LIFE CLIMAX PO
Make the Change

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D9.7 Monitoring of the indicators at the end of the first phase

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1 Introduction

The current report aims to update the CLIMAX-PO Key Performance Indicator (KPI) library at the end of the first project phase, in addition to the LIFE Project Indicators (LPIs) selected in Deliverable 9.1. It represents an update of the second version of the KPI library reported in the internal Deliverable D9.6, following its initial introduction in Deliverable D9.8. Throughout the first phase, the library has been continuously reviewed by Work-Package (WP) and Task Leaders to identify and refine the most appropriate KPIs for effectively capturing the wide range of activities carried out within CLIMAX PO. These activities aim to improve the management of hydrological resources in the Po Valley region and to mitigate the impacts of climate change. The KPI library is designed as a tool to support the integration of scientific research with capacity-building actions and public acceptance, across multiple spatial scales ranging from the river basin district to the local level.

Following this brief introduction, section 2 describes the updated KPI library and the distinction between KPIs and LPIs. The section also includes a newly introduced coding system developed to streamline KPI evaluation. Section 3 describes the operationalization of the KPI library within each WP, linking KPIs to the objectives and activities of the related Tasks. This section also clarifies which WPs and Tasks are expected to contribute most significantly to the achievement of the LPIs, by referring to the baseline values and goals reported in Deliverable D9.1. Finally, Section 4 outlines the main conclusions and describes the next steps for the further development and application of the library, which will be addressed in the forthcoming releases of Deliverables D9.6 and D9.7 at the mid-term and end-term of the subsequent project phases, respectively.

2 The Updated CLIMAX-PO KPI Library

This section provides information on the structure of the CLIMAX-PO KPI Library and its developing path to the current report.

2.1 Structure of the CLIMAX-PO KPI Library

The CLIMAX-PO KPI library is designed as a tool to monitor project activities, foster synergies among WPs and facilitate the exploitation of results in policy-making processes. The library includes the KPIs selected by the different WP and Task Leaders based on their relevance to, the project activities. KPIs are classified into three main categories:

- Project KPIs, which quantify overall project achievements, including the provision of exploitable results such as datasets, predictive models, and policies);
- Climate KPIs, which estimate climate trends for hydrological variables in the Po-Valley district and related local-scale changes attributable to the project activities;
- Impact KPIs, which assess the effects of activities across several thematic areas, namely, hazard mitigation, risk reduction, provision of co-benefits, and public acceptance.

This classification reflects the need for climate-adaptation projects to account for the effects of their activities on complex systems in which environmental and socio-economic dimensions coexist and interact.

In this context, Impact KPIs within each thematic area are further subdivided into specific categories. For instance, the bio-geophysical variables for hazard mitigation are further distinguished in agreement with Bowyer et al. (2024):

- Actionable variables, which are directly affected by project activities and can modify the local characteristics of hazards;
- Impact variables whose variations result from changes in actionable variables induced by project activities. These variables describe modified natural processes, quantify the impact of extreme hazardous events, and estimate the effectiveness of project activities.

Risk-reduction KPIs include indicators of exposure and vulnerability, which quantify the elements exposed to hazardous events and their predisposition to be affected, respectively. These KPIs are further classified following Shah et al. (2020) into:

- Ecosystem exposure, quantifying the proportion of land use/ ecosystem area exposed to hazards;
- Social-system exposure, referring to exposed anthropogenic areas, population, infrastructure and services, economy, and livestock population;
- Ecosystem susceptibility, describing the extent to which ecosystems and biodiversity are vulnerable to degradation, fragmentation, or destruction, potentially affecting their status and dynamics;
- Social susceptibility, referring to the vulnerability of society to the degradation, fragmentation, or destruction of economic assets, infrastructure, and essential services;
- Ecosystem robustness, reflecting the ability of ecosystems to cope with changing conditions induced by natural hazards, and the improvement of their functioning through conservation and restoration activities;
- Coping capacity, focusing on the ability of people, communities, and systems to manage and overcome the short-term adverse effects of hazardous events through the availability of infrastructure and services (e.g., disaster-risk reduction and emergency services), access to information, and social cohesion;
- Adaptive capacity, encompassing learning, innovation, and transformation processes to reduce future vulnerability by addressing long-term changes (e.g., climate change) through development plans, adaptation measures, and policies.

Co-benefits refer to additional benefits generated by climate-adaptation measures and policies. The corresponding KPIs are subdivided into environmental and socio-economic indirect benefits according to Ommer et al. (2022).

Finally, public-acceptance KPIs measures the spread and acceptance of good practices among citizens, professionals, and institutions by integrating:

- Mainstreaming of project activities, which measures the increasing number of published outputs or involved stakeholders, indicating the embedding of project activities and results into mainstream discourse and practice;
- Acceptance, which captures local stakeholders' perception of the issues addressed by the project and how these perceptions evolve through participation in project activities;
- Knowledge and awareness, which captures the project's impact on training, education, and the capacity to enhance awareness and understanding of adaptation measures, hydro-meteorological risks, and climate change.

2.2 Evolution of the CLIMAX-PO KPI Library up to Deliverable D9.7

The CLIMAX-PO KPI Library is a continuously evolving tool designed to best reflect the consortium's needs in assessing the activities carried out. Figure 9.1 shows the development path of the CLIMAX-PO KPI Library followed during the first project phase, leading to the update of the second release reported in the current report.

