistent user experience. Details are in section 2.4 of the current document.
- **Deployment:** Stable versions were deployed after validation, with configurations for servers and security, described in D7.5 section 7 [1].
- **Maintenance and Continuous Improvement:** Post-deployment, the platform will be monitored, updated, and improved based on user feedback. Defined in D7.5 section 8 [1]

2.4 Testing

To minimize errors and ensure the stability of the application, automated tests have been implemented for both the front-end and back-end components of the RethinkAction platform.

On the front-end, testing is carried out using Cypress, which automates user interaction flows. These include basic scenarios such as logging in with various user roles, as well as more complex cases where multiple selector combinations are tested to confirm that API requests are triggered and return valid responses.

For the back-end, Pytest is used to perform both unit and integration tests. These tests validate the behaviour of the API endpoints and allow for the automated checking of many use cases, helping to

detect and prevent regressions during development. So far, all tests have yielded satisfactory results, with tests passing correctly both in the front-end and back-end. More information about the testing results is available in D7.5 section 6 [1].

3 General features (Path 0)

Path 0, which represents the general interface that integrates the three tools of the platform, was completed at month 36 of the project and was fully reported in Deliverable D7.5, Section 4.[1]. The following figures (Figure 1 to Figure 3) present a recap of screenshots of Path 0 of the platform, showing the general interface functionalities.



Figure 1. Platform landing page.



Figure 2. Tool selection interface.

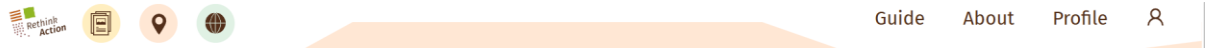


Figure 3. Navigation header.

Figure 1 shows the landing page of the platform, where the end user can register, log in, or continue as a guest. When registering or continuing as a guest, the user is prompted to select a role, choosing between citizen or expert. At each step, a guide button is available to help users understand the interface and provide instructions on how to proceed. In the final release, a third role—policymaker—will be introduced, offering an intermediate level of interaction. This will enable a more tailored experience by adapting the complexity of policy configuration and model results to the selected user profile, from citizens to policymakers to experts.

Figure 2 displays the tool selection panel, where the user can choose one of the three tools available on the platform. The user can freely navigate between the three tools or return to the tool selection screen at any time using the navigation header, as shown in Figure 3.

4 LAMS Catalogue tool

For the LAMS Catalogue tool, two new LAMS: LAMS 61 – “Freshwater Ecosystems Restoration and Management” and LAMS 62 – “Coastal Zones Management” have been successfully integrated into the catalogue structure and are now displayed correctly within the user interface. For instance, LAMS 61 can be seen in Figure 4. These additions expand the set of land-based adaptation and mitigation solutions available for exploration in the platform.

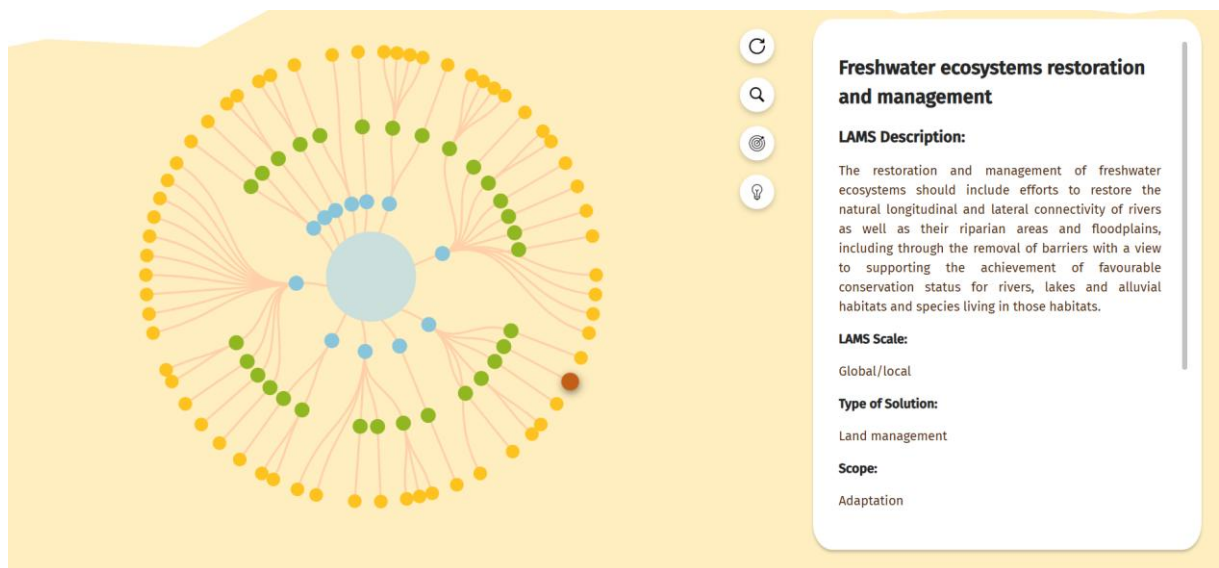



Figure 4. LAMS Catalogue tool - selection of LAMS 61.

For both the Local Analysis Tool and the EU/Global Scale Tool, an "Objectives and Priorities Definition" module has been developed. This module allows the end user to select and rank the most relevant policy sectors based on their context or preferences. Once the selection and ranking are completed, the platform generates a list of recommended LAMS tailored to the user's inputs. The logic behind this module is explained in Deliverable D7.3 [5], while the graphical interface is presented in Section 5.4

In addition, this module has also been integrated into the Catalogue Tool. The list of recommended LAMS is directly displayed within the catalogue, enabling users to immediately access detailed information such as the description, scope, applicability, and other relevant characteristics of the suggested LAMS. To access this new feature within the Catalogue Tool, the user must click the button () shown in Figure 4. Once the button is clicked, a modal panel appears over the catalogue interface, as illustrated in Figure 5.

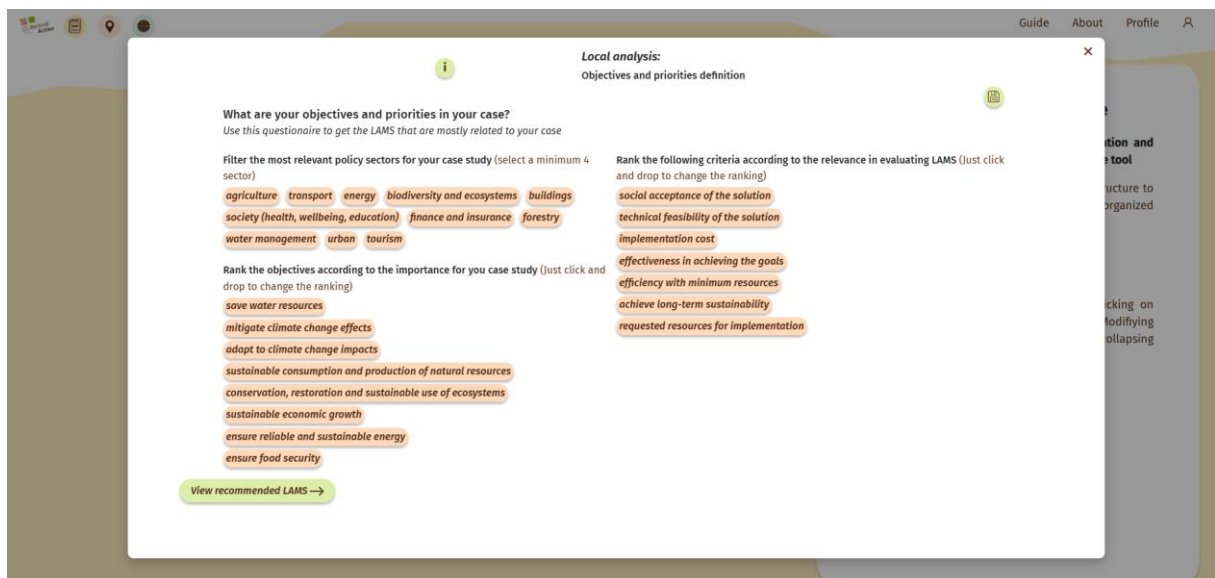



Figure 5. Recommended LAMS module.

As it will be explained in section 5.3, the users will see the screen shown in Figure 5, where the sectors, objectives, and criteria are available to evaluate the relevance of the LAMS when generating a solution package. In order to use this package of solutions generator, the user must select at least four sectors and arrange the objectives and criteria. In the case of objectives and criteria, the user will select and drag until they form the desired order. It is important to note that the algorithm uses the order of the objectives and criteria exactly as they appear on the screen.

After clicking the () button, the modal panel closes, and the catalogue interface updates to highlight the recommended LAMS, as shown in Figure 6. This selection remains active,

allowing the user to navigate the recommended LAMS within the catalogue. It stays fixed until the user clicks again on the now-highlighted (📍) button which will deactivate the recommendation view.

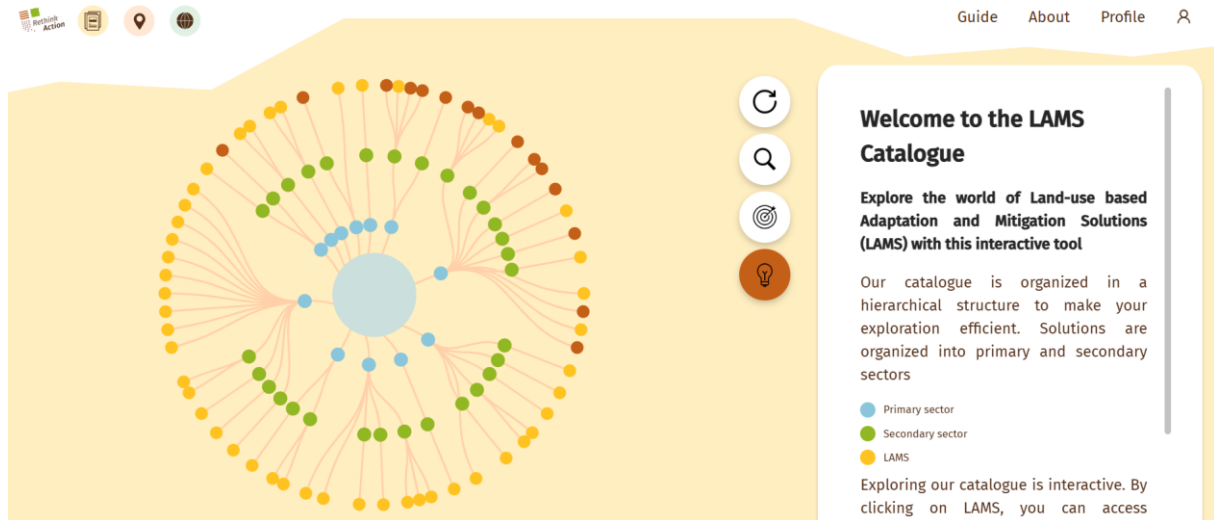


Figure 6. Recommended LAMS selection highlighted in catalogue.

The rest of the features remain as previously described in D7.5.

5 Local analysis tool

In the local analysis path several features have been implemented since last reported in month 36. In this release of the platform, a “Best Case Study” selection menu has been implemented to help the end user choose one of the six case studies available on the project based on the closest to their preferences. This feature is presented in section 5.1.

Once the end user has selected a case study and explored the sections "ECS at local scale" and "Climate Change Impacts"—both of which were reported at month 36—four new features are now available: "Adaptation and Mitigation Capacities", “Project management”, "Define Objectives and Priorities" and “Launch Local model” described in Sections 0 to 5.5 of this deliverable, respectively.

5.1 Best Case Study selection algorithm

When the end user enters the Local Analysis Tool, they are prompted to select one of the six case studies. If the user is unsure how to proceed or which case study best fits their needs, a "Best Case Study Selection Algorithm" is available to assist them. This algorithm, described in detail in Deliverable D7.3, can be accessed through a graphical interface by clicking the (here) button located after the instructional text: “Choose the one that’s close to your case. If you need any help, please click.”

All of this functionality is available on the home page of the Local Analysis Tool, as shown in Figure 7.

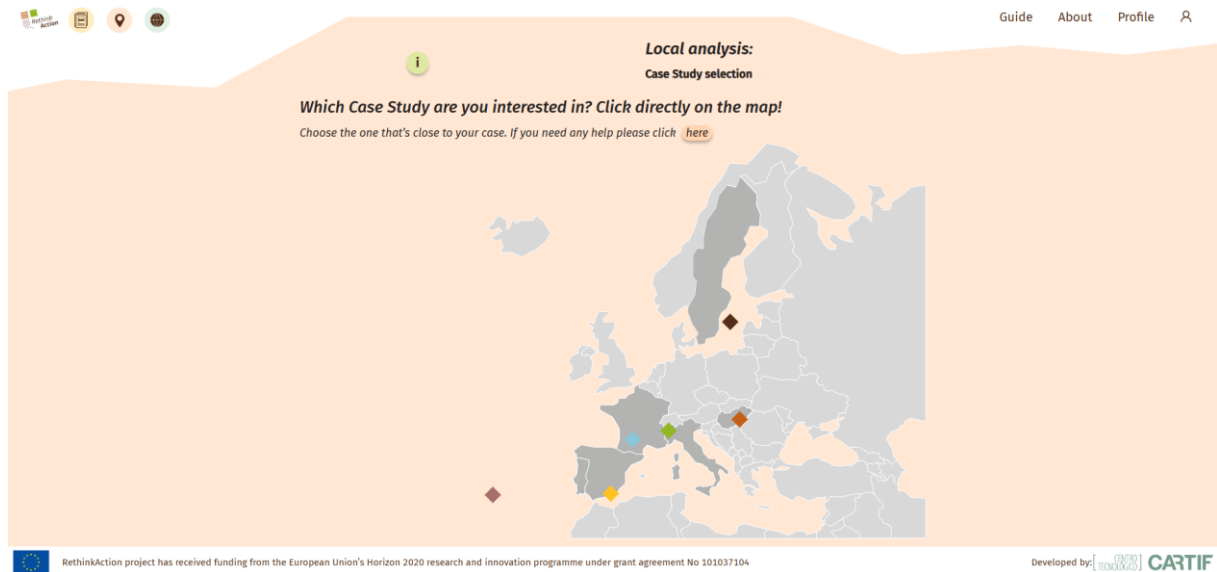


Figure 7. Local Analysis home page.

By clicking the “here” link, they are redirected to a dedicated interface designed to match their inputs with the most relevant case study available. The first screen (see Figure 8) presents an interactive questionnaire that gathers information from the user across several key dimensions:

- Primary sectors (e.g., Agriculture, Energy, Tourism, etc.).
- Climatic conditions using the Köppen-Geiger classification
- Major climate-related hazards in the region (e.g., Drought, Storm, Heatwave).
- Dominant land use types.
- Population characteristics, including total population, density, and geographical area classification.

The purpose of this questionnaire is to collect context-specific inputs from the user to be processed by the algorithm developed and described in Deliverable D7.3 [5].

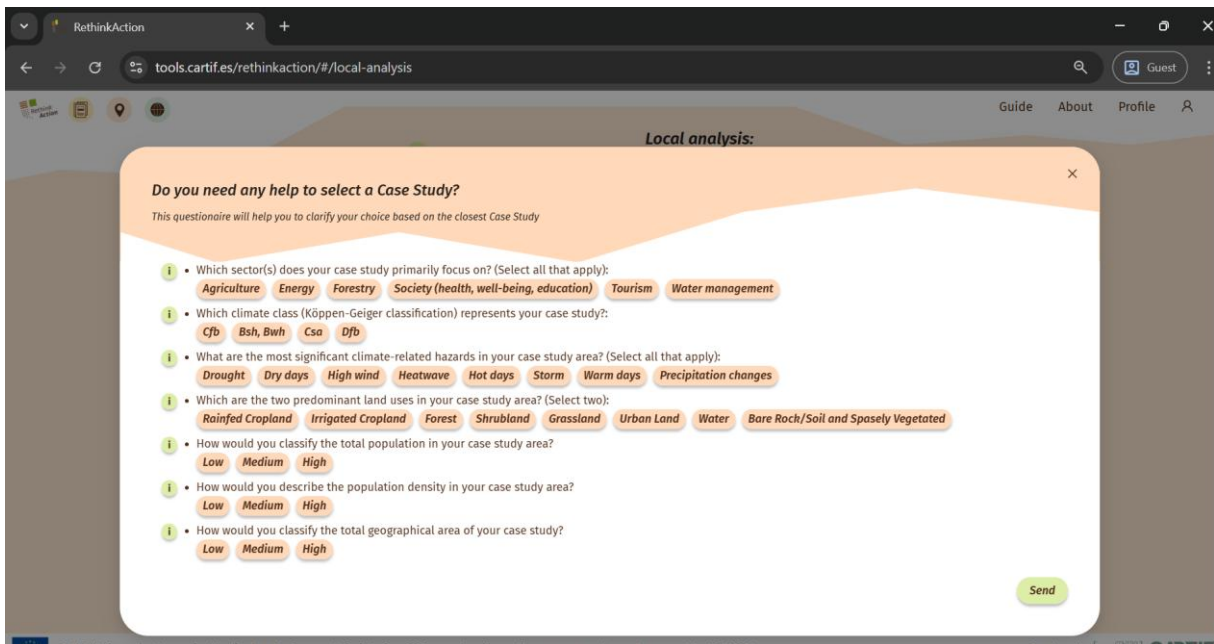


Figure 8. Best case study selection home menu.

An interactive tooltip accompanies all questions, offering a concise explanation of the related dimension of the questionnaire. This ensures that users unfamiliar with the asked dimension can still make informed choices. For instance, Figure 9 shows the information screen from the Köppen-Geiger question.

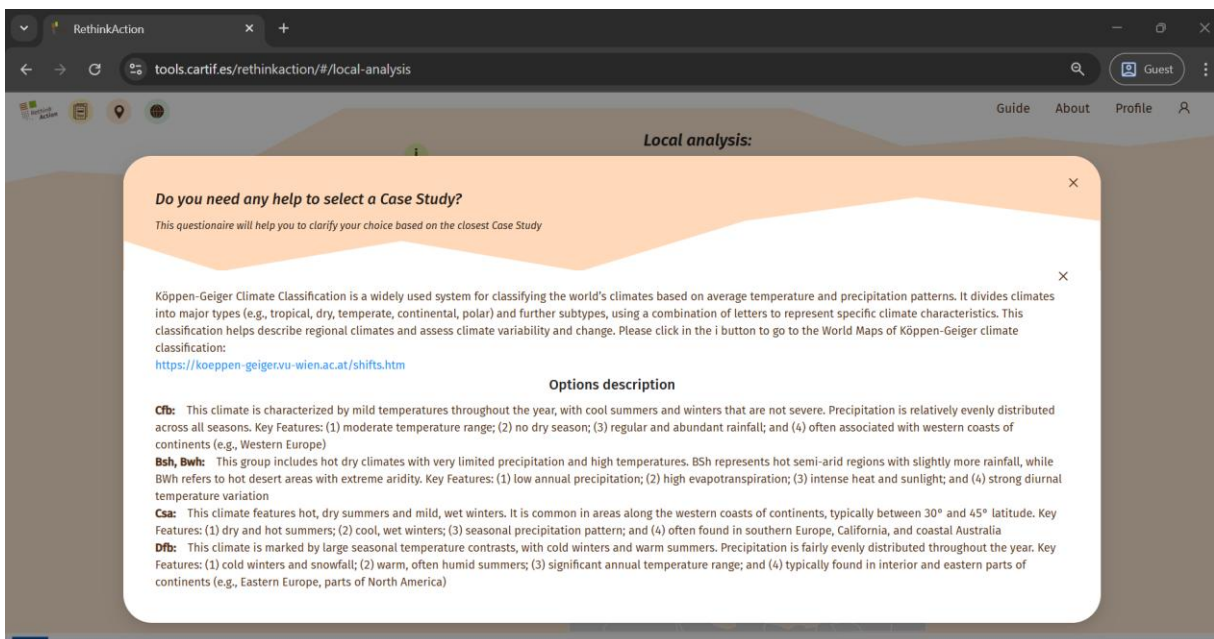


Figure 9. Best case study selection tooltip for Köppen-Geiger question.

After completing the questionnaire (see Figure 10), the platform presents a ranked list of case studies, each associated with a similarity score indicating how closely it matches the user’s input (see Figure 11). Alongside the list, a radar chart displays the attribute-based comparison for the top recommendation. This visual summary allows the user to understand which criteria contributed most to the match and provides transparency in the selection process. A “Go to CS” button allows the user to proceed directly to the recommended case study.

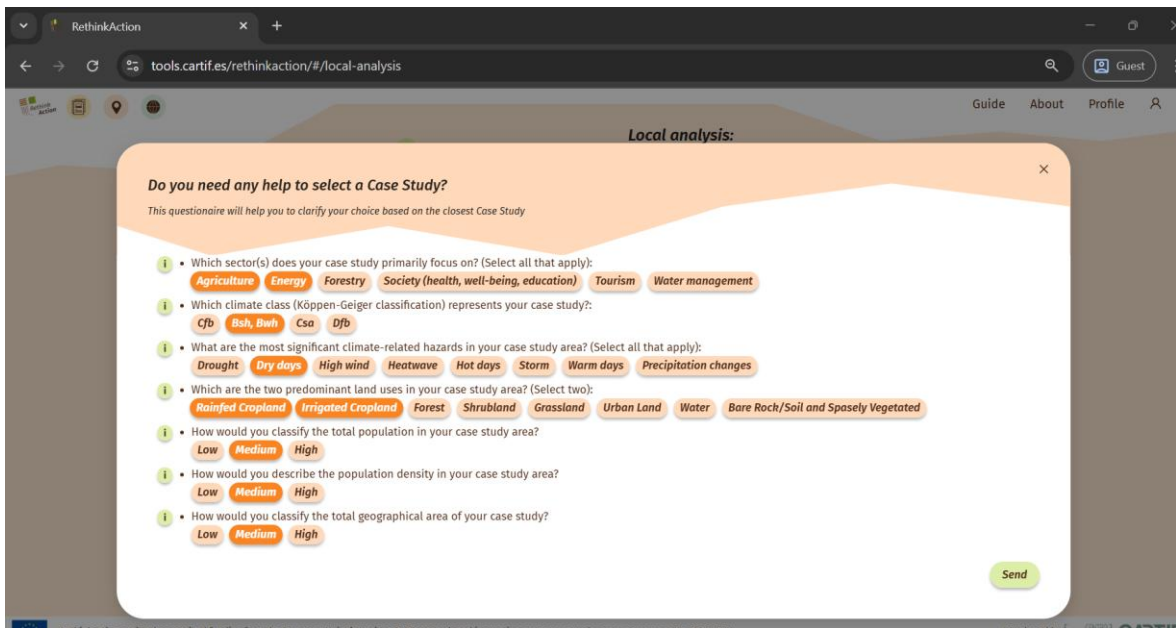


Figure 10. Completed questionnaire for best case study selection algorithm

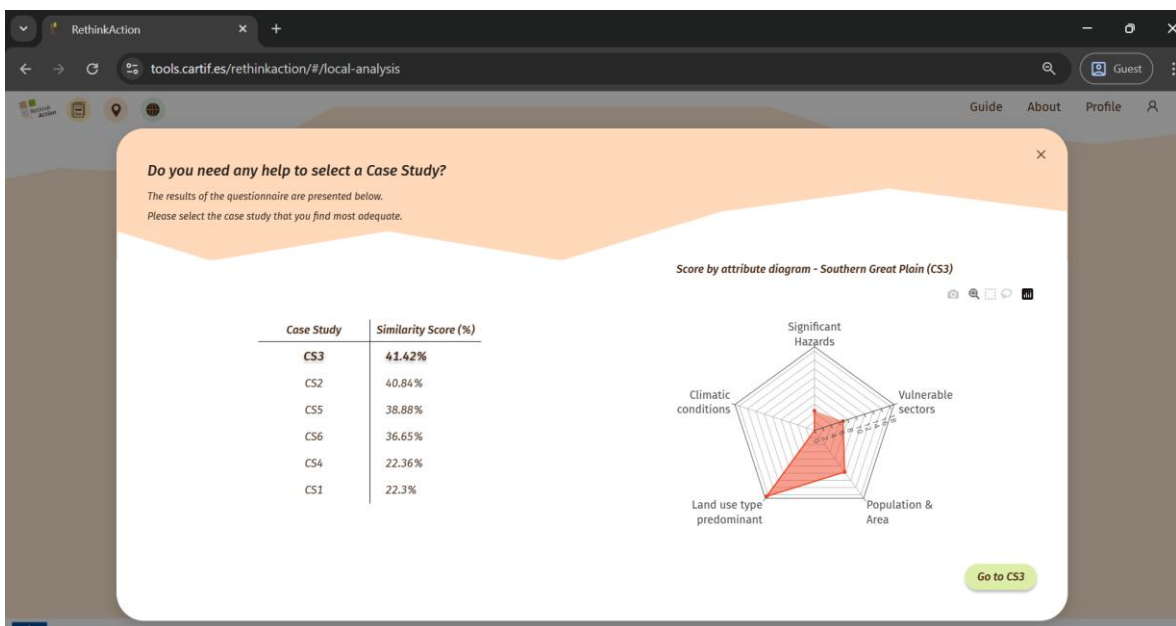


Figure 11. Best case study selection: Ranked CS.

5.2 Adaptation and mitigation capacities

After exploring the “ECVs at Local Scale” and “Climate Change Impacts: Hazards, Exposure, Vulnerability, and Risks” features, as described in Deliverable D7.5, the “Explore Adaptation and Mitigation Capacities” feature is now available to the user. Once the user enters this feature within the Local Analysis Tool, the Land Use menu is displayed. An interactive map appears, showing the different land use types represented by distinct colors. The meaning of each color is explained in the legend located next to the map. Additionally, a table is shown below the map, presenting the area (in hectares) and percentage of total area for each land use type in the selected case study. A screenshot of the tool, showing the map, legend, and table, is provided in Figure 12.

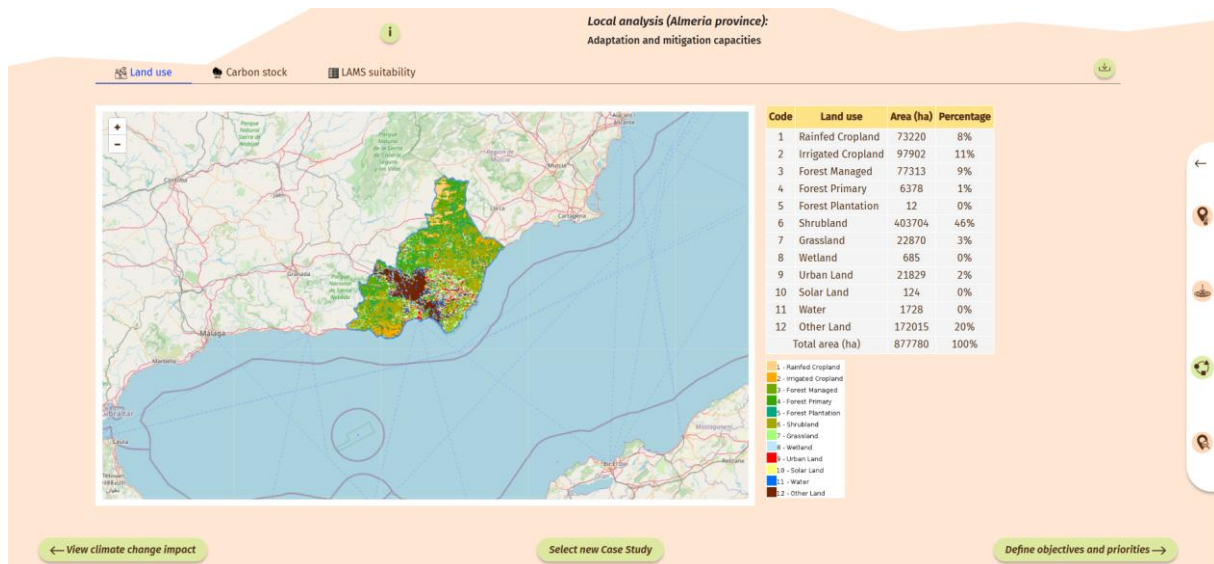


Figure 12. Land use in Adaptation and mitigation capacities feature.

From the interactive header (Figure 13) the end user can navigate from the “Land Use” menu to the “Carbon Stock” or “LAMS Suitability” menus.

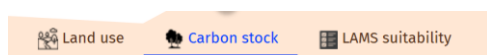


Figure 13. Adaptation and mitigation capacities interactive header.

Figure 13 shows the “Carbon Stock” menu. As in the previous section, an interactive map is displayed, where areas with higher carbon values are represented using more intense colours. A side legend explains the colour scale. This feature allows users to explore carbon stock maps by selecting different variables, including:

- Soil Organic Carbon
- Carbon Stock in Biomass (Above Ground)

- Carbon Stock in Biomass (Below Ground)
- Carbon Stock by Land Use

Users can switch between these views by clicking the corresponding buttons located above the map.

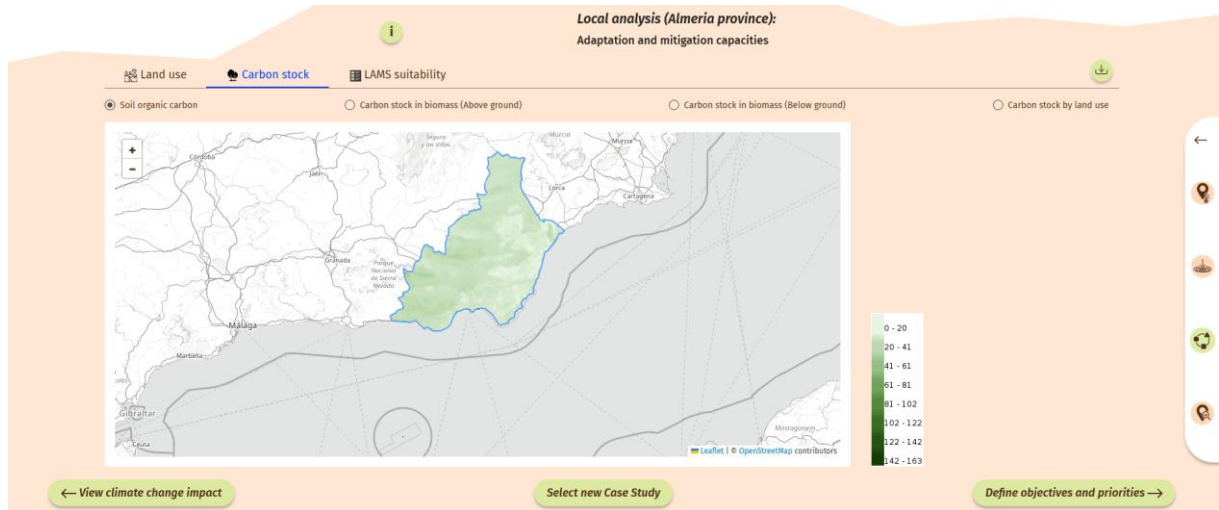


Figure 14. Carbon stock in Adaptation and mitigation capacities feature.

Within the “Adaptation and Mitigation Capacities” section of the Local Analysis Tool, users can access the LAMS Suitability feature. This tool allows users to evaluate the suitability of specific Land-based Adaptation and Mitigation Solutions (LAMS) within the selected case study area. As shown in Figure 15, the user can choose a LAMS from a dropdown menu, which includes several options.

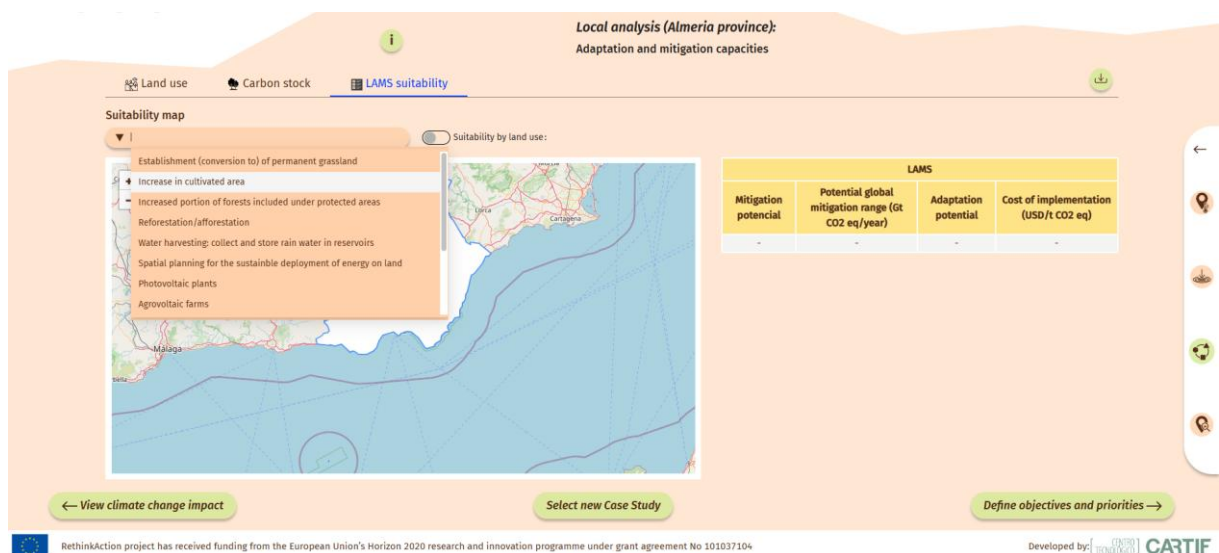


Figure 15. LAMS suitability in Adaptation and mitigation capacities feature – dropdown menu.

As shown in Figure 16, once a LAMS is selected, the interactive map highlights its spatial suitability across the case study area. The colour intensity on the map reflects areas with higher suitability, and a legend

is provided to interpret the values. Alongside the map, a summary table shows four key attributes of the selected LAMS:

- Mitigation potential
- Potential global mitigation range (Gt CO₂ eq/year)
- Adaptation potential
- Cost of implementation (USD/t CO₂ eq).



Figure 16. LAMS suitability in Adaptation and mitigation capacities feature.

By enabling the “Suitability by land use” toggle switch (Suitability by land use:), the interface transitions to a new view (Figure 17), where suitability is broken down by land use categories. This helps users understand which types of land are most appropriate for implementing the selected LAMS.

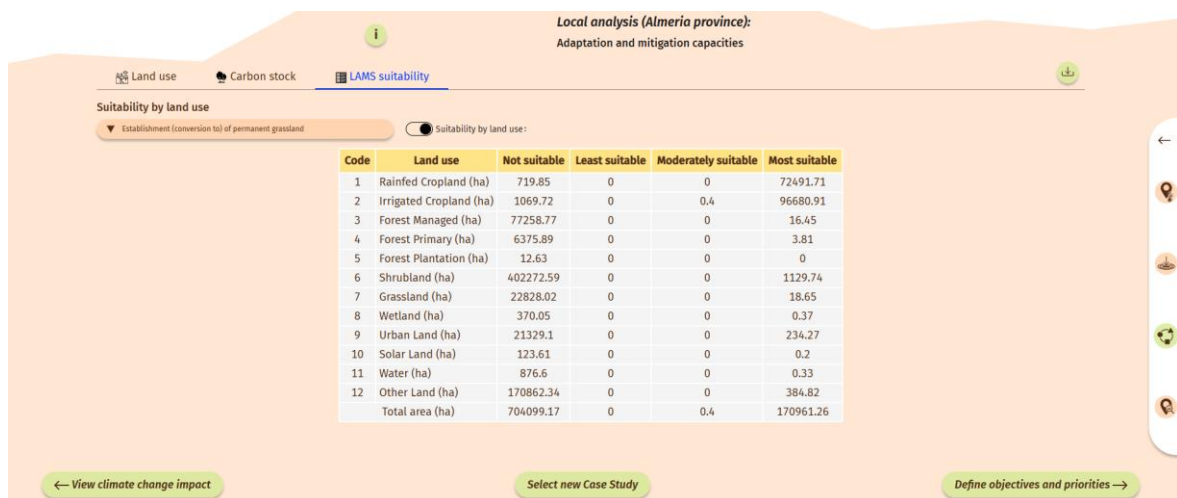


Figure 17. LAMS suitability by Land Use in Adaptation and mitigation capacities feature.

5.3 Project management at Local analysis tool

Once the user has reviewed the baseline of the case study (ECVs, climate change impacts and risks, as well as adaptation and mitigation capacities), they must create a project in order to develop their own package of solutions. This package consists of a set of policies to be applied across different sectors and directed toward specific targets. These policies are then executed by the local model to assess their impact across the defined indicators. This can be done using the button located in the upper right corner of the screen (Figure 18).

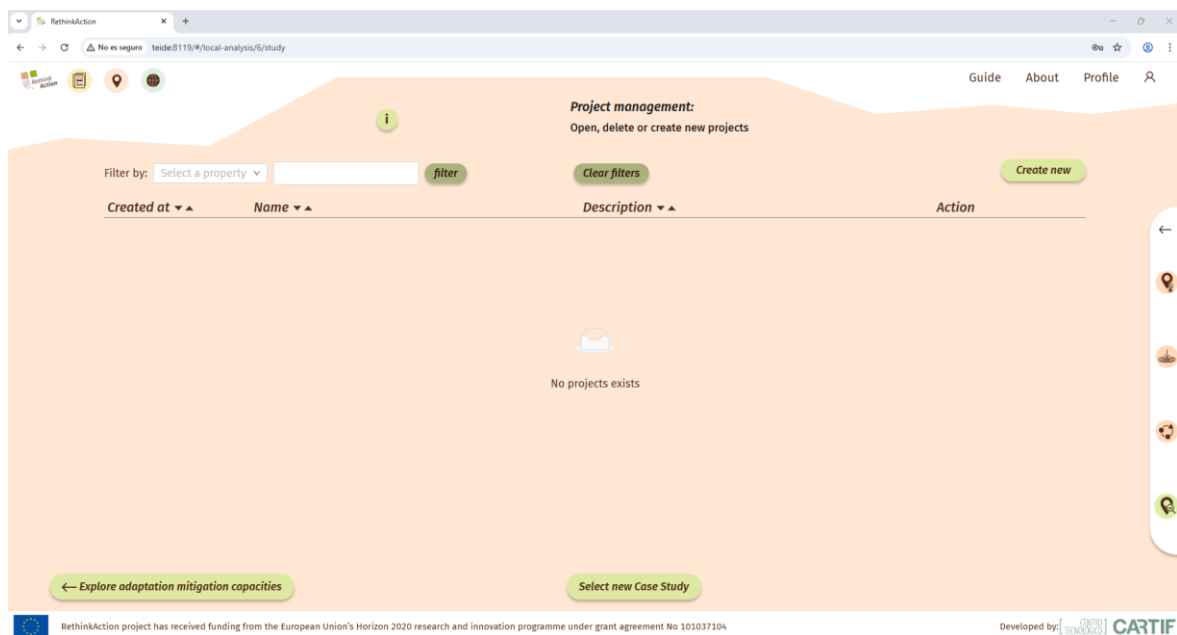


Figure 18. Interface for project creation.

To create the project, the user must define a name and a description for it (Figure 19). Projects can be created by anonymous users or registered ones.

Additionally, there is a button that allows the user to make the project public, so that any user accessing the platform can view the results included in publicly shared projects. The owner of the project can change this configuration any moment after its creation

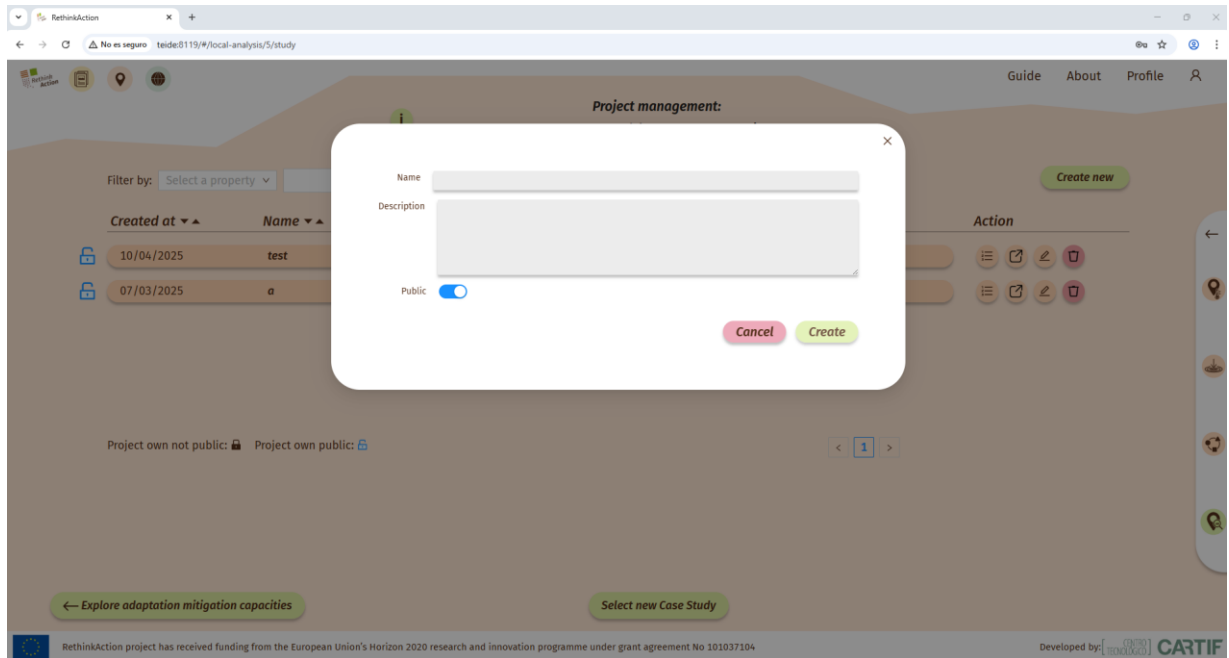






Figure 19. Interface for project creation including the name and description.

Once the project has been created, it will appear listed in the project manager, and the user will be ready to use the platform. Next to the project, the user has access to four buttons corresponding to the actions that can be performed: packages of solutions () , open the project () , edit the project name and description () , and delete the project () . The location of these buttons can be seen in Figure 20.

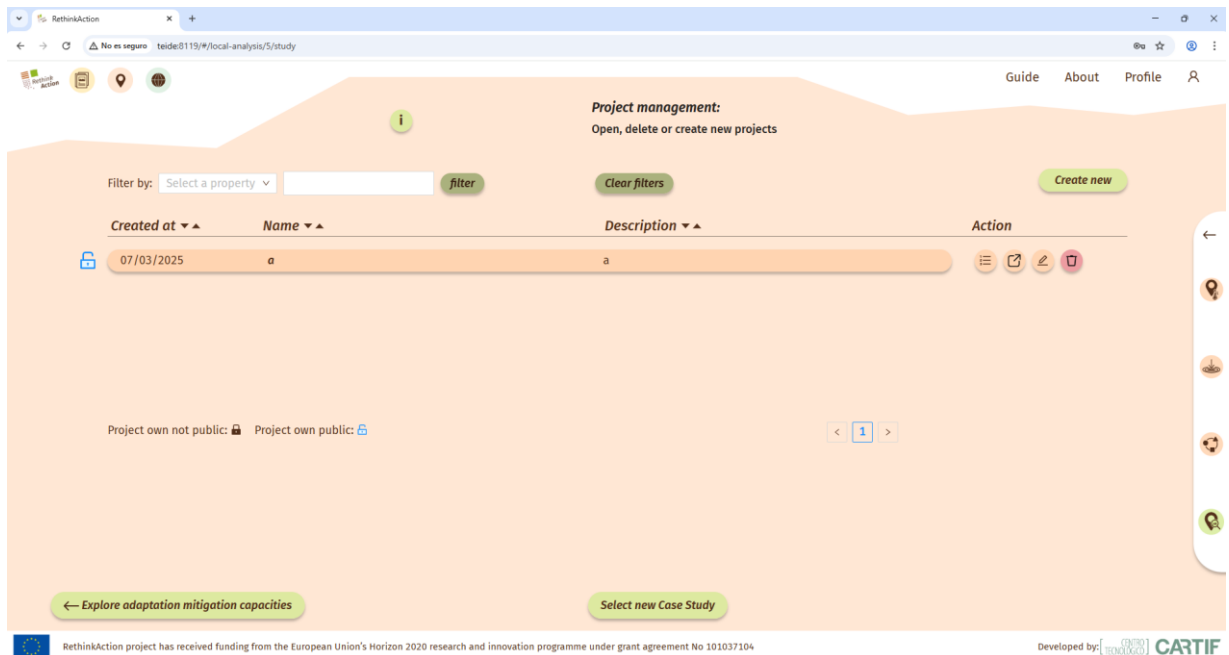


Figure 20. Interface for project management.

The "Packages of Solutions" and "Open Project" features are described in the following Sections 5.4 and 5.5, respectively. Additionally, the Project Management Panel allows the end user to filter their list of available projects by creation date, name, or description as shown in Figure 21 below.

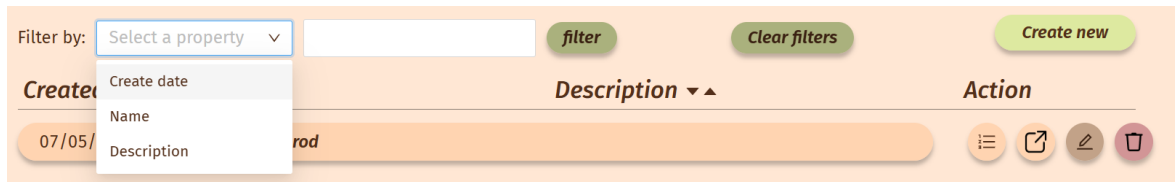


Figure 21. Filter list of projects feature.

5.4 Define objectives and priorities at Local analysis tool

From the project management panel, if the user accesses the solution packages, they will see the screen shown in Figure 22, where the sectors, objectives, and criteria are available to evaluate the relevance of the LAMS when generating a solution package.

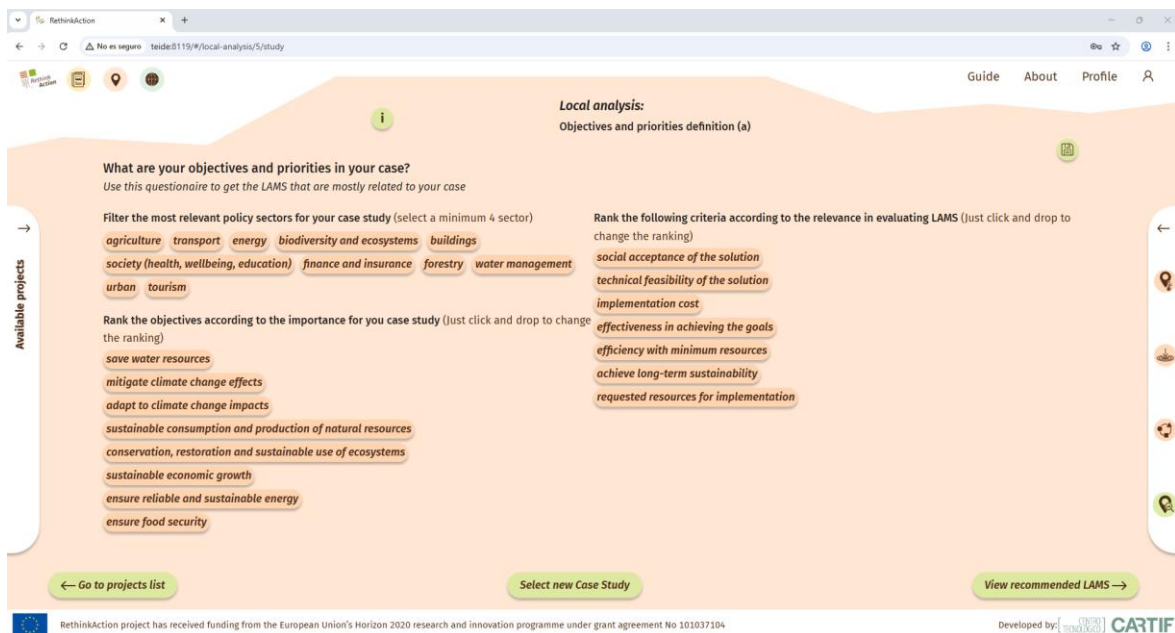


Figure 22. Initial view for the policy package implementation.

To use the package of solutions generator, the user must select at least four sectors and arrange the objectives and criteria (Figure 23) by dragging and placing them in the desired order. It is important to note that the algorithm uses the order of the objectives and criteria exactly as they appear on the screen.

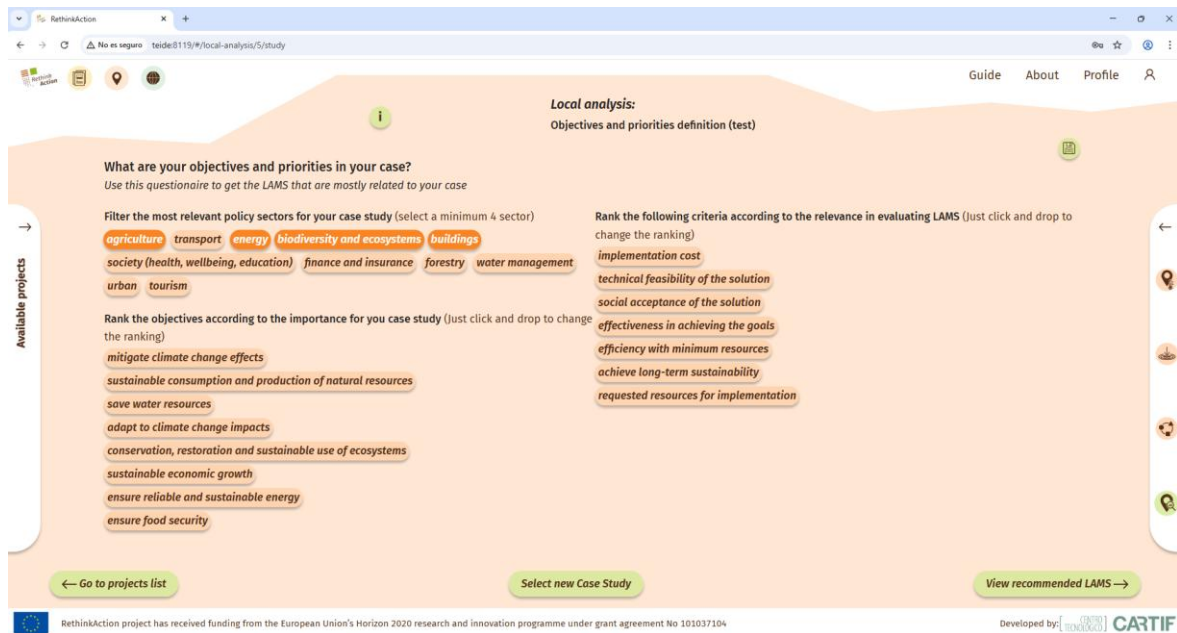


Figure 23. Ranking of policies and selected sectors to configure the package of solutions.

By clicking the “View recommended LAMS” button, the algorithm performs the analysis based on the criteria defined by the user and returns a solution package aligned with the established considerations (Figure 24). The LAMS highlighted in blue are those prioritized by the algorithm. In the box on the right, the user can view the remaining policies included in the LAMS catalogue, which can be added to the package using the button (+). Additionally, the user can remove policies from the final package (left box) using the button (-). Next to each LAMS, the user has access to a button (more) that allows them to view more information about the policy. By clicking the button (See in LAMS catalogue) the LAMS recommendation selection is directly displayed in the catalogue, as explained in section 4 and shown in Figure 6.

Once the user has completed and created their solution package, they will click on “Save and launch model” to save the solution package and proceed to the next step.

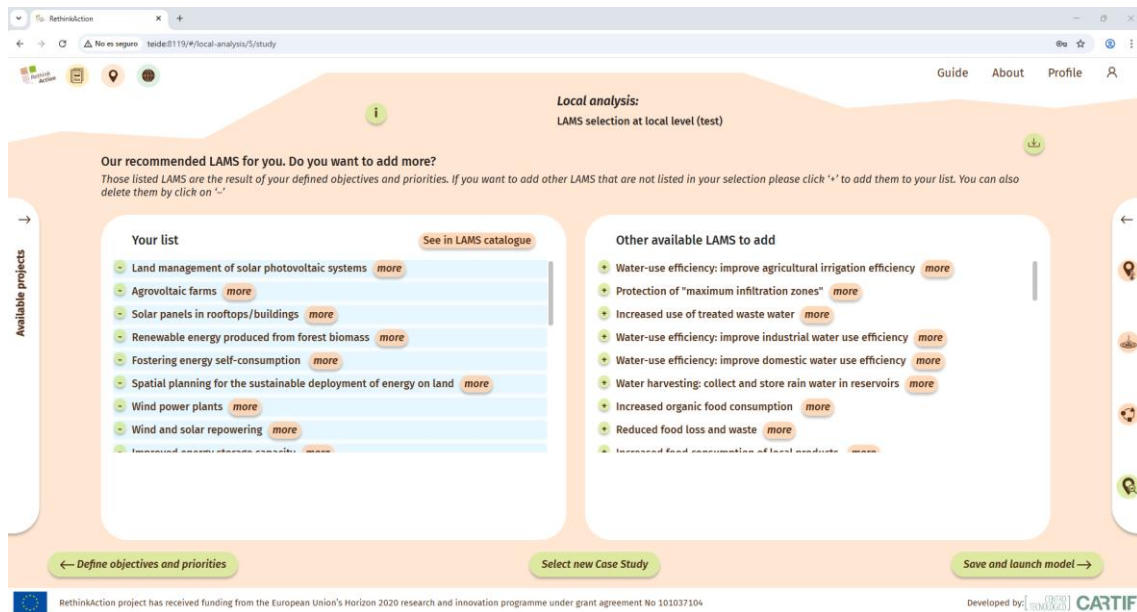


Figure 24. Package of solutions including functionalities to add and delete policies.

5.5 Launch local models

Once the user has evaluated and defined their solution package, they will be ready to test it within the model to understand its effects at the case study level. The platform will guide the user to an interface where the LAMS integrated into the local model are organized by sector (Figure 25). The sectors are specified at the top of the screen, with the currently selected sector highlighted in blue.

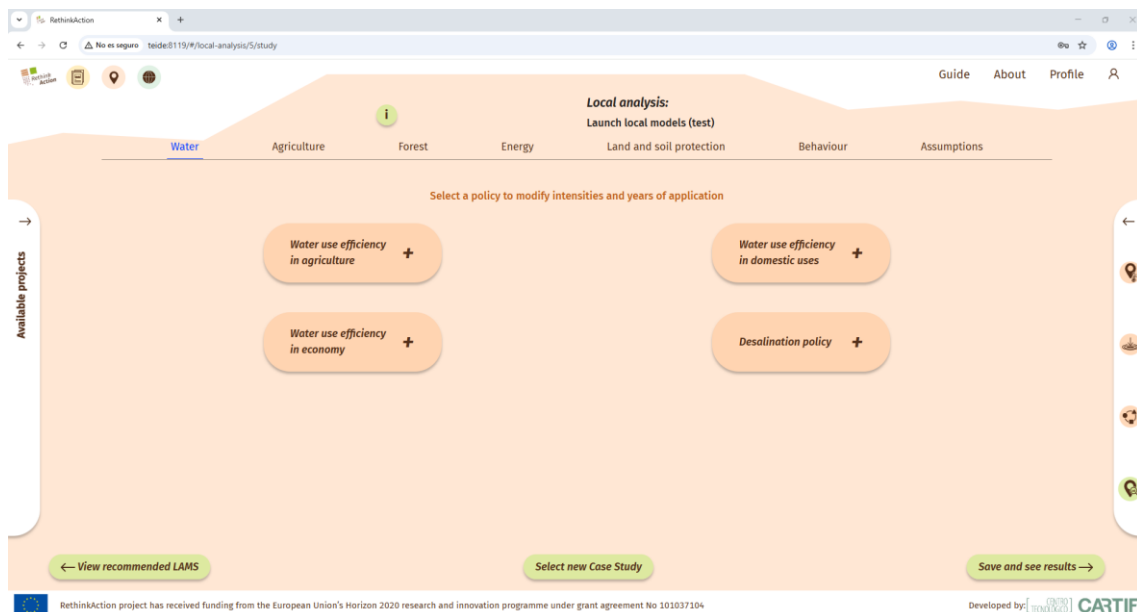


Figure 25. Initial view of the policy selection by sector.

Within each sector, the policies are displayed in boxes and referenced by their names. If the user selects a box by clicking on it, the platform will open a new window where the user can specify the intensity of the policy implementation when it is included as part of the simulation. Depending on the policy, the user may be able to activate it, define a target, and set the start and end years for its implementation (Figure 26). In some cases, this structure may vary slightly depending on the number of policies within each sector or the configuration fields associated with each policy.

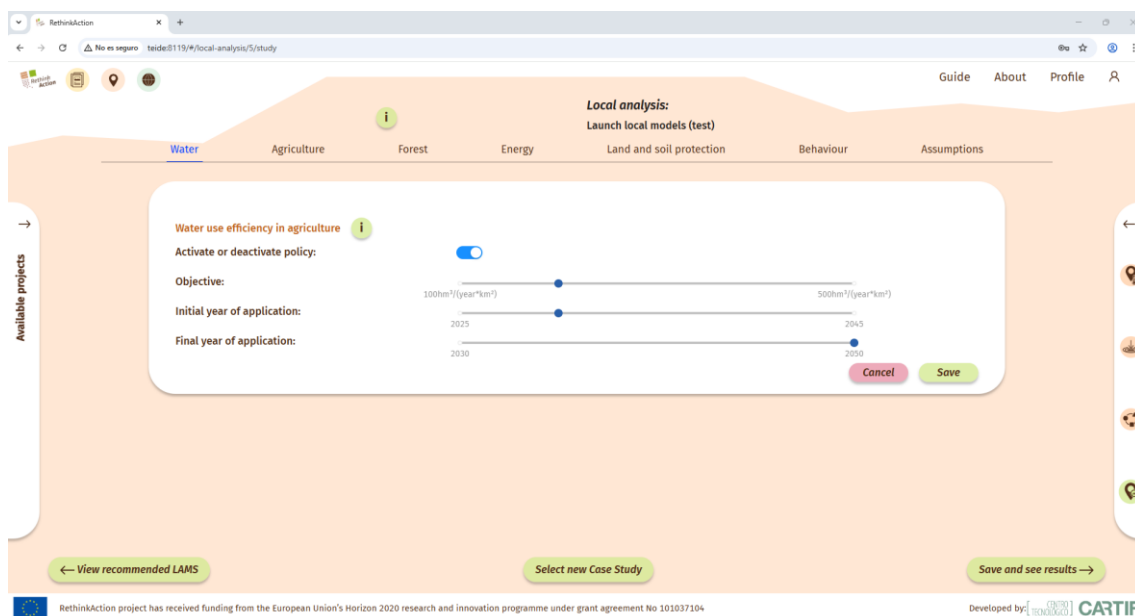


Figure 26. Interface for policy parametrization.

Once the end user has activated the relevant policies and defined their intensity, the local model (see Deliverable D7.3 Section 5.1 for details [5]) can be launched by clicking the “See Results” button. The simulation will require a couple of minutes for collecting the results.

In the results section, the outputs of the local SD model are displayed using different types of graphs, including lines and stacked charts, allowing users to explore and compare the impacts of different policy configurations in a visual format (Figure 27). The platform is developed to make feasible the comparison of different scenarios thanks to a check button included above the graphs (Compare with baseline:). When this button is activated with a stacked graph, two graphs will be represented in the platform at the same time making feasible the comparison of both scenarios. In the graphs, the user can activate and deactivate series and see the values in each year by moving the cursor over each of the series included in the graph (Figure 28).

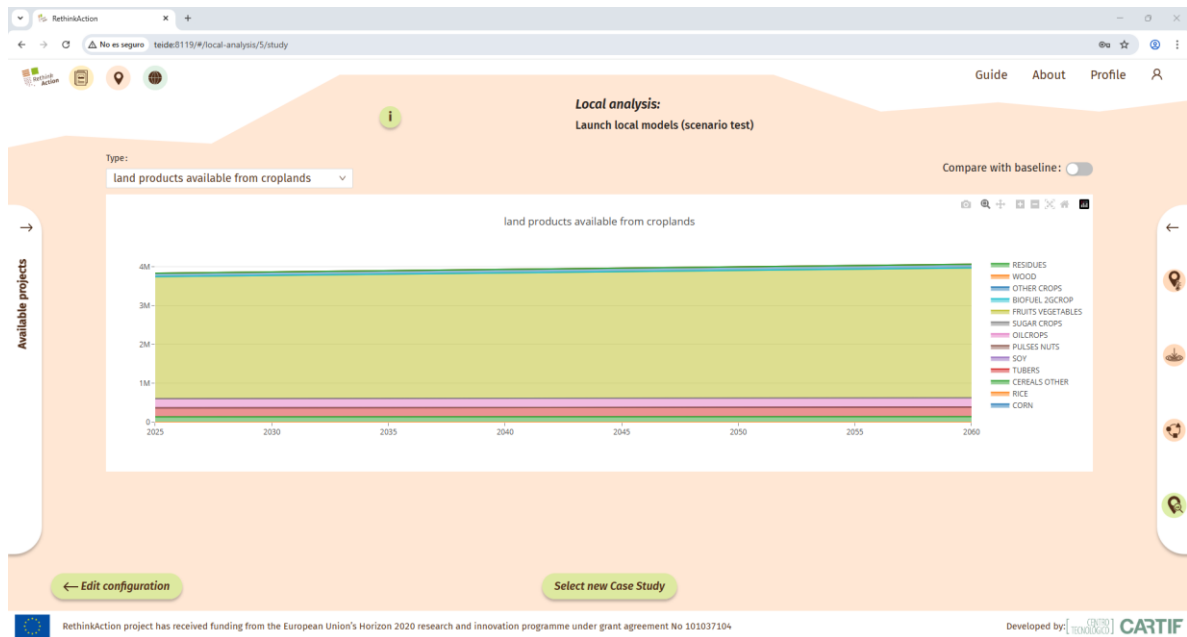


Figure 27. Interface for results visualization.

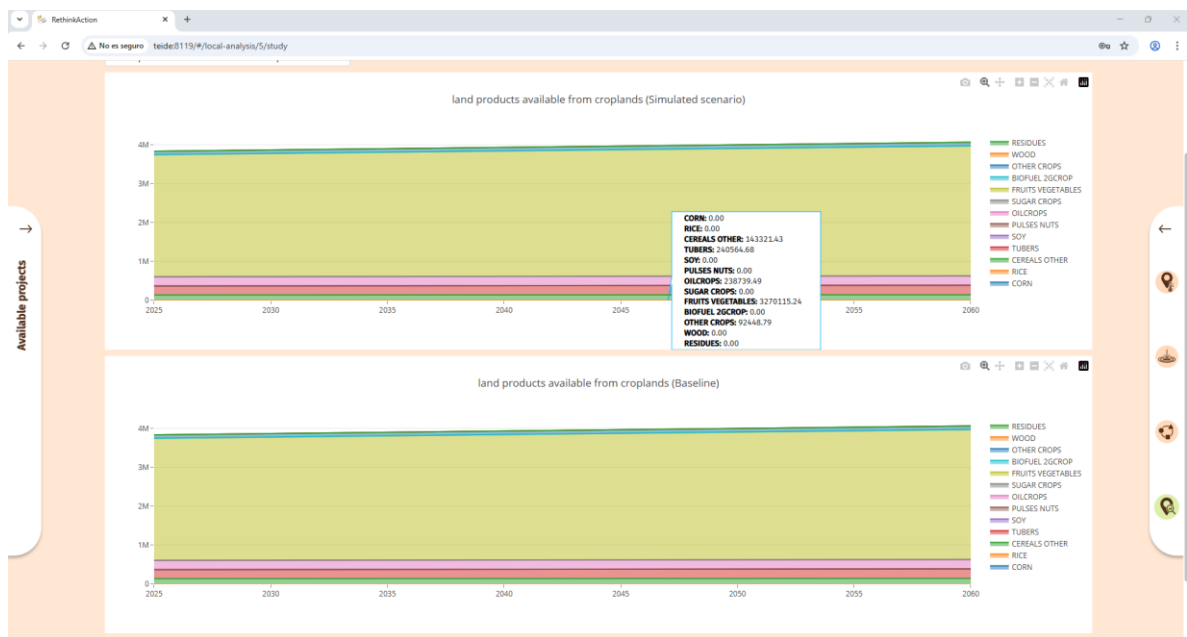


Figure 28. Interface for scenario comparison.

6 EU/Global analysis tool

As reported in D7.5 [1], when the user enters the EU/Global Scale Tool, they are presented with an interactive map capable of displaying ECVs at the EU and global scales. Users can select from a range of variables across three different scenarios and three time periods. The ECVs can be visualized either as

a color-gradient (temperature-style) map or as temporal series, depending on the user's preference, as shown in Figure 29.

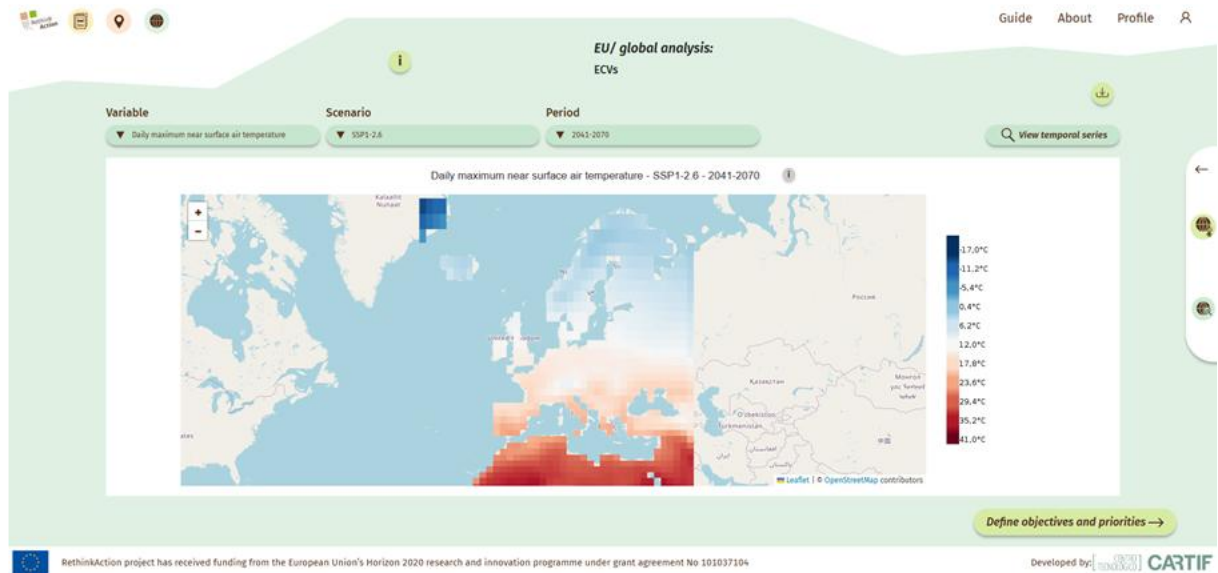


Figure 29. ECVs at EU/Global Scale.

6.1 Project management at EU/Global analysis tool

Once the user has reviewed the ECVs, they can access the project management menu by clicking ([Define objectives and priorities](#)) button. They must create a project in order to develop their own package of solutions. This can be done using the button located in the upper right corner of the screen (Figure 30).

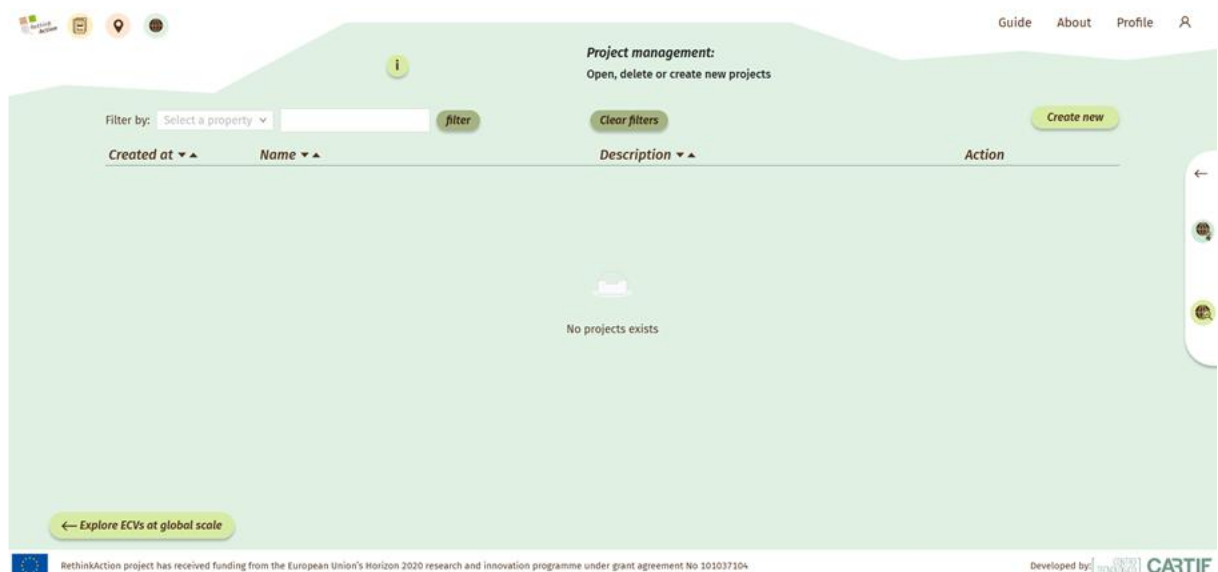


Figure 30. Project management landing menu at EU/Global Scale tool.

To create the project, the user must define a name and a description for it (Figure 31). Additionally, there is a button that allows the user to make the project public, so that any user accessing the platform can view the results included in publicly shared projects.

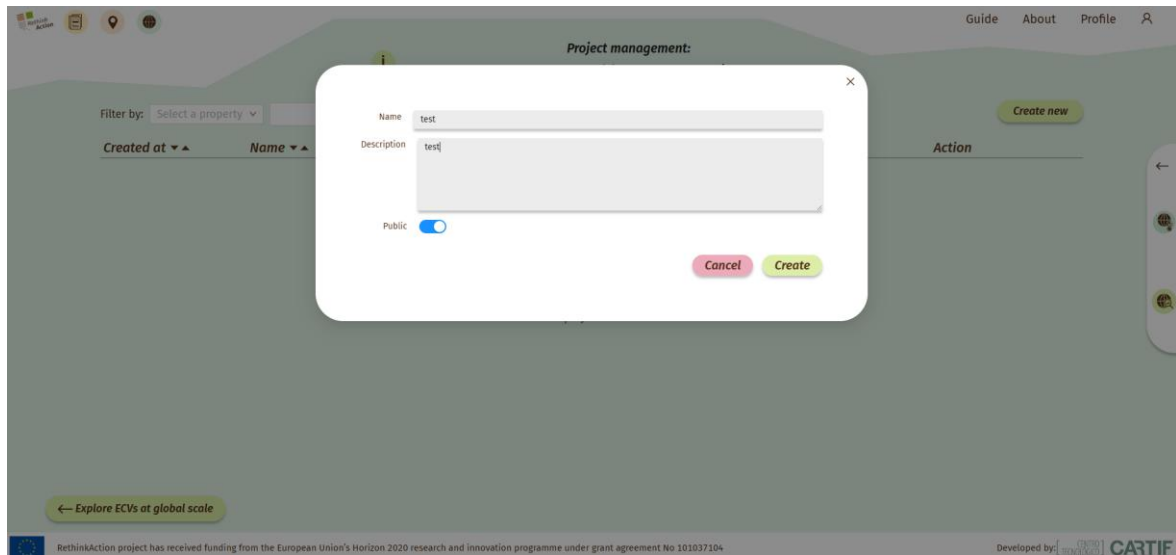






Figure 31. Create new project menu at EU/Global Scale tool.

Once the project has been created, it will appear listed in the project manager, and the user will be ready to continue developing analyses using the platform. Next to the project, the user has access to four buttons corresponding to the actions that can be performed: packages of solutions () , open the project () , edit the project name and description () , and delete the project () . The location of these buttons can be seen in Figure 32.

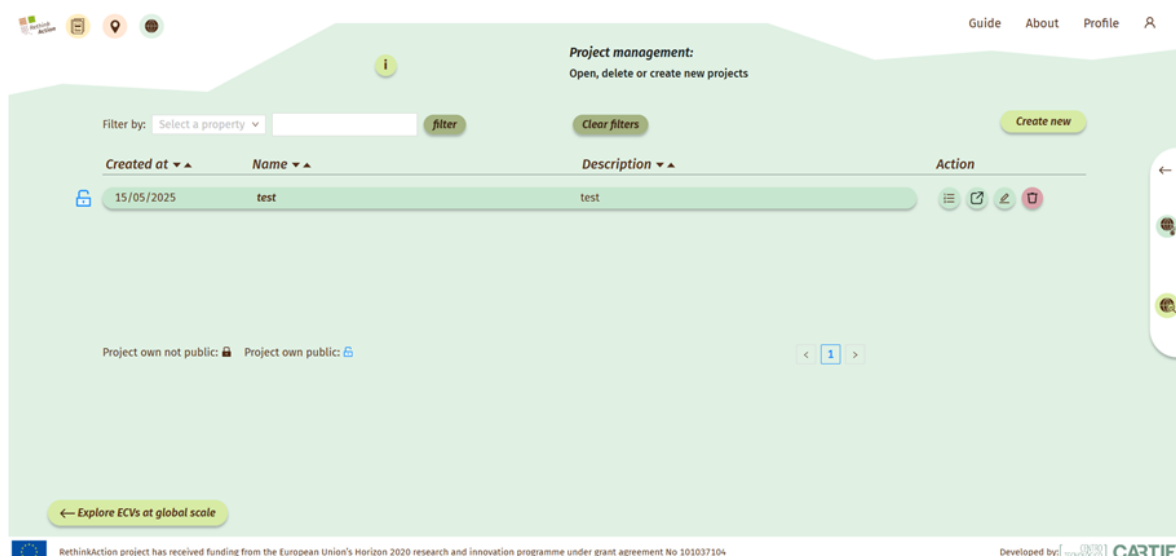


Figure 32. Project management menu showing created project at EU/Global Scale tool.

The "Packages of Solutions" and "Open Project" features are described in the Section 6.2 and Next steps section 7.1, respectively. Additionally, the Project Management Panel allows the end user to filter their list of available projects by creation date, name, or description as shown in Figure 33 below.

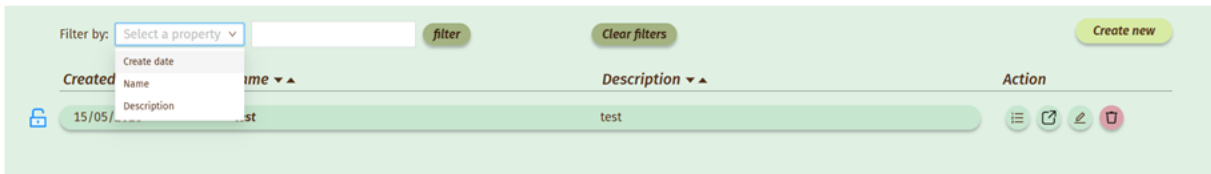


Figure 33. Projects filtering option at EU/Global Scale tool

6.2 Define objectives and priorities at EU/Scale analysis tool

From the project management panel, if the user accesses the solution packages, they will see the screen shown in Figure 34, where the sectors, objectives, and Key Performance Indicator (KPIs) are available to evaluate the relevance of the LAMS when generating a solution package.

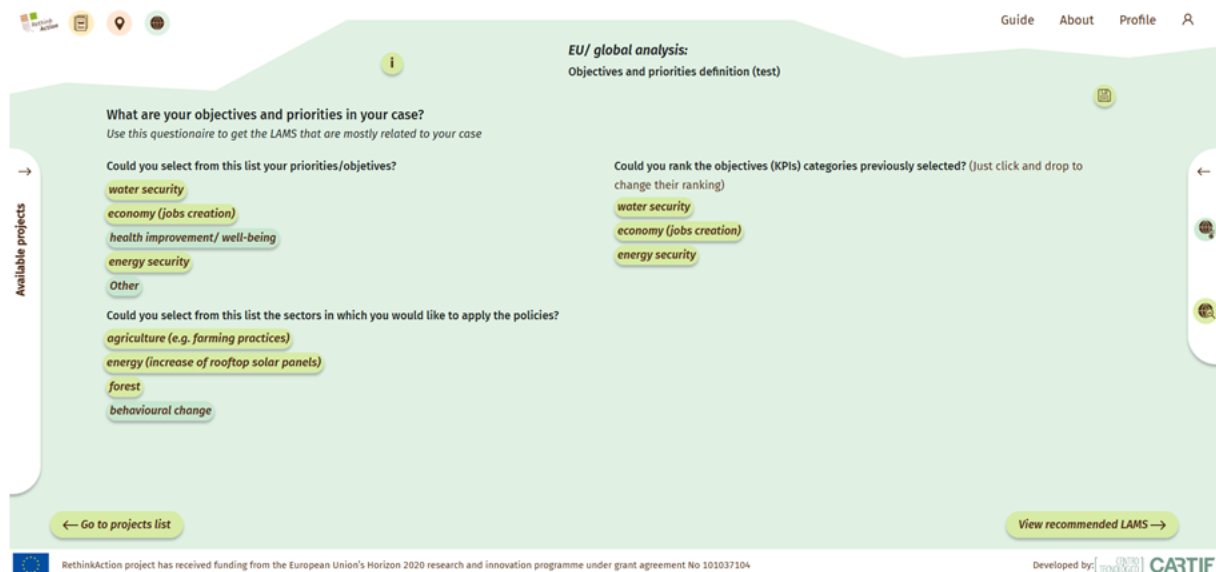


Figure 34. Define objectives and priorities definition.

For a correct use of this package of solutions generator, The user must select at least one objective/priority, and then drag and drop them to rank their importance. Additionally, the user is required to select at least one sector in which they would like to apply the policies. (Figure 34). In the case of objectives, the user will select one and drag it to place it in the desired order. It is important to note that the algorithm uses the order of the objectives exactly as they appear on the screen.

By clicking the ([View recommended LAMS](#)) button, the algorithm performs the analysis based on the criteria defined by the user and returns a solution package aligned with the established considerations (Figure 35). The

policies highlighted in blue are those prioritized by the algorithm. In the box on the right, the user can view the remaining policies included in the LAMS catalogue, which can be added to the package using the button. Additionally, the user can remove policies from the final package (left box) using the button. Next to each LAMS, the user has access to a button (**more**) that allows them to view more information about the policy. By clicking the button (**See in LAMS catalogue**) the LAMS recommendation selection is directly displayed in the catalogue, as explained in Section 4.

Once the user has completed and created their solution package, they will click on (**Save and launch model →**) to save the solution package and proceed to the next step.

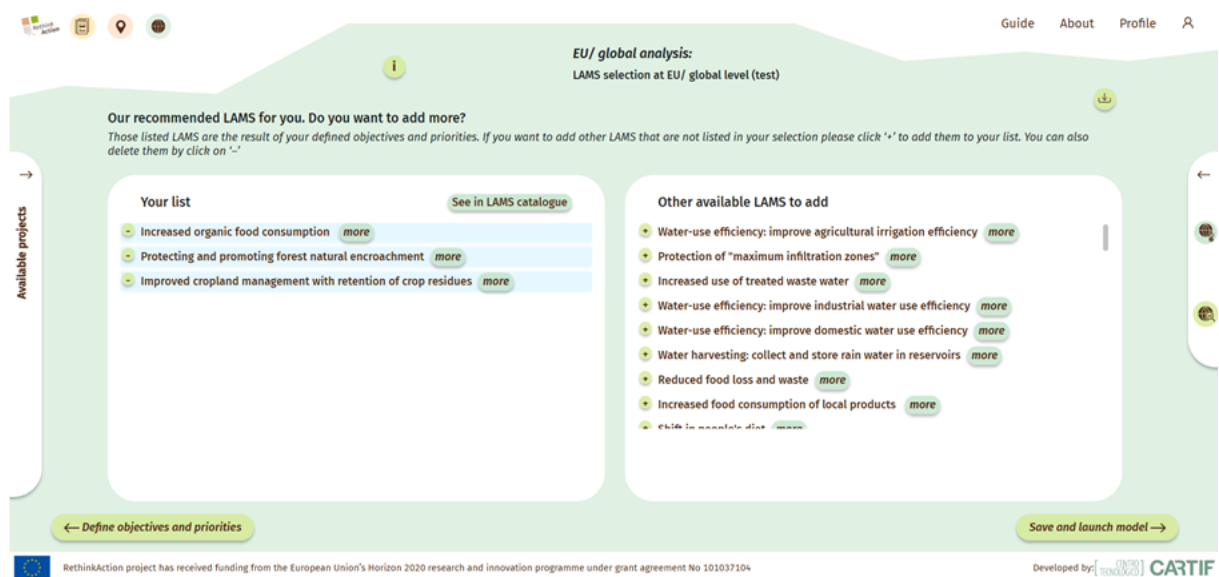


Figure 35. LAMS selection at EU/ global level.

At the time of writing this deliverable, the graphical interface for policy parametrization and the visualization of results from the global model are not yet available in the platform. While the underlying logic supporting these features is already documented in Deliverable D7.3, Section 5 [5], the graphical interface remains at the mock-up stage. A preview of these mock-ups, along with the planned implementation steps, is presented in Section 7 – Next steps.

7 Next steps

The final stages of the RethinkAction platform development will continue to follow the agile methodology adopted throughout the project. Development is organized into short, focused iterations (sprints), enabling continuous integration of feedback and incremental implementation of features. At the time of writing this deliverable, five additional sprints remain, each lasting approximately three

weeks. During this period, the remaining functionalities—particularly those related to the Local Analysis Tool and the EU/Global Analysis Tool—will be finalized and integrated into the platform. All remaining functionalities are currently in the mock-up stage, with their corresponding backend logic already developed and documented. These mock-ups serve as the visual foundation for the upcoming implementation work. The development process is supported by a CI/CD (Continuous Integration/Continuous Deployment) strategy, managed through our GitLab environment. This ensures that new code contributions are systematically tested, validated, and deployed, reducing risks and maintaining consistency across platform components.

7.1 Next steps for Launch global models

As described in Section 6.2, the global model functionality is a key feature of the EU/Global Analysis Tool. It enables users to configure, simulate, and interpret policy impacts on climate change mitigation at the global scale. This functionality will be developed along three differentiated user roles: experts, policy makers, and citizens, each offering tailored levels of complexity, control, and visualization. The specific path will be displayed to the user based on their role selection made upon entering the platform.

7.1.1 Policy Configuration (Expert role)

The expert interface allows users to explore a wide range of policy categories (e.g., regenerative agriculture, afforestation, diets, land use density) and configure their implementation by global region. As shown in Figure 36, users can browse policies through a horizontal tab menu and activate configuration panels for specific regions such as Europe 27, LATAM, China, etc.

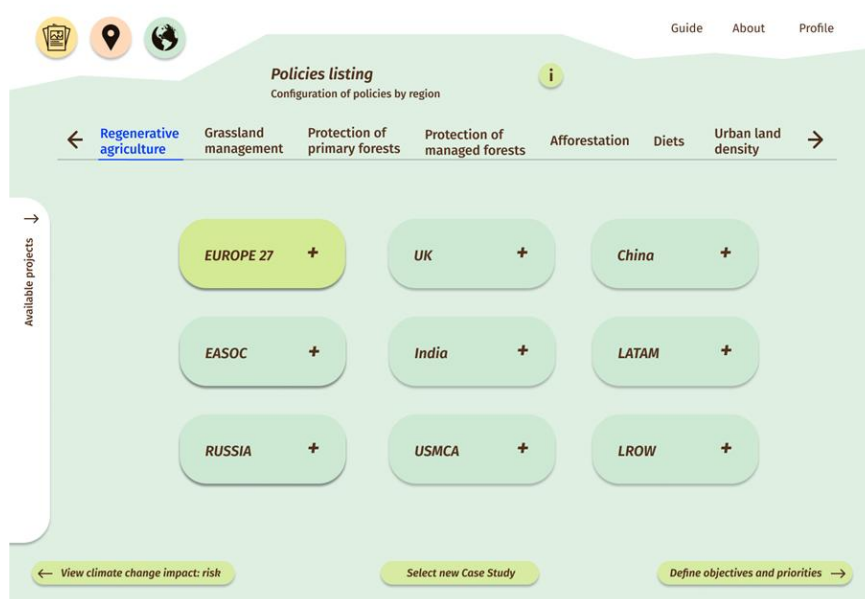


Figure 36. Configuration of policies by region.

Once a region is selected, a detailed configuration panel (Figure 37) allows the user to:

- Activate/deactivate a policy,
- Define its objective/intensity (e.g., percentage of agricultural area under regenerative practices),
- Set the initial and final years of application using adjustable sliders.

Both the region menu and the configuration may suffer minor modifications depending on the policy complexity.

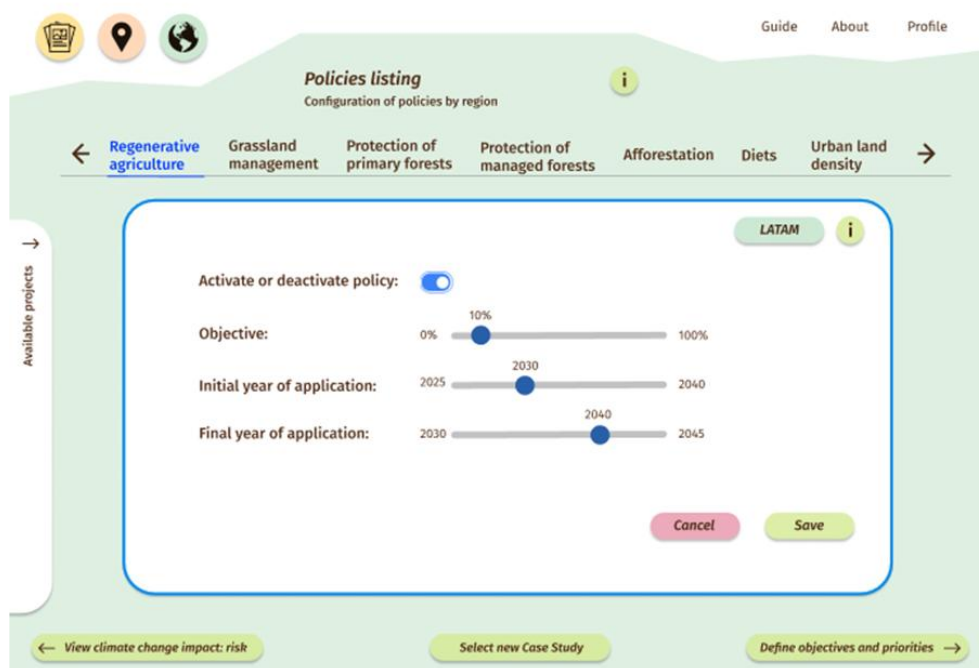


Figure 37. Policy parametrization menu.

After defining a global scenario and running the model, the platform presents the simulation results using interactive visualizations (see Figure 38). In this interface, users can analyze indicators by type and region, view comparative indicators under the simulated scenario versus a defined baseline and review scenario descriptions, including policy combinations and intensities.

These results are aimed at supporting expert-level users in evaluating complex interactions between policy measures and global-scale climate indicators.

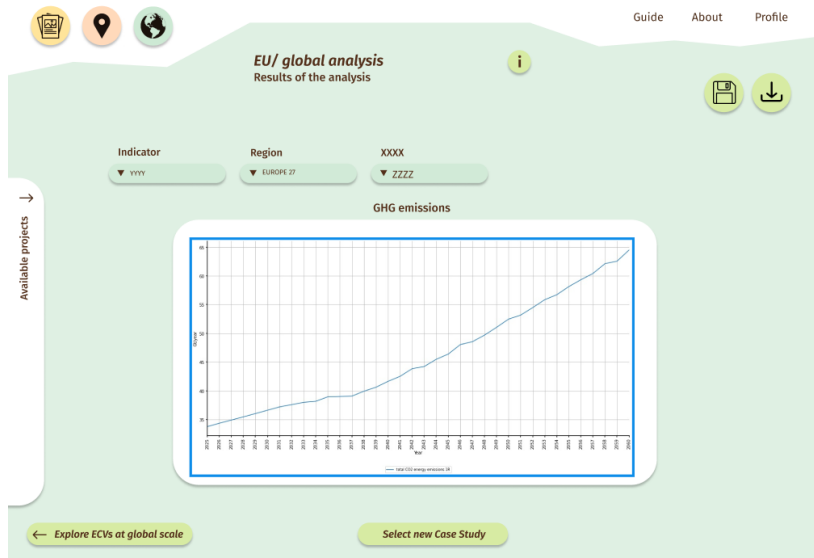


Figure 38. Visualization of results at expert role.

7.1.2 Policy Configuration (Policymaker role)

In addition to the expert path, the RethinkAction platform is also developing a second scenario configuration path tailored specifically for policy makers. This path simplifies interaction with the global model while maintaining an appropriate level of depth, allowing policy professionals to explore predefined scenarios and compare the impacts of various strategic approaches. As shown in Figure 39, the policy maker interface offers a curated list of predefined global policy scenarios, each corresponding to a key strategic question (e.g., "Solar Energy for Sustainable Future"). Each scenario includes a "Know more" button to access additional context and options.

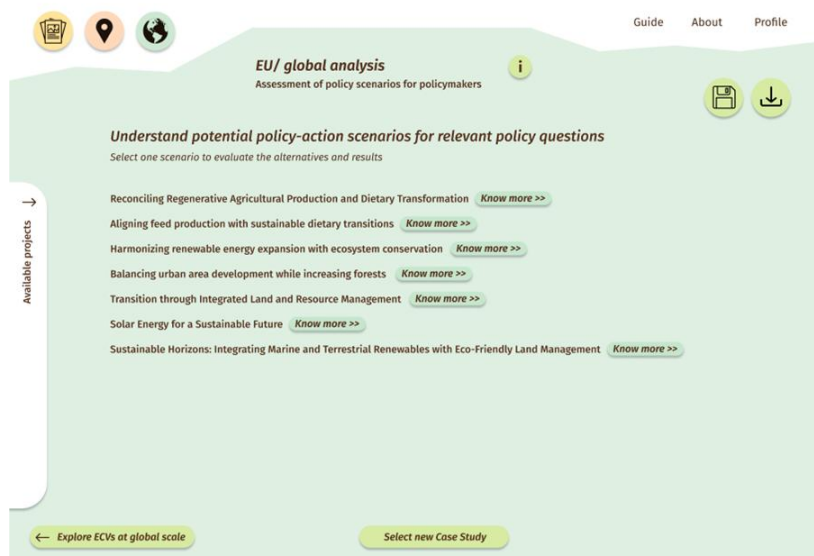


Figure 39. Scenario selection menu.

Upon selecting a scenario (Figure 40), users are provided with:

- A clear goal definition, outlining the strategic objective.
- A summary of expected benefits (e.g., biodiversity gains, emission reductions).
- A list of the main policies included in the scenario (e.g., regenerative agriculture, dietary shift).
- The option to explore results under Low, Medium, or High application levels of those policies.

This structure simplifies complex configurations into meaningful policy levers, helping policy makers to quickly compare alternatives without needing to set detailed parameters.

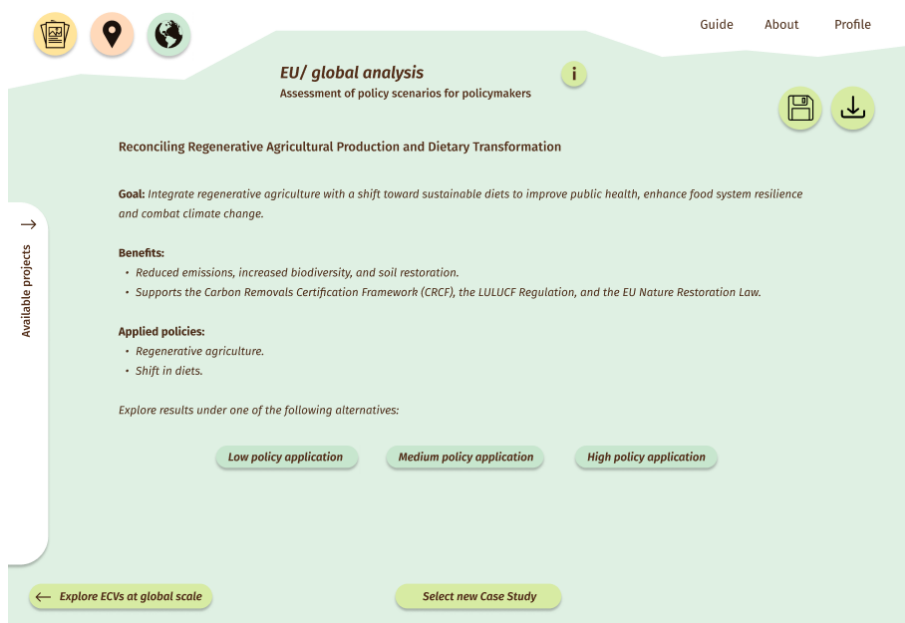


Figure 40. Scenario description.

After choosing a scenario and application level, the platform presents the simulation results using interactive visualizations (see Figure 41). In this interface, users can analyze variables by type and by year, view comparative indicators under the simulated scenario versus a defined baseline and review scenario descriptions, including policy combinations and intensities. These results are aimed at supporting policymakers users in evaluating interactions between policy measures and global-scale climate indicators.



Figure 41. Results visualization for policy maker role.

7.1.3 Policy Configuration (Citizen role)

The citizen path in the EU/Global Analysis Tool is designed to promote awareness, engagement, and understanding of how individual behaviours relate to broader climate and land-use policies. It simplifies interaction with the global model by connecting abstract policy actions with everyday activities, making the platform accessible and educational for non-expert users.

As shown in Figure 42, users are presented with a visual gallery of policies, each framed with a short, user-friendly title and a motivational tagline (e.g., “Caring for the earth, we care for our future”). These include land-based strategies such as regenerative agriculture, forest protection, urban land density management, and dietary shifts, among others.

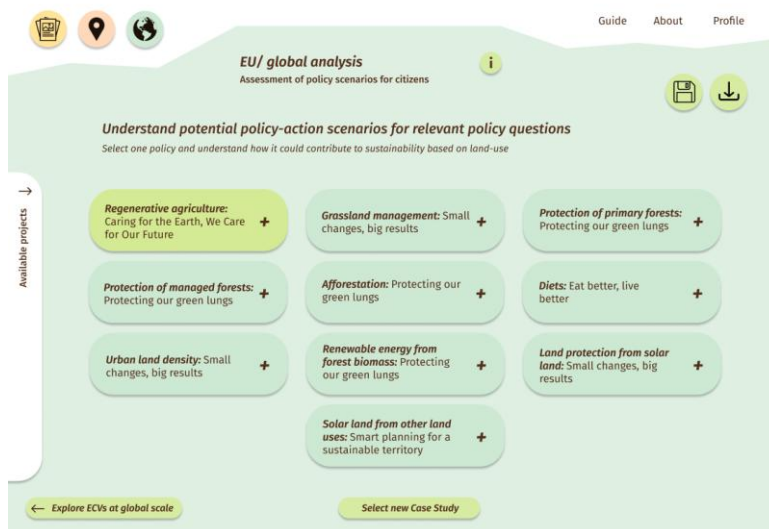


Figure 42. Scenario selection at citizen role.

Upon selecting a policy (Figure 43), the interface explains:

- What the policy entails, in simple and relatable language.
- A list of daily actions citizens can take to support the policy (e.g., buying from sustainable producers, composting food waste).
- The environmental impact of these actions.
- A choice of implementation intensity (e.g., medium or high), allowing users to simulate the potential impact of scaling up personal behaviour.

This framing links personal decision-making with global outcomes, helping users understand their role in climate mitigation and adaptation strategies.

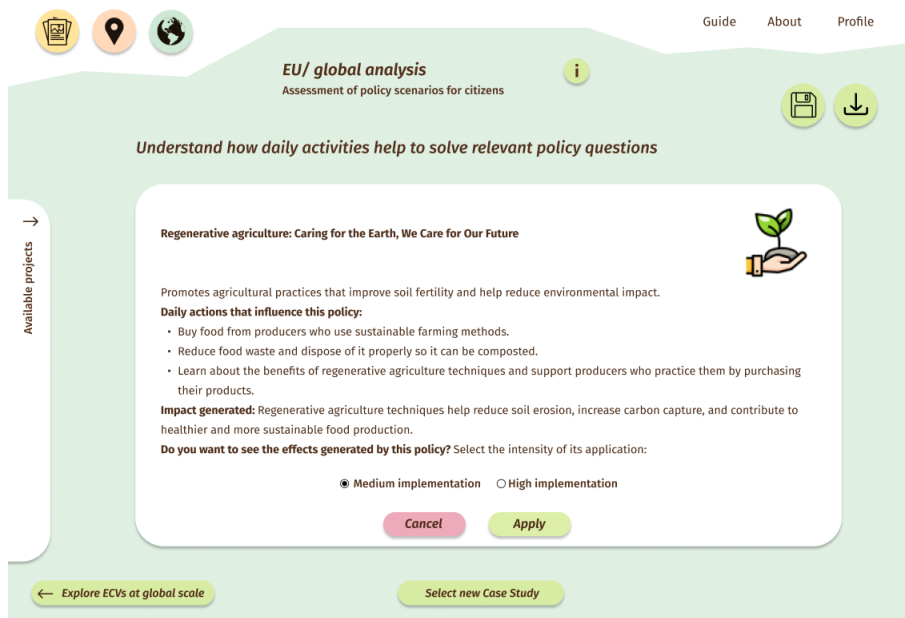


Figure 43. Scenario description at citizen role.

After selecting a policy and an implementation level, the platform displays simplified model results (see Figure 44). These include a temperature change trajectory over time, a Greenhouse Gas (GHG) emissions curve and a summary of the selected policy and its implementation level.

This visualization preserves the scientific basis of the model but is presented in a way that prioritizes clarity and narrative impact over technical detail. The citizen path serves both as a learning tool and a driver for behaviour change. Given its accessible design and simplified interface, it also holds strong potential for educational use, particularly in teaching contexts and student engagement.



Figure 44. Results visualization at citizen role.

8 Conclusions

Deliverable D7.4 presents the current state of development of the RethinkAction platform, with a particular focus on the progress made in the graphical user interface and the implementation of new functionalities since the last release (D7.5)[1]. The platform has continued its evolution following an agile methodology and CI/CD practices, enabling iterative improvements and incremental releases.

At this stage, the general platform structure (Path 0) and the core functionalities of the three main tools—LAMS Catalogue, Local Analysis, and EU/Global Analysis—are largely implemented. Significant enhancements have been introduced, such as the Best-Case Study Selection Algorithm, the full integration of the Define Objectives and Priorities module into both analysis tools, and the project management functionalities, which allow users to generate, store, and revisit their analysis workflows.

The platform now incorporates new modules to support a complete decision-making cycle. For local analyses, users can define, configure, and launch simulations of land-based solutions adapted to specific case studies. For global assessments, the introduction of three differentiated user paths—expert, policy maker, and citizen—offers tailored experiences that adapt the complexity of the tool to the profile and needs of the user. All corresponding interfaces are currently in the mock-up stage, while the backend logic is already developed and validated.

The use of interactive elements—such as maps, charts, and comparative visualizations—enhances user understanding and facilitates the evaluation of adaptation and mitigation strategies. Furthermore, all new features are supported by robust technical infrastructure built on widely adopted technologies (e.g., Angular, FastAPI, Docker, PostgreSQL), with automated testing strategies ensuring stability and reliability.

While the platform is approaching its final stage of development, several components remain to be finalized and deployed in the coming sprints. These include the implementation of the mock-up interfaces for the global model user paths and the graphical output of simulation results in both local and global tools. These tasks are clearly identified and scheduled in the Next Steps section.

In conclusion, the RethinkAction platform has reached a high level of maturity, offering a rich, user-centred environment for exploring climate adaptation and mitigation options based on land use. With only a few development cycles remaining, the platform is on track to deliver a robust, flexible, and accessible decision-support tool tailored to multiple stakeholder needs across different scales.

References

- [1] RethinkAction D7.5 – “RethinkAction platform prototype”.
- [2] RethinkAction D7.2 – “Synthesis of the integration of databases for the RethinkAction data layer”.
- [3] RethinkAction D2.7 – “Report on the requirements of platform users”.
- [4] RethinkAction D7.1 – “Platform architecture and technical requirements”.
- [5] RethinkAction D7.3 – “Computational modules of RethinkAction platform”.
- [6] RethinkAction D2.5 – “Report on the Activities with the End-User Community II”.



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