Cross-sectoral planning decision-making platform to foster climate action

Rethink Action

D 7.6 | Final RethinkAction platform and related user manuals

WP7 – RethinkAction Platform: design, development and deployment

Version 1.0 | September 2025

H2020-LC-GD-2020-2: LC-GD-9-2-2020. Developing end-user products and services for all stakeholders and citizens supporting climate adaptation and mitigation

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101037104.

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Document History

Project Acronym	RethinkAction
Project Title	Cross-sectoral planning decision-making platform to foster climate change
Project coordination	CARTIF
Project duration	48 Months [October 2021 – September 2025]
Title	D7.6 – Final RethinkAction platform and related user manuals
Dissemination Level	Public (PU)
Status	Final
Version	1.0
Work Package	WP7 – RethinkAction platform: design, development and deployment
Lead Beneficiary	CARTIF
Other Beneficiaries	-
Author(s)	Víctor Iván Serna (CARTIF), Sara Barilari (CARTIF), Iván Ramos Diez (CARTIF), Laura Rodrigo Hernando (CARTIF), Manuel Pérez del Olmo (CARTIF)

Date	Ver.	Contributers	Comment
30/05/25	0.0	Víctor Iván Serna (CARTIF)	Table of content
19/6/25	0.1	Víctor Iván Serna (CARTIF), Sara Barilari (CARTIF), Iván Ramos Diez (CARTIF), Laura Rodrigo Hernando (CARTIF), Manuel Pérez del Olmo (CARTIF)	1st version of the Annex User Manual
19/08/25	0.2	Víctor Iván Serna (CARTIF), Sara Barilari (CARTIF), Iván Ramos Diez (CARTIF), Laura Rodrigo Hernando (CARTIF), Manuel Pérez del Olmo (CARTIF)	2st version of the Annex User Manual

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101037104.

28/08/25	0.3	Víctor Iván Serna (CARTIF), Sara Barilari (CARTIF), Iván Ramos Diez (CARTIF)	Content of the deliverable
10/09/25	0.4	Víctor Iván Serna (CARTIF),	Minor changes, improvements.
19/09/25	0.5	Robert Oakes (UNU), Kariuki Weru (UNU), Peter Gyuris (GEO)	Document review
25/09/25	0.6	Víctor Iván Serna (CAR)	Updated version with the review comments
30/09/25	1.0	Iván Ramos (CARTIF)	Final version ready for submission

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List of Organizations

	Participant Name	Short Name	Country	Logo
1	Fundación CARTIF	CARTIF	Spain	
2	University of Valladolid	UVa	Spain	
3	IVL Swedish Environmental Research Institute	IVL	Sweden	
4	RINA Consulting	RINA-C	Italy	
5	Euro-Mediterranean Center of Climate Change	CMCC	Italy	
6	Climate Media Factory	CMF	Germany	
7	National Observatory of Athens	NOA	Greece	
8	GMV Aerospace and Defence SAU	GMV	Spain	
9	FCiências.ID - Associação para a Investigação e Desenvolvimento de Ciências	FC.ID	Portugal	
10	ICLEI - Local Governments for Sustainability e.V. (World Secretariat) 10 A | ICLEI European Secretariat GmbH	ICLEI	Germany	
11	United Nations University - Institute for Environment and Human Security	UNU-EHS	Japan	
12	Geonardo	GEO	Hungary	
13	Institut National de la Recherche pour l'Agriculture, l'Alimentation et l'Environnement	INRAE	France	

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Abbreviation and Acronyms

Acronym	Description
AI	Artificial Intelligence
API	Application Programming Interface
CS	Case study
ECV	Essential Climate Variable
EU	European Union
GIS	Geographic Information System
GPR	General Platform-related Requirement
GUI	Graphic User Interface
HTTP	Hypertext Transfer Protocol
IAP	Intelligent Assessment Platform
IDE	Integrated Development Environment
LAMS	Land use-based Adaptation and Mitigation Solutions
NFR	Non-functional requirement
NUTS	Nomenclature of Territorial Units for Statistics
SDG	Sustainable Development Goals
SSP	Shared Socio-economic Pathways

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Executive summary

The RethinkAction Integrated Assessment Platform is a comprehensive tool designed to support climate adaptation and mitigation planning across local, regional and global scales. It brings together climate, socio-economic and land-use datasets with advanced modelling and visualization tools to provide stakeholders with evidence-based insights into land-use-based adaptation and mitigation solutions.

The platform offers three user roles (citizen, policymaker and expert), each with tailored functionalities. Citizens access simplified modes that promote awareness and engagement, policymakers explore predefined scenarios to guide strategic decision-making and experts configure detailed policy simulations with full control over regions, intensity levels and time horizons. This role-based approach ensures accessibility, usability and relevance for a wide range of users.

Key features include the LAMS Catalogue, Local Analysis tools for case studies and climate risk assessment, and Global Analysis tools for policy simulation and evaluation. The platform also incorporates interactive dashboards, visualization capabilities and the possibility to create and manage policy/scenario simulation projects.

To guarantee accessibility and effective use, the platform is complemented by a set of support resources: an integrated User Manual, in-platform guidance tools and a Massive Open Online Course (MOOC). In addition, all datasets used in the platform are publicly available the RethinkAction *Zenodo* repository, ensuring transparency and reusability.

Overall, the final version of the platform represents a major step forward in enabling stakeholders to understand climate challenges, test solutions and assess policy impacts. It contributes to European efforts by combining scientific knowledge, participatory approaches and tools, as well as innovative technologies into a user-friendly resource.

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1 Introduction

The RethinkAction Integrated Assessment Platform is the major outcome of a progressive development process carried out in Work Package 7. Each stage has been documented in previous deliverables, starting with the initial architectural design and technical requirements (D7.1), followed by the integration of databases into a coherent data layer (D7.2), the definition and implementation of computational modules (D7.3), the design of the graphical user interface and core functionalities (D7.4) and the release and testing of platform prototypes (D7.5). Building on these foundations, the deliverable D7.6 consolidates the final version of the platform and provides the related user manuals and support materials.

The platform has been designed to empower a diverse range of stakeholders (including citizens, policymakers and experts) to explore Land-use-based Adaptation and Mitigation Solutions (LAMS), assess climate risks and evaluate the potential impacts of policies at local, regional and global levels. By combining geospatial data, simulation models and interactive visualization tools, the platform enables evidence-based decision-making while promoting awareness and engagement on climate change issues.

Overall, the RethinkAction platform stands as a comprehensive and user-friendly resource to support climate adaptation and mitigation planning.

1.1 Purpose of the document

The purpose of this document is to describe the final version of the RethinkAction platform, including its functionalities, access modes, technical requirements and user support materials. It builds upon the outcomes of previous deliverables in Work Package 7 and provides a consolidated reference for the platform as it becomes publicly accessible. The document highlights the innovations introduced and the role-based access approach.

The deliverable also presents the complete set of user support materials, including the User Manual, in-platform guidance tools and a Massive Open Online Course (MOOC). These resources provide accessibility and smooth interaction for users with different technical backgrounds. Furthermore, all datasets used within the platform are openly available through the RethinkAction Zenodo repository, ensuring transparency, reproducibility and long-term usability.

1.2 Structure of the document

The document is structured as follows:

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- Section 1: Introduction - Provides an overview of the document, including its purpose and structure.
- Section 2: User profiles and roles - Description of the three user roles (Citizen, Policymaker, Expert) and the corresponding access to functionalities.
- Section 3: Final functionalities of the platform - Overview of the consolidated tools and capabilities available in the platform.
- Section 4: Access and usage - Information on access modes, technical requirements and data handling practices.
- Section 5: User support materials - Presentation of the support resources available, including the User Manual, in-platform guidance tools and the MOOC.
- Section 6: Conclusions - Summary of the main outcomes and added value of the platform.
- References - Lists the sources and documents referenced throughout the report.
- Annex: Final User Manual - Complete guide for platform navigation and functionalities.

2 User profiles and roles

The RethinkAction Platform is designed to accommodate a wide range of users with varying levels of technical expertise and planning responsibilities. To achieve this, the platform includes a role-based access system that modifies the user experience and pathwyas according to the selected profile. This approach ensures usability, relevance and clarity for all stakeholders, from citizens to policymakers and technical experts.

The primary differences between user roles lie in:

- The number of Essential Climate Variables (ECVs) available: Expert users have full access to all variables, while citizens and policymakers are provided with a reduced and simplified set to ease interpretation.
- Access to the global policy assessment functionality:
    - Citizens interact with a guided interface featuring one policy at a time and a simplified configuration.
    - Policymakers choose from predefined policy scenarios and define implementation intensity.
    - Experts have full control over policy activation, intensity levels, regional coverage and time horizons.

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2.1 Citizen role

The Citizen role is designed to promote awareness, education and engagement in climate and land-use issues without requiring technical knowledge. Adapted features of this role include:

- Access to a reduced set of ECVs at local and global levels:
    - At the local level:
        - Maps: Access limited to the 5 Basic ECVs.
        - Time series: Access limited to the 5 Basic ECVs.
    - At the global level:
        - Maps: Access limited to the 8 Basic ECVs.
        - Time series: Full access to all 8 variables available for time series.
- Pre-simulated global policy assessment: users choose from a curated list of policy actions (with information about the daily actions that individuals can take to support implementation and the potential global impact of the policy), select implementation intensity (medium/high) and receive immediate visual feedback on projected temperature change and GHG emissions in maps formats.

This simplified interaction helps citizens understand how everyday actions and strategic land-use measures are connected to global climate goals.

2.2 Policymaker role

The Policymaker role is designed to support strategic decision-making by local, regional and national authorities. It provides access to pre-defined tools and datasets that enable users to assess climate and land-use policy impacts without needing to manage technical model configurations. Adapted features of this role are:

- Access to a reduced set of ECVs at local and global levels:
    - At the local level:
        - Maps: Access limited to the 5 Basic ECVs.
        - Time series: Access limited to the 5 Basic ECVs.
    - At the global level:
        - Maps: Access limited to the 8 Basic ECVs.

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- Time series: Full access to all 8 variables available for time series.

- Pre-simulated global policy scenarios: Policymakers can select from a set of predefined global strategies, each representing a coherent group of land-use-based actions targeting objectives such as sustainable agriculture, renewable energy expansion, or biodiversity protection. For each scenario a clear description of the strategy is provided and the applied policies and expected benefits are listed. The user selects the implementation intensity (low, medium, or high) and once a scenario is selected and configured, the platform immediately displays the pre-simulated results, including:
  - Global temperature change by 2050.
  - Total GHG emissions by 2050.
  - Charts for additional indicators relevant to the selected strategy, shown alongside the baseline for easy comparison.

This role provides policymakers with accessible and actionable insights to explore long-term outcomes and support high-level planning in line with climate and sustainability goals.

2.3 Expert role

The Expert role is intended for users with a strong technical background in climate modelling, land-use planning, or systems analysis. It offers full access to all functionalities of the platform and allows in-depth configuration of global and local policy scenarios. Adapted features of this role include:

- Access to a complete set of ECVs at local and global levels:
  - At the local level:
    - Maps: Full access to all 39 variables (5 Basic + 34 Derived).
    - Time series: Full access to all 30 variables (5 Basic + 25 Derived).
  - At the global level:
    - Maps: Full access to all 22 variables (8 Basic + 14 Derived).
    - Time series: Full access to all 8 variables available for time series.
- Advanced global policy configuration: Experts can access and configure 12 individual land-use-based policy types, including afforestation, dietary change, forest protection and land-use for renewable energy. For each policy, users can:
  - Select specific regions (across 10 global areas such as EU27, China, India, LATAM, etc.).

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- Activate or deactivate the policy per region.
- Set implementation intensity using a slider.
- Define the start and end years for application.

- Dynamic simulation results: Once configured, the platform runs the scenario and provides a comprehensive set of outputs, including:
  - Climate indicators (e.g. temperature, GHG emissions).
  - Land use and carbon stock changes.
  - Energy and food system impacts.

  Results can be explored by region and indicator using dropdown filters, comparisons with the baseline and interactive charts.

This role supports deep analysis, allowing experts to test complex global strategies, explore systemic interactions and serves evidence-based decision-making at multiple scales.

3 Final functionalities of the platform

The final version of the RethinkAction Integrated Assessment Platform brings together a comprehensive set of tools designed to support decision-making on land-use-based adaptation and mitigation strategies. The platform integrates climate, socio-economic and land-use data with simulation models, presented through a user-friendly interface adapted to the different user roles.

Below is a summary of the core functionalities available in the final release:

General Functionalities

- User registration and login: Create and manage secure user accounts, with the option to access as a guest (guests experience a limited functionality in the project creation and in downloading information).
- Role selection and management: Assign one of three user roles (Citizen, Policymaker, or Expert), each with tailored access to tools and data.
- Main navigation bar and help tools: Access to platform sections (Catalogue, Local Analysis, Global Analysis), the user manual and platform information via the top bar and other pop-ups and hovers with definitions and support information.

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Catalogue Tool (PATH A)

- Interactive visual catalogue of 62 Land-use-based Adaptation and Mitigation Solutions (LAMS), organized by sector and solution type.
- Detailed LAMS factsheets which are downloadable in PDF format and include implementation details, SDG contributions and related references.
- Search and filter tools to explore LAMS based on keywords, expected impacts and resource requirements.
- LAMS recommendation system, allowing users to define priorities and receive a tailored shortlist of suggested solutions.

Local Analysis Tool (PATH B)

- Case study selection, either manually or via the "Find the Best Match" tool based on user location and climate relevance.
- ECV visualizations, displaying maps and time series of key climate variables, with variable access to detail depending on user role.
- Climate risk assessment, including hazard, exposure, vulnerability and risk maps. Also, the primary impact chains developed for each case study, can be viewed for further context.
- Land use and carbon stock mapping, with interactive subtabs and time-series views.
- Suitability maps for LAMS, supporting local decision-making.
- Storage of user's project, i.e. configuration of the project. This configuration includes LAMS package selection and storage of the scenario settings.
- Local policy assessment using system dynamics models, through which users define goals and evaluate the impacts of LAMS combinations over time.
- Simulation result visualization, including indicators such as GHG emissions, land use change and energy demand.

EU/Global Analysis Tool (PATH C)

- Global ECV visualizations, showing maps and time series of Essential Climate Variables.
- Policy assessment module, tailored to users' roles:

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- Citizen: Guided selection of individual policies with intuitive explanations, implementation intensity options and pre-simulated results for temperature and GHG emissions.
- Policymaker: Selection of predefined policy strategies with adjustable intensity, pre-simulated results for multiple indicators compared to the baseline.
- Expert: Full configuration of policy actions by region, sector, intensity and time horizon, with dynamic simulation results across multiple indicators and regions.

- Interactive result dashboards, with filtering options and downloadable visualizations.

In the next table the summary of the platform functionalities can be seen organized by user role.

Table 1. Summary of the final platform functionalities by user role.

Functionality	Citizen	Policymaker	Expert
User registration & role selection	✔	✔	✔
Access to help & user guide	✔	✔	✔
ECVs – Local (maps/time series)	5 Basic ECVs	5 Basic ECVs	39 ECVs (maps), 30 (time series)
ECVs – Global (maps/time series)	8 Basic ECVs (maps), all 8 (time series)	8 Basic ECVs (maps), all 8 (time series)	22 ECVs (maps), all 8 (time series)
LAMS Catalogue access	✔	✔	✔
LAMS search/filter functions	✔	✔	✔
LAMS recommendation system	✔	✔	✔
Case study selection (manual/match)	✔	✔	✔
Local climate risk analysis	✔ Simplified maps	✔ Intermediate detail	✔ Full detail
Local carbon stock & land use	✔	✔	✔
Suitability maps for LAMS	✔	✔	✔
Create and manage local projects	✔	✔	✔
LAMS package builder (Local tool)	✔	✔	✔
Local project creation	✔	✔	✔
Local policy simulation (SD model)	✔	✔	✔
View and compare local results	✔	✔	✔
Global policy assessment – selection	✔ One-by-one policies	✔ Predefined scenarios	✔ Full custom configuration

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Functionality	Citizen	Policymaker	Expert
Global policy assessment – intensity control	Medium/High only	Low/Medium/High	Slider per region & policy
Global policy results	✔ Temperature & GHG (pre-simulated)	✔ Indicators vs. baseline (pre-simulated)	✔ Full indicator set (dynamic simulation)

4 Access and usage

The final version of the RethinkAction Integrated Assessment Platform is publicly accessible, hosted by CARTIF and can be accessed at the following URL:

Platform access link: *https://tools.cartif.es/rethinkaction*

4.1 Access modes

Users can interact with the platform in one of the following ways:

- Guest access: This mode allows users to explore most of the platform's functionalities, including navigating the LAMS catalogue, browsing Essential Climate Variables (ECVs) etc. However, guest users have some limitations:
    - Download options for certain graphs and outputs are disabled (While downloads are restricted, all core datasets and figures are publicly available through the RethinkAction *Zenodo* repository).
    - Project creation and simulations are not permitted.

  This mode is best suited for initial exploration or educational purposes.
- Registered user access: Creating an account allows to use all functions of the platform. Registered users can:
    - Create and manage projects in the Local Analysis section.
    - Configure and run policy simulations using local System Dynamics models or global policy tools (depending on the user role).
    - Store and revisit simulation results in a structured and organized way.
    - Download graphs and outputs at the adequate sections of the platform.

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Requiring user registration for simulations ensures a consistent workflow and helps manage potentially long processing times (up to several minutes for complex scenarios), while preserving each user's configuration and results for later access.

4.2 Technical requirements of the RethinkAction Platform

The platform is web-based and requires no installation. Recommended specifications include:

- Modern web browser. Google Chrome is recommended for a better experience (optimized for version 140).
- Stable and broadband internet connection.
- Medium to large screen for optimal data display.

4.3 Data handling and privacy

Regarding the data management and the privacy:

- All user data is stored securely on CARTIF-managed servers.
- Public and private project settings allow users to control the visibility of their simulations.
- The platform complies with GDPR standards. No sensitive personal data is collected beyond login credentials (name, surname, email and password).

5 User support materials

To ensure a smooth and accessible user experience, the RethinkAction Platform is accompanied by a comprehensive set of support materials. These resources are designed to help users of all profiles navigate the platform, understand its functionalities and make effective use of its tools and data.

The following support materials have been developed and are available either directly within the platform or as standalone documents:

5.1 User Manual

A complete and structured User Manual is available within the platform via the top navigation bar ("Guide" section).

The manual provides guidance and also detailed step-by-step instructions for each section of the platform (Catalogue, Local Analysis, EU/Global Analysis).

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It is adapted to each user role and includes explanations of key functionalities, interface elements, glossary and information supplement.

The User Manual is available as an Annex to this deliverable.

5.2 In-Platform Guidance Tools

The platform includes tooltips, hover texts and button labels throughout the interface to assist users in real time while using the platform.

Icons and filters are accompanied by short descriptions to clarify their functions and purpose.

5.3 Online Course (MOOC)

A Massive Open Online Course (MOOC) has been developed in parallel with the platform to provide additional educational support. This educational support material has been developed within Task 9.3.

The course contains video tutorials, interactive quizzes and walkthroughs for each module of the platform. It is structured around user engagement and replication of the services, and it is aligned with the platform's main functionalities and objectives.

The MOOC can be found in the following link:

https://rethinkaction.thinkific.com/products/courses/rethinkaction-platform-course

More details on the MOOC can be found in D9.4

5.4 Additional Materials and Data Access

The datasets used in the platform are available for public access through the RethinkAction Zenodo repository, ensuring transparency and reusability. The used dataset are available in Zenodo here:

https://zenodo.org/communities/rethinkaction/records?q=&f=resource_type%3Adataset&l=list&p=1&s=10&sort=newest

Additionally, the *RethinkAction Zenodo* repository contains more information about the processes implmented to generate specific datasets. This information is available through publications, deliverables and other documentation of interest.

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6 Conclusions

The final version of the RethinkAction Integrated Assessment Platform consolidates four years of development into a robust and user-friendly tool that supports climate adaptation and mitigation planning at multiple spatial scales. It integrates climate, socio-economic and land-use data with advanced simulation models, offering tailored functionalities for citizens, policymakers and experts.

The platform's role-based design ensures accessibility and relevance for diverse audiences, while its support materials, including the integrated User Manual and the MOOC, facilitate effective use and learning. Open access to datasets through the RethinkAction *Zenodo* repository further strengthens transparency and long-term usability of the poject's results.

Overall, the platform provides an enduring resource for evidence-based decision-making, awareness raising and capacity building, contributing to European and global efforts to address climate change.

References

[1] RethinkAction D7.1 - "Platform architecture and technical requirements"

[2] RethinkAction D7.2 - "Synthesis of the integration of databases for the RethinkAction data layer"

[3] RethinkAction D7.3 - "Computational modules of RethinkAction platform"

[4] RethinkAction D7.4 - "Platform GUI and functionalities"

[5] RethinkAction D7.5 - "RethinkAction platform prototypes"

[6] RethinkAction D9.4 – "Report on capacity building strategy"

Annex

Annex I – RethinkAction Platform: User manual

This user manual is provided as an external document to guide users in the proper use of the Platform.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101037104.

Contact

Fundación CARTIF

E-Mail: rethinkaction@cartif.es

Phone: + 34 983 546 504

Fax. + 34 983 546 521

Parque Tecnológico de Boecillo, parcela 205

CP: 47151, Boecillo (Valladolid), Spain

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101037104.