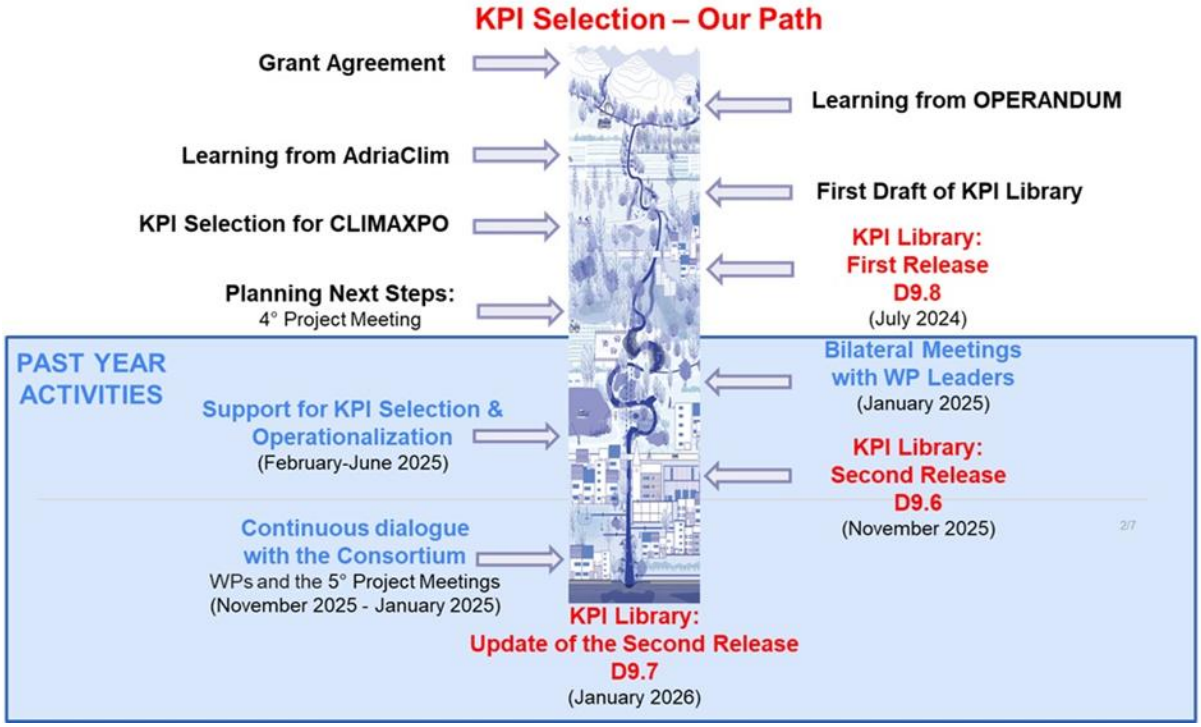

Figure 9.1: Schematic of the KPI-selection path followed for the development of the KPI Library (central figure from PHUSICOS, Deliverable D8.7). The white (blue) section refers to the path followed in the first two years (last year) resulting in the D9.7 version of the KPI Library.

Deliverable D9.8 (July 2024) introduced the KPI framework, the full version of the library including 234 KPIs used in previous projects on climate adaptation, and the initial version of 64 KPI library suitable for the evaluation of CLIMAX-PO activities. This latter selection was subsequently updated in Deliverable D9.6 (November 2025). The main driver of the library's evolution during this project phase has been the continuous dialogue with ADBPO, WP Leaders, and Task Leaders, carried out through Project, WP, and bilateral meetings. Deliverable D9.6 already includes several of the most relevant outcomes of this co-development process reached during the past year such as:

- the classification of the selected KPIs to its corresponding WPs;
- the introduction of the CLIMAX-PO public-acceptance framework;
- a preliminary description of the activities carried out by each WP in relation to the selected KPIs.

Furthermore, Deliverable D9.6 introduces a classification of KPIs into implemented and strategic, in order to distinguish between KPI that describe project activities that lead to a direct modification of the KPI baseline towards a CLIMAX-PO goal and those that contribute to the generation of long-term additional benefits beyond the project.

Implemented KPIs measure the tangible results of project activities leading to local changes in hazard characteristics, a reduction in areas highly vulnerable to these hazards, or the provision of co-benefits. Implemented KPIs also capture the outcomes of dissemination and training activities that enable the effective transfer of the project's findings to a wide range of stakeholders and institutions. For each implemented KPI, WP and Task Leaders provided preliminary information, including the unit of measurement, baseline values, and target goals for 2032 (i.e. the end of the project) and 2037 (i.e. five years after project completion).

Strategic KPIs, by contrast, aim to describe the broader ecosystem of additional benefits that do not result from the direct implementation of project activities but to which the project contributes indirectly. These KPIs reflect the strengthening of the Po River Basin system from both a bio-geophysical and an institutional perspective. Strategic KPIs include the generation of long-term benefits beyond the project, such as the formulation of guidelines and policies, improvements in monitoring and modelling systems, and the development of analytical tools and simulations capable of supporting future adaptation strategies in the basin. For strategic KPIs, WP and Task Leaders provided preliminary information on the expected benefits beyond the CLIMAX-PO project.

The last contribution of Deliverable D9.6 was the integration of the LIFE Project Indicators (LPIs) into the CLIMAX-PO KPI Library. through the LIFE KPI Webtool platform provided by CINEA. LPIs are used to assess the overall project impacts in supporting the implementation of the National Adaptation Strategy (NAS) measures and to operationalise the main objectives defined in the Grant Agreement by specifying baseline values and goals. The LPIs are reported in Deliverable D9.1 and the LPI Webtool platform provided by the European Climate, Infrastructure and Environment Executive Agency (CINEA).

2.3 The Current Update of the CLIMAX-PO KPI Library

In the present report, a conceptual distinction between LPIs and KPIs has been introduced. LPIs are treated separately from KPIs in order to clearly distinguish between the overall project objectives (described by LPIs) and the objectives arising from the direct actions and synergies implemented within each WP (described by KPIs).

Annex 1 lists the set of indicators selected for each WP at the end of the first project phase, distinguishing between LPIs (38 indicators) and KPIs (62 indicators).

With the exception of this conceptual separation between LPIs and KPIs, the present report mainly confirms the KPIs selected in the second release of the CLIMAX-PO KPI Library (Deliverable D9.6), with minor refinements applied to some indicators to improve conceptual clarity and enable a more robust evaluation within CLIMAX-PO activities.

Figure 9.2 shows the bar charts illustrating the classification of KPIs with respect to the main KPI categories reported in Section 2.1. 18 KPIs are classified as project-impact KPIs. Although not identified as LPIs, these indicators describe core WP activities with a strong influence on the overall success of the project. 2 KPIs are instead classified as climate KPIs, focusing on the water cycle and reflecting the project's main objective of improving water efficiency and quality in the Po River Basin.

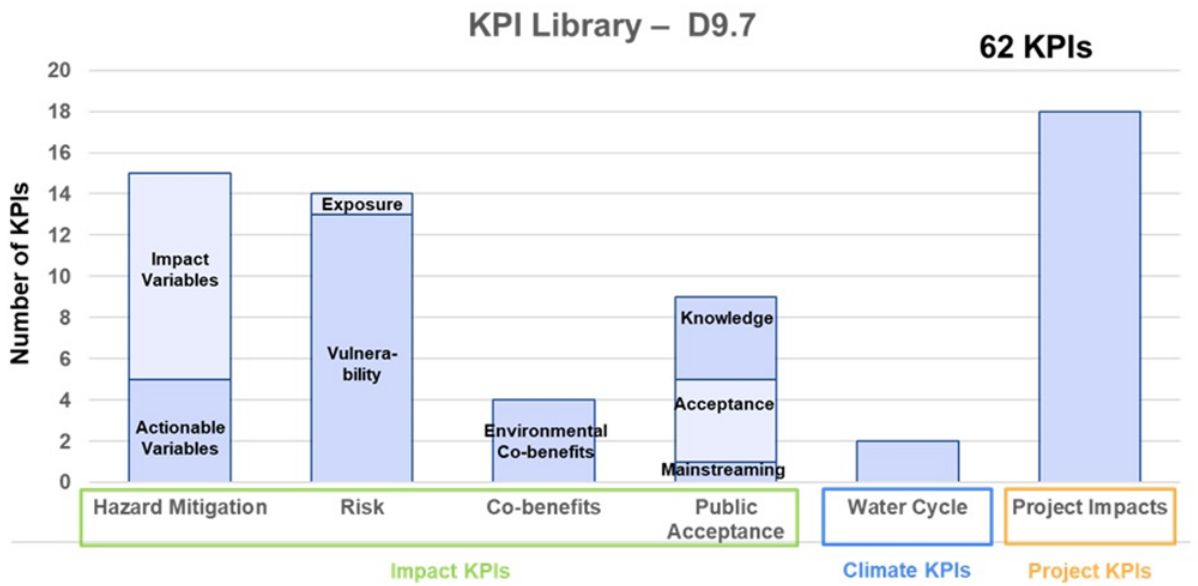

Figure 9.2: Bar charts of the 62 KPIs included in the KPI Library during the current update. KPIs are subdivided into both thematic areas and categories.

Table 1: Lists of "Area.Category" acronym used in the code system to uniquely identify KPIs.

Area	Category	Acronym
Hazard	Actionable Variable	HA.A
	Impact Variable	HA.I
Risk	Exposure	RI.E
	Vulnerability	RI.V
Co-Benefits	Environmental	CB.E
	Socio-Economic	CB.S
Public Acceptance	Acceptance	PA.A
	Knowledge	PA.K
	Mainstreaming	PA.M
Climate	Water Cycle	C.W
Project Impact		PI

The remaining 43 KPIs are classified as impact KPIs, including:

- 15 hazard-mitigation KPIs linked to focal-point-level actions (WPs 5–8), primarily addressing droughts and floods, as well as other concurrent and consecutive hazards such as saltwater intrusion and eutrophication;
- 14 risk-reduction KPIs, primarily associated with actions implemented at the focal-point scale (WPs 5–8). These KPIs includes 13 indicators related to vulnerability (i.e., ecosystem robustness and susceptibility, coping and adaptive capacity) and 1 indicator related to the exposure of population to floods;
- 4 co-benefits KPIs, addressing environmental co-benefits and primarily associated with WP6;
- 9 public-acceptance KPIs, aimed at monitoring the mainstreaming of project activities, stakeholder commitment and perceptions, as well as knowledge and awareness related to adaptation measures, hydro-meteorological risks, and climate change. These KPIs are primarily addressed by actions at the district scale (WP2-4), WP9, and WP10

The current report also introduces a coding system in Table 1 designed to uniquely identify each KPI, thereby streamlining KPI evaluation and reducing reference complexity in future reports. Each KPI code is structured as "Area.Category", as defined in Table 2, followed by an identification number used to distinguish KPIs within the same category.

In addition to confirming the KPI selection and introduce the coding system, Deliverable D9.7 assigns the KPIs to the relevant Tasks in Section 3, providing further details on the associated activities.

3 Operationalization of the KPI Library in the Work Packages

The CLIMAX-PO KPI Library is operationalised through the generation of a shared logbook documenting baseline conditions, objectives, implemented activities, and assessment methods for those selected KPIs for which project activities are sufficiently advanced to provide this information. The logbook is intended to facilitate dialogue and synergies among WPs and to support the exploitation of project results in policy-making processes.

While maintaining a clear conceptual distinction between KPIs and LPIs, the tables presented in the following section also include LPIs for completeness. Baseline values and goals for LPIs are reported as defined in Deliverable D9.1. However, additional clarification is provided on which WPs and related Tasks are expected to contribute most significantly to the achievement of each LPI.

3.1 WP2: Multilevel Governance and Coordination of Funding

Work Package 2 focuses on improving climate risk and adaptation governance in water resource management, ensuring policy, funding, and technical coordination and coherence. Activities include coordinated planning across vertical and horizontal governance levels, integrated management of funds for soft and hard adaptation measures, monitoring and evaluation of adaptation strategies, reforms of water allocation, ecological flows and reservoir management, innovative multi-stakeholder governance mechanisms, mainstreaming nature-based adaptation in sectoral policies, and promotion of adaptation planning in urban areas. The WP aims to make climate adaptation a permanent part of River Basin District governance through:

- A consolidated multi-level governance platform with dedicated thematic task forces
- Cross-sectoral working groups mainstreaming climate adaptation across sectors and earmarking funding
- Technical guidelines and policy recommendations to integrate climate adaptation into revised plans, strategies, and regulations.

WP2 focuses on analysing and reorganising political governance and territorial processes at district level through a Multilevel Governance Deal (MGD), as well as establishing task forces dedicated to coordinating stakeholders and funds for implementing the NAS. During the first year, the relevant regulations and technical documentation were analysed. By the end of Phase 1, an operational MGD will have been delivered, a Climate Adaptation Task Force will have been established and complementary funds will have been coordinated. The selected indicators are the reduction of areas at risk of flooding and drought, alongside the ongoing monitoring of funds and new governance proposals. The project includes small intervention actions which, for now, are useful for defining good practices to be evaluated and potentially extended to the district scale for future interventions. However, the KPIs identified for this work package (WP) are ambitious and are almost entirely linked to Task 2.5: integration of complementary funding and mobilisation of additional funding. This is because of the need to activate new funds, whether complementary or additional (see Deliverable 2.5), which could inform district-level water resource planning. As project coordinator, ADBPO is exploring the application and potential replicability of interventions in some of the indicated fields. The aim is to identify the actions that can be replicated most widely on a large scale, in order to reduce water resource use at district level. Currently, these are merely possibilities, since, as previously mentioned, the CLIMAX PO Project itself does not directly implement actions in the territory.

Table 2: List of implemented indicators selected in WP2 with a preliminary definition of baseline and goals.

Code	Indicator	Unit of Measurement	Baseline	Goal (2032)	Goal (2037)	Task
PI 1	New governance proposals implemented in new policies or supporting existing ones	No. of governance proposals	0	1	2	T2.5

RI.V 1	Existence of adaptation policies/strategies	No. of policies/ strategies	0	>0	>0	T2.5
RI.V 2	Existence of integrated development plans: conservation, protection, adaptation, land use planning, controls by authorities	No. of development plans	0	>0	>0	T2.5
LPI 14.2 - B	Cumulative investments triggered or finance accessed	millions of €	0	448	550	T2.4
LPI 2.4.2 - B	Water Efficiency - Reduction in new water produced/supplied, due to appropriate water saving measures	million m^3 $year^{-1}$	20000	18000	17000	T2.5
LPI 2.4.2 - B	Water Efficiency - Reduction in new water produced/supplied, due to appropriate water saving measures	million m^3 $year^{-1}$	0	900	1350	T2.5
LPI 2.4.2 - B	Water Efficiency - Reduction in new water produced/supplied, due to appropriate water saving measures	million m^3 $year^{-1}$	0	40	60	
LPI 2.4.2 - B	Water Efficiency - Reduction in new water produced/supplied, due to appropriate water saving measures	million m^3 $year^{-1}$	0	160	240	
LPI 2.4.2 - B	Water Efficiency - Reduction in new water produced/supplied, due to	million m^3 $year^{-1}$	0	600	900	T2.5

	appropriate water saving measures					
LPI 2.4.2 - B	Water Efficiency - Reduction in new water produced/supplied, due to appropriate water saving measures	million m^3 $year^{-1}$	0	300	450	T2.5
LPI 9.1 - B	Adaptation of particularly vulnerable area - Flood management area	km^2	15250	14488	13725	T2.5
LPI 2.1 - B	Reduction in terrestrial area or length affected by floods	km^2	14800	13320	12580	T2.5

3.2 WP3: Technical and Methodological Approach

Work Package 3 focuses on enhancing shared knowledge and climate knowledge production processes to improve understanding of climate risks within the Po River basin district. The core objective is to develop a comprehensive climate data platform that will provide access to local and regional data, as well as data from external sources that are not easily accessible.

Task 3.1 focuses on the collection, review, synthesis, and management of data and knowledge products, aiming to improve access to actionable information and services required as inputs for Tasks T3.2 and T3.3 and for other WPs. It focuses on climate hazards, exposure, and vulnerability data to be collected, analysed, and shared in the form of a set of custom indices for various emission scenarios. Moreover, it outlines a Data Management Plan (DMP) specific to WP3. It offers in-depth information about the types and sources of data, as well as the rules guiding data management, access, and reuse. The report structure aligns with the recommended template, covering key aspects such as data types and sources, adherence to FAIR principles (Findable, Accessible, Interoperable, and Reusable), data ownership, security measures, and ethical considerations.

Specifically, task 3.2 aims to create an integrated platform for climate data, variables, and their impacts on water resources. The platform will contain both

observed and simulated data for the entire Po basin, based on high and very high-resolution climate projections. The platform will also host information and results produced within the project that can be replicated in similar contexts, ensuring interoperability, compliance with standards, and accessibility through open-source software.

Task 3.3 will further refine the climate risk assessment methodology by developing composite indicators and operational workflows that support adaptation planning in the Po River Basin District. The flood risk workflow will provide a technical contribution to the hydrological hazard component of the Climate Risk Indices, integrating satellite-based information with territorial data in a scalable and replicable framework. In parallel, additional workflows addressing other key climate hazards, including droughts and heatwaves, will be developed to ensure a comprehensive multi-hazard assessment. The modular and open-source approach will facilitate integration with exposure and vulnerability indicators, with a focus on critical infrastructures and vulnerable population groups. It will be validated with local data, and synergies with other WPs, ultimately supporting monitoring, reporting, and evaluation of climate adaptation policies.

The indicators shown in Table 3 were selected to achieve the WP's technical objectives. The goal of **embedding different datasets** (**PI 2**) is to measure the platform's completeness in collecting observed and simulated data for regional and local hazard assessment. The target of different **climate analyses** (**PI 3**) will evaluate the platform's capacity to process diverse climate indices and scenarios. Finally, the objective of about 30 **expert users' accesses** (**PI 5**) will measure engagement with developed products for further post-processing activities, ensuring the platform serves as an effective tool for climate adaptation planning and decision-making in the Po Basin region.

Additionally, WP3's activities will comprise a strategic KPI (Table 4): the implementation of **RI.V 3 Composite risk indices** for analysing climate risk at local and wider levels. These indices will be derived from a combination of activities and datasets related to Tasks 3.1 and 3.3. They will support and inform strategies at different administrative levels in the context of climate change adaptation. This will provide a better understanding of the direct and indirect impacts of climate risks and inform the adaptive capabilities and resilience of the systems in the area.

Table 3: List of Implemented indicators selected in WP3 with a preliminary definition of baseline and goals.

Code	Indicator	Unit of Measurement	Baseline	Goal (2032)	Goal (2037)	Task
PI 2	Number of embedded datasets	No. of embedded datasets	0	2	4	T3.1
PI 3	Number of climate analyses	No. of climate analyses	0	2	2	T3.1
PI 4	Inventory of assets	No. of assets	0	2	2	T3.2
PI 5	Number of accesses to the developed products by expert users for further post-processing	No. of accesses to the developed products	0	30	100	T3.2
PI 6	Number of hazard-specific workflows developed	No. of hazard-specific workflows developed	0	2	2	T3.3

Table 4: List of Strategic indicators selected in WP3 with a preliminary definition of goals and benefits outside the project.

Code	Indicator	Unit of Measurement	Goal	Possible Benefits Outside the Project	Task
RI.V 3	Composite risk indices	NA	Developing composite climate risk indices	Contribute to understanding the direct and indirect impacts related to climate risks to inform adaptive capabilities and resilience of the systems in the area	T3.1, T3.3

3.3 WP4: Stakeholders Engagement and Capacity Building

Work Package 4 focuses on the initial and subsequent involvement and consultation of relevant stakeholders, which is necessary for the implementation of the project. This includes governance, funding coordination, capacity building, and technical activities. Stakeholder engagement and participatory processes are strictly recommended by the NAS. Since the drafting of the project proposal, the project has tried to involve all key and relevant stakeholders. However, given the large number of interested parties, specific actions have been identified to engage and define the organisations that will be involved in implementing the project (Task 4.1). These activities will mostly take place in the early stages of the project (Phase 1), but consultation and coordination with relevant stakeholders will continue throughout the project thanks to the creation of Regional and/or District Stakeholder Boards (Task 4.2). These boards will involve local authorities (municipalities or associations of municipalities), as well as technicians, environmental associations, and socio-economic associations. Where Stakeholder Boards or similar structures already exist, project-related issues will be introduced to their agendas. Stakeholders will also be invited to participate in capacity-building activities, both as recipients and trainers, wherever appropriate (Task 4.5, Task 4.6, Task 4.7).

The indicators shown in Table 5 were selected to achieve the WP's objectives. The objectives identified for **LPI 10.2 - B Involvement of other stakeholders in project activities** and **LPI 11.3 - B Awareness and behaviour change regarding the environmental/climate problem addressed** will be achieved through the Stakeholder Boards envisaged by the project (district, regional, and local), which will support the collection of letters of support. Alongside the Stakeholder Boards, useful tools for achieving the goal of collecting 500 letters of support include knowledge exchanges with local communities, capacity- building activities with district municipalities, and promoting CLIMACTPACT4PO. These additional tools will also help to reach the target of raising climate change awareness among 1,000 people, in synergy with the Stakeholder Boards and the exchange of experiences linked to climate adaptation.

By the end of the first project phase, more than 200 letters of support had been signed. Various stakeholders are kept informed about project activities through

dedicated meetings held at two levels: district-level meetings take a broader, educational approach aimed at replicating measures across the territory, while regional-level meetings enable a more diverse approach to engaging different stakeholders (see deliverable 4.2). During these meetings, surveys are conducted to raise awareness of climate change and maximise the exchange of adaptation experiences. In addition to the various round tables, capacity-building activities linked to municipalities began in 2025. An informative survey was organised for the municipalities of the Metropolitan City of Bologna, a project partner, to identify topics of greatest interest relating to the project. Due to difficulties in receiving responses, the training course was extended to include all municipalities in the Emilia-Romagna Region. The training course consisted of three online sessions and was attended by around 80 officials. These officials will be asked to complete a survey to find out if they found the meetings interesting, if they are now more aware of the climate tools available for local planning and if they intend to stay in the network. Through this survey, we hope to establish closer contact with municipal authorities and invite them to become project stakeholders and join CLIMACTPACT4PO.

Table 5: List of Implemented indicators selected in WP4 with a preliminary definition of baseline and goals.

Code	Indicator	Unit of Measurement	Baseline	Goal (2032)	Goal (2037)	Task
LPI 10.2 - B	Involvement of other stakeholders (e.g., trade unions, sector associations, industrial districts; not duty holders or enforcement/supervisory bodies) in project activities	No. Of stakeholder entities involved	0	250	500	T4.2
LPI 11.3 - B	Awareness and behaviour change regarding the environmental/climate problem addressed	No. Of employees/ individuals surveyed	0	1000	2000	T4.5 T4.7

3.4 WP5: Water Management

Work Package 5 addresses the water availability and climate variability in the Po River Basin by developing modelling frameworks and strategic databases to support adaptive water resource management. The WP provides a comprehensive hydro-climatological configuration of the areas of interest, through the integration of climate reanalysis data, water discharge monitoring, and agricultural water use tracking. It advances the simulation of water availability under various climate and management scenarios and explores reservoir optimization strategies to enhance water storage capacity and mitigate environmental impacts.

In line with the WP5 objectives, the selected KPIs build on evidence gathered through modelling activities and water management interventions (see Table 6).

Under the Project Impact Indicators, the establishment of integrated databases for hydro-climatology (**PI 7**), water discharge (**PI 8**), and agricultural water uses (**PI 9**) (Task 5.1) provides the foundational data infrastructure. These databases are complemented by **PI 10 selection of open-source model platforms for hydrological and hydraulic simulation** (Task 5.2), enabling scenario-based assessment of water availability and storage operations. Together, these indicators reflect the project's capacity to build replicable modelling tools that support long-term water management planning.

Among the Performance of Hazard-Mitigation Measures, **HA.A 1 Irrigation requirements for specific crops per unit area** quantifies agricultural water demand of reference crop under changing climate conditions (Task 5.2), and how this could be reduced by implementation of more favourable climate change mitigation scenarios and fertilization effects. This is complemented by **HA.A 2 Percentage variations in reservoir capacity** metrics under Task 5.3, including storage capacity variations and water quality monitoring duration downstream of reservoirs. These indicators capture the effectiveness of optimization strategies in balancing water supply with environmental protection. Additionally, monitoring of hazardous lake water levels addresses flood and drought risk management in the Great Lakes system.

The **LPI 2.2 - B** address large-scale improvements across river networks, tracking interventions related to physical alterations, hydromorphological conditions, water quantity issues, pollution reduction, and connectivity improvements. These

indicators measure the project's contribution to restoring ecological and chemical status across the Po Basin's water network.

Under the Climate KPIs, the reduction in terrestrial area affected by droughts reflects enhanced regional water security (Task 5.2), including optimization of irrigation requirements, complemented by monitoring of water volumes delivered to irrigation districts and flow indices that characterize hydrological regime changes.

Table 6: List of Implemented indicators selected in WP5 with a preliminary definition of baseline and goals.

Code	Indicator	Unit of Measurement	Baseline	Goal (2032)	Goal (2037)	Task
PI 7	Building a hydro-climatological database of the Great Lakes, taking advantage of the highly-replicable ERA5 global database	No. of databases	0	1	1	
PI 8	Set up and feeding of a water discharge database	No. of databases	0	1	1	T5.1
PI 9	Set-up and feeding of an agricultural water uses database	No. of databases	0	1	1	T5.2
PI 10	Selection of an open-source hydrological model platform for the assessment of water availability in various scenarios	No. of model platforms	0	1	1	T5.2
PI 11	Selection of an open-source hydraulic model platform for the simulation of the real-time water storage	No. of model platforms	0	1	1	

HA.A 1	Irrigation requirements for specific crops per unit area	Volume per year per unit area (mm/yr)	1130	1070	1070	T5.2
HA.A 2	Percentage variations in reservoir capacity	%	0	5	10	T5.3
HA.A 3	Duration of water turbidity monitoring period downstream of the reservoir	Month	0	36	36	T5.3
LPI 2.2 - B	Part of the total area/length of the surface water body where physical alterations were addressed	km (river except reservoirs)	0	461	692	
LPI 2.2 - B	Part of the total area/length of surface water bodies or part of the total volume of groundwater where water quantity issues were addressed (e.g., flooding or scarcity)	km (river except reservoirs)	0	123	184	T5.3
LPI 2.2 - B	Part of the total length of river turned into free free-flowing river	km (river except reservoirs)	0	0	0	T5.3
LPI 2.2 - B	Part of the total area/length of the surface water body where hydromorphological alterations were addressed	km (river except reservoirs)	0	461	692	T5.3
LPI 2.2 - B	Part of the total area/length of surface	km (river except reservoirs)	0	1106	1660	

	water bodies or volume of groundwater where other improvements were made					
LPI 2.2 - B	Part of the total length of river (except reservoirs) or area of surface body (reservoir, lake, or transitional waters) or volume of groundwater body whose ecological/chemical status or volume is affected by issues addressed by the project	km (river except reservoirs)	15370	12296	10759	
LPI 2.2 - B	Part of the total area/length of surface water bodies, or part of the total volume of groundwater where pollution was reduced	km (river except reservoirs)	0	922	1383	
LPI 2.2 - B	Part of the total length/area of surface water bodies where other connectivity improvements were made, excluding free-flowing rivers (e.g., connectivity improvements due to fish passes)	km (river except reservoirs)	0	0	0	
LPI 9.2 - B	Infrastructures targeted for climate resilience - Water and sewage facilities	No. of facilities	0	3	6	

LPI 2.1 - B	Reduction in terrestrial area or length affected by droughts/scarcity	km^2	0	900	1800	T5.2

Table 7: List of Strategic indicators selected in WP5 with a preliminary definition of goals and benefits outside the project.

Code	Indicator	Unit of Measurement	Goal	Possible Benefits Outside the Project	Task
HA.A 1	Water requirements	Volume per year (m^3/yr)	Improvement of distribution processes and management of reservoirs		T5.2
HA.I 1	Water use efficiency	Volume of consumed water per hectare (m^3/ha)	This KPI serves to establish whether the current management guidelines are good and to improve them		

3.5 WP6: Nature and Ecosystem-based solutions

Work Package 6 focuses on strengthening water security and climate resilience by promoting NBS (nature-based solutions) to mitigate flood risk and by improving the connectivity of green and blue infrastructure. The WP develops best practices for managing riparian areas, supports large-scale planning across the Po Basin, and includes the Wild Lambro project, which aims to restore river continuity and riparian vegetation. A final report will consolidate the performance of nature-based interventions and compare them with traditional “grey” solutions. In line with the WP6 objectives, the selected KPIs build on evidence gathered through river restoration activities (see Tables 8 and 9).

Under the Performance of Hazard-Mitigation Measures, the KPI **HA.A 4 Vegetation cover on riverbanks** quantifies the expansion of vegetated areas resulting from floodplain restoration, monitored through aerial imagery at intervention sites. This indicator is closely linked to the Lambro River requalification works (Task 6.3) and is complemented by risk-related KPIs such as **RI.V 6 Morphological Quality Index (IQM)** and **RI.V 7 Linear meters of restored shore**. Together, these indicators capture the degree of river renaturalisation — including the creation of space for

natural overflow, the removal of unnecessary bank defenses, and the restoration of meanders and riparian vegetation as ecological corridors.

Among the Co-benefits KPIs, **CB.E 1 Number of analyzed water samples at monitored sites** reflects the monitoring activities supporting best practices for riparian buffers under Task 6.1. Field sampling is conducted to assess water quality, risk reduction, and habitat improvements by analyzing nutrient concentrations - such as nitrogen and phosphorus - across identified monitoring locations. Finally, under the Project Impact Indicators, Task 6.2 includes the development of **PI 12 Dataset inventory for blue-green infrastructure analysis**. This inventory supports the mapping and simulation of blue-green network connectivity across the river system. It constitutes a comprehensive and continually updated dataset that will serve WP6 activities in the coming years.

WP6 activities therefore include strategic KPIs linked to both modelling and on-the-ground implementation. Evidence generated through implemented actions is essential for guiding future interventions on vegetated riparian buffers, ensuring that decisions are grounded in robust scientific understanding. The requalification of the Lambro River (Task 6.3) directly affects local communities and landowners, making it strategically important to foster a sustainable relationship with the river environment. Enhancing ecosystem services, biodiversity, and overall environmental quality, supported by expert facilitation, will strengthen awareness of the value of restoration efforts and encourage long-term engagement in future projects. These activities and their outcomes are closely aligned with the strategic KPIs on public acceptance. In parallel, the modelling and simulation activities of Task 6.2 aim to map current conditions and develop future scenarios for blue-green infrastructure networks across the Po River Basin District. These assessments evaluate potential benefits and ecosystem services, providing essential insights to inform strategies and planning at local and regional scales. They support measures related to nature restoration and protection, climate adaptation, disaster risk reduction, and resilience, advancing NBS in a more integrated and connected manner. Accordingly, the strategic KPIs on co-benefits relate to scenario development and ecosystem assessments of green-blue infrastructure at the district level. Also linked to these co-benefit indicators is the improved understanding of riparian zone functioning as nutrient buffers (Task 6.1), which evaluates their capacity to retain nutrients and informs future river restoration and riparian requalification interventions.

Table 8: List of Implemented indicators selected in WP6 with a preliminary definition of baseline and goals.

Code	Indicator	Unit of Measurement	Baseline	Goal (2032)	Goal (2037)	Task
HA.A 4	Vegetation cover on riverbanks	Area (m^2)	0	1500	1500	T6.3
RI.V 6	Morphological quality index (IQM)	Adimensional	0	0.1	0.2	T6.3
RI.V 7	Linear meters of restored shore	Meters (m)	0	1000	1000	T6.3
CB.E 1	Number of analysed water samples at monitored sites	No. of samples	0	120	120	T6.1
PI 12	Dataset inventory for blue-green infrastructure analysis	No. of datasets, case studies, projects, and methodologies - to be updated over time (D6.2)	0	330 dataset 18 case studies 22 projects 32 assessment methods	335 dataset 20 case studies 25 projects 35 assessment methods	T6.2

Table 9: List of Strategic indicators selected in WP6 with a preliminary definition of goals and benefits outside the project. All the indicators are adimensional.

Code	Indicator	Goal	Possible Benefits Outside the Project	Task
CB.E 2	Ecological/ landscape connectivity and scenarios	Mapping, assessment, and scenario development of blue-green infrastructure (BGI) network in the Po River Basin District	Inform future plans and strategies for nature protection, climate change adaptation and resilience, and support strategic future NbS interventions	T6.2

CB.E 3	Ecosystem services assessment	Assessment of ecosystem services provided by the BGI network in the Po River Basin District and a deep dive into test case studies	Inform future plans and strategies for nature protection, climate change adaptation and resilience, and support strategic future NbS interventions	T6.2
CB.E 4	Improved understanding of riparian zone functioning as a nutrient buffer	Assessment of riparian zone functioning as nutrient buffers	Inform future river restoration and riparian zone requalification interventions	T6.1
PA.A 1	Willingness of relevant stakeholders to engage in this project and future ones	Facilitate the dialogue with relevant stakeholders and landowners in the Lambro River restoration	Fostering community engagement and awareness to promote a sustainable relationship with the river	T6.3
PA.A 2	Commitment of relevant stakeholders to engage in this project and future ones	Facilitate the dialogue with relevant stakeholders and landowners in the Lambro River restoration	Fostering community engagement and awareness to promote a sustainable relationship with the river	T6.3
PA.K 2	Understanding of the importance of the actions	Facilitate the dialogue with relevant stakeholders and landowners in the Lambro River restoration	Fostering community engagement and awareness to promote a sustainable relationship with the river	T6.3

3.6 WP7: Defence and Water Infrastructure

Work Package 7 focuses on developing and promoting transferable "good practices" for monitoring systems to support early warning in urban, peri-urban, and coastal-delta areas of the Po River District. This work is motivated by the need for accelerated adaptation to climate change, where the increasing frequency and intensity of extreme convective precipitation events require advanced tools to enhance territorial resilience against associated flood risks.

Central to WP7 is the enhancement of monitoring and modeling capabilities. Improving accuracy, spatial and temporal resolution, and the integration of multi-source data allows for earlier, more precise predictions of complex and interconnected phenomena. This reduces the lacking of understanding and increases the effectiveness of management strategies and early warning systems. WP7 activities are structured into three main tasks closely aligned with achieving these KPIs:

- Task 7.1 focuses on hazard planning and real-time management of critical events generated by intense precipitation, integrating traditional and innovative technologies, and developing seamless forecasting chains that combine atmospheric models with hydrological-hydraulic models. This enables rapid and continuous hazard assessment, significantly improving forecasting capabilities and supporting hazard reduction and flood risk mitigation;
- Task 7.2 aims to improve the early warning system in coastal and delta areas by integrating advanced observations and innovative modeling approaches to simulate complex phenomena such as salt wedge intrusion and coastal flooding induced by the combined action of river discharge, high tides, and storm surges. This allows for more effective and timely responses to critical conditions, supporting the protection of water infrastructure and sensitive ecosystems;
- Task 7.3 is dedicated to systematizing results and creating a replication roadmap so that the developed methodologies, models, and best practices can be scaled and applied in other areas of the District and beyond, amplifying the project's impact at territorial and institutional levels.

The selection of KPIs in WP7 follows an integrated approach that distinguishes between operational (implemented) and strategic indicators.

Table 10 lists the first set of operational KPIs that measure tangible progress in real-time forecasting and monitoring. These include the number and quality of predictive models developed, technological advancements in monitoring products (e.g., TRL levels), and the expansion of spatial coverage by observation systems. One indicator relies instead to the hazard-mitigation measures performance. Such indicators are critical for quantifying increased forecasting capacity and supporting timely, effective risk management. A brief description of the indicators is reported below:

- **PI 13 Number of predictive models developed or exploited** reflects the project's capacity to build, adapt, and operate open-source forecasting and climate models across short-, medium-, and long-term horizons. The goal for 2032 and 2037 is to implement 2 models: 1 operational - SHYFEM (Arpae-CNR) for Early-Warnings, 1 model with temporal scales on multi-decadal horizons (EBM) to improve climatic projections and on multi-years (SHYFEM) horizons to study processes;
- **PI 14 Number of products reaching higher Technology Readiness Levels (TRLs)** captures the transition of research outputs into mature, deployable tools progressively integrated into operational and institutional contexts. In 2032, three new products are expected to be delivered reaching TRL 6–7 (e.g., improved SHYFEM visualization interface, integrated early warning dashboard, modular climate adaptation toolkit). In 2037 the goal is to develop 4–5 products at TRL 8–9 (fully tested and integrated into operational use, including sustained use of forecast/data platform by public authorities);
- **RI.V 8 Area covered by the monitoring system** measures the spatial extent of real-time environmental observations, indicating improvements in data availability, coverage, and risk detection capability. The baseline of KPI RI.V8 is ~80 km², limited coverage by legacy stations, partial real-time, and it assumes sparse fixed infrastructure (e.g., ISPRA or ARPAE tide gauges) without full coverage across coastal/lagoon interface. The goal in 2032 is to implement at least 10 more sensors (Sea Level Sensors) and 1 Data logger (NKE CTD) to cover an area of 381 km2 (perimeter 123 km); new approaches by using non-conventional measurement systems for rainfall are tested on Pilot areas. The monitoring system is expected to stop at the end of the project;

- **HA.I 10 Damages to public and private goods caused by extreme events** quantify the economic impacts of floods and storms, serving as a proxy for the effectiveness of early warning systems and preparedness measures. Based on recent 2022/2023 Po Delta floods, it is estimated €3–5 millions per severe storm event, including damage to agriculture, infrastructure, and buildings. The goal is to reduce it to 20–30% via early warning system activation, improved coastal monitoring, and stakeholder preparedness by 2032, reaching 40–50% reduction in damages compared to baseline in 2037 through operational procedures institutionalized, local authorities trained and equipped.

Table 10: List of Implemented indicators selected in WP7 with a preliminary definition of baseline and goals.

Code	Indicator	Unit of Measurement	Baseline	Goal (2032)	Goal (2037)	Task
PI 13	Number of predictive models (based on open-source codes) developed or exploited in the different Tasks, also through relocatable platforms for an easier and faster implementation	No. of forecast models	0	Continuous improvements of 2 models		T7.1 T7.2
PI 14	Number of products related to new actions showing a technology advancement (Technology Readiness Level, TRL)	No. of products	1	3 (TRL 6-7)	4 (TRL 8-9)	T7.1 T7.2
RI.V 8	Monitoring system	Area covered by monitoring system (km²)	~80 km²	~381 km²	NA	T7.1 T7.2

HA.I 10	Damages to public and private goods caused by extreme events/storms	€ (EUR) per event OR % reduction vs. baseline	€3–5 millions	20-30% reduction	40-50% reduction	T7.1 T7.2

Table 11 shows a second set of strategic KPIs that aid the characterization and assessment of hydraulic and hydrological hazards. These are based on key physical variables and incorporate social vulnerability indicators. These KPIs support advanced modeling efforts, offering insights into nonlinear, multi-driver event dynamics and informing mitigation and adaptation strategies at various scales. A brief list of the indicators is provided below:

- **HA.I 3 Inundation depth** describes the modeled maximum floodwater depth, supporting more accurate representation of flood severity and spatial distribution in flood-prone areas.
- **HA.I 4 Surface water level** represents predicted water elevations in rivers, lagoons, and coastal systems, enhancing early-warning accuracy and forecast lead time.
- **HA.I 5 River discharge** quantifies the volume of water flowing through river sections, capturing the combined and non-linear effects of climatic, hydrological, and upstream drivers on flood dynamics.
- **HA.I 6 Flow velocity** indicates the speed of floodwaters, informing assessments of flood intensity, structural vulnerability, and the performance of flood defenses and natural retention areas.
- **HA.I 7 Urban runoff** measures stormwater generated in urban environments during extreme rainfall, enabling evaluation of drainage system performance and the effectiveness of green–blue infrastructure solutions.
- **HA.I 8 Volume salt flux** characterizes the movement of saline water within river–estuary systems, supporting monitoring of salinity intrusion and integrated water resources management.
- **HA.I 9 Salt wedge length** describes the upstream penetration of saline water in estuaries, informing long-term agricultural planning, groundwater protection, and ecosystem conservation.
- **RI.E 1 Population density exposed to flood hazard** quantifies the concentration of people living in flood-prone areas, providing evidence to support risk-informed urban planning and targeted adaptation strategies.

- **RI.V 9 Critical Success Index (CSI) for urban flash flood forecasts** is a dimensionless performance metric that evaluates the skill of binary flood forecasting systems by balancing correctly predicted events against false alarms and missed floods, thereby supporting more reliable early warnings.

Table 11: List of Strategic indicators selected in WP7 with a preliminary definition of goals and benefits outside the project.

Code	Indicator	Unit of Measurement	Goal	Possible Benefits Outside the Project	Task
HA.I 3	Inundation depth	Meters (m)	Improved simulation of peak inundation depth in flood-prone areas, enhancing the accuracy and spatial resolution of modeled dynamics	Improved urban planning, civil protection protocols, and emergency zoning	T7.1 T7.2
HA.I 4	Surface water level	Meters (m)	Increase predictive accuracy and lead time with higher spatial resolution in early warning	Development of predictive models and observational methodologies of these variables; improvement of temporal and spatial resolution	T7.1 T7.2
HA.I 5	River discharge	Volume per second (m^3s^{-1})	To correctly model multiple drivers impacting these variables and their non-linear interaction	Enhanced early warning and ecological flow planning, supporting risk preparedness, biodiversity, and	T7.2

				habitat conservation.	
HA.I 6	Flow velocity	Velocity (m s^{-1})	To correctly model multiple drivers impacting these variables and their non-linear interaction	Enhance information for flood defenses and restoration of natural retention zones	T7.2
HA.I 7	Urban runoff	Volume per second (m^3s^{-1})	Demonstrated potential for a reduction in peak urban runoff volumes during extreme rainfall events through scenario-based modeling	Urban stormwater design improvements; green-blue infrastructures assessment	T7.1
HA.I 8	Volume salt flux	Volume per second (m^3s^{-1})	To correctly model multiple drivers impacting these variables and their non-linear interaction	Improved IWRM (salinity intrusion monitoring); soil health; enhance water quality standards and environmental regulation, especially for transboundary waters.	T7.2
HA.I 9	Salt wedge length	Kilometres (km)	To correctly model multiple drivers impacting these variables and their non-linear interaction	Long-term planning of water use in agriculture; groundwater conservation; informing estuarine	T7.2

				ecosystem protection	
RI.E 1	Population density exposed to floods' hazard in the whole regions' territories of the District	Number of people per area (No./km^2)	Provide data driven evidence of areas where risk-informed urban planning could reduce future population exposure to flooding.	Strategic risk mapping, adaptation of local urban plans, and improved emergency response coordination	T7.1 T7.2
RI.V 9	Critical Success Index (CSI) for Urban Flash Flood Forecasts[1]	Dimensionless index (range: 0–1)	Maximize CSI (→ 1), indicating high skill in correctly forecasting flood events. Reduce **FN** (missed floods) while controlling **FP** (false alarms) Achieve stable or improving CSI across events, seasons, and lead times	Improved early warning reliability, better emergency response prioritization, stronger risk-informed planning, comparable forecasting performance across agencies, reduced flood damages, and evidence-based justification for investments in monitoring and forecasting systems.	T7.1

3.7 WP8: Water and Land Management

Work Package 8 aims to enhance the resilience and adaptive capacity of agroecosystems by integrating water governance with sustainable irrigation and soil-management practices. The activities focus on identifying existing adaptation measures and establishing highly replicable pilot actions in collaboration with relevant stakeholders. These actions include the optimization of critical irrigation phases, the promotion of capacity building through the dissemination of good practices (e.g. conservation agriculture techniques), and the implementation of the Land Degradation Neutrality (LDN) methodology to mitigate soil degradation at the sub-basin scale, specifically in the Oltrepò Pavese area.

The activities address several tasks:

- Task 8.1 aims to contribute to climate adaptation by optimizing water use for sustainable and adaptive irrigated agriculture. Activities under this task include the preparation of an internal report on adaptation actions already implemented in the Po Basin and potential improvements; the assessment of the feasibility of automatic or semi-automatic regulation of canal water levels; and the development of Information and Communication Technologies (ICT) tools for irrigation management at different spatial scales, from the field to the catchment district;
- Task 8.2 focuses on conservation techniques for agricultural soils. Activities include training, education, demonstration, and case-study visits on conservation agriculture, involving technicians, farmers, and students. The task also includes the evaluation of the effects of conservative soil-management practices on crop yield and carbon storage parameters through the application of predictive crop models;
- Task 8.3 aims to implement the principles and methodology of Land Degradation Neutrality (LDN) to support decision-making processes in territorial management and governance, with the objective of preventing further soil degradation in a climate-change adaptation context. In the first phase of the project, activities included an in-depth cartographic characterization of the Valle Versa sub-basin and the development of a beta version of decision-support tools (more specifically a Web-GIS tool) to predict potential erosion under different soil-management scenarios.

Tables 12 and 13 present the indicators associated with the actions carried out within these tasks, quantifying soil-related benefits of the promoted practices, the

optimization of water requirements, and the number of stakeholders whose capacity has been strengthened through the implemented activities. Further details on the indicators selected in Tasks 8.2 and 8.3 are provided in the following sub-sections.

Table 12: List of Implemented indicators selected in WP8 with a preliminary definition of baseline and goals.

Code	Indicator	Unit of Measurement	Baseline	Goal (2032)	Goal (2037)	Task
PI 15.1	Number of Local Administrations involved in the process of reaching Land Degradation Neutrality	No. of municipal administrations	15	>15	>15	T8.3
PI 15.2	Ratio between the number of municipalities that will update the plan contemplating the Land Degradation Neutrality and the total number of involved municipalities	Percentage (%)	0	47% (7/15 municipalities)	100% (15/15 municipalities)	T8.3
PI 16	Ratio between the farms that adopted Conservation Agriculture techniques (in the five years of activities) and the total farms (traditional) involved in the capacity building programme	Percentage (%)	0	10	10	T8.2
RI.V 11	Rate of change of SOC, in the arable layer (0-30 cm), within the pilot basin	Percentage (%)	0	>0	>0	T8.2
RI.V 13	Land Degradation Neutrality indicator (UNEP SDG 15.3.1)	Percentage (%)	7.35	<7.35	<7.35	T8.3

LPI 10.3 - B	Professional training, capacity building and education	No. of Individuals	0	550	550	T8.2

Table 13: List of Strategic indicators selected in WP8 with a preliminary definition of goals and benefits outside the project.

Code	Indicator	Unit of Measurement	Goal	Possible Benefits Outside the Project	Task
HA.A1	Water requirements	Volume per year (m^3/yr)	Improvement of distribution processes and management of reservoirs		T8.1

3.7.1 Task 8.2 - Conservation techniques for agricultural soils

The following subsection reports more details concerning the selected WPIs related to Task 8.2 (Table 12). These KPIs include:

- **PI 16 Ratio between the farms that adopted CA techniques and the total farms involved in the capacity building programme** is expressed as a percentage and measures the effectiveness of the training programme (2024–2028) launched by Task 8.2 in supporting farms (and other stakeholders such as students and technicians) in transitioning from conventional to conservation agriculture (CA) practices (e.g., cover crops, crop diversification, reduced tillage). The indicator is calculated as the ratio between the number of farms that, by the end of the programme, have adopted at least one conservation agriculture principle and the total number of participating farms. Data collection will take place in 2028 through a monitoring questionnaire. Since training is still ongoing, the baseline is currently set at zero. An increase of at least 10% in farms applying conservation practices is expected by 2032. Beyond this date, no further monitoring of increases will be possible as no additional stakeholders will be involved.
- **RI.V 11 Rate of change of SOC in the arable layer (0–30 cm) within case studies in the reference basin** expressed as a percentage, evaluates the potential increase or decrease of soil organic carbon content in the surface soil layer resulting from the transition from conventional to conservation management practices (e.g., reduced tillage, crop diversification, cover crops). The assessment is based on two parallel approaches: periodic

sampling and analysis of soil organic carbon in the selected farms, and the use of predictive models adapted to the local context (farm management, pedoclimatic conditions) that simulate changes in organic matter under current and future scenarios. Models will be calibrated using historical field data. At least three farms within the reference hydrographic basin will be analyzed, considering pedoclimatic context and agronomic practices as influencing factors. Model predictions for 2032 and 2037 will be validated through further field analyses. Since multiple case studies are considered, the baseline is set to zero and, despite small percentage changes, a growth is expected within the two target timeframes.

- **LPI 10.3 - B Professional training/Capacity building** expressed as the number of individuals, measures the number of stakeholders reached by the capacity building program (2024–2028) under task 8.2, aimed at disseminating knowledge and sustainable practices for the conservation management of agroecosystems. The program involves organizing technical sessions both in classrooms and in the field, engaging farmers, technicians, students, and land managers to maximize its educational and practical impact on the territory. Contacts have been established with universities, agricultural institutes, consultants, professional orders, and agricultural assistance centers to broaden participation. The baseline at program start is zero, with a steady increase expected up to approximately 550 participants by 2032. After the program ends in 2028, no further increases are anticipated.

3.7.2 Task 8.3 - Land Degradation Neutrality (LDN) methodology for basin district territorial planning

The following subsection reports more details concerning the selected WPIs related to Task 8.3 (Table 12). These KPIs include:

- **PI 15.1 Number of municipal administrations involved in the process** measures the level of institutional collaboration in planning activities aimed at achieving Land Degradation Neutrality (LDN). To establish the baseline, the 15 municipalities within the hydrographic sub-basin targeted by Task 8.3 were considered. The 2032 objective foresees the involvement of additional municipalities adjacent to the area selected in WP4 for the LDN assessment, corresponding to the Versa Hydrographic Sub-basin. Territorial initiatives include regular technical meetings and on-site training events. To monitor

participation, a digital registration platform (Eventbrite) will be used, allowing for real-time tracking of attendance and enabling adjustments to the program based on emerging needs. Thanks to this integrated approach, the KPI will reflect the level of municipal participation, providing a meaningful indicator of the impact and quality of stakeholder engagement within the WP8;

- **PI 15.2 Ratio between the number of municipalities that will update their plans to incorporate LDN and the total number of involved municipalities** measures the actual integration of the Land Degradation Neutrality (LDN) methodology into territorial planning instruments, such as the Rural Police Regulations. The objective is to ensure that sustainability strategies intended to prevent and mitigate land degradation become structural elements of local policy frameworks. At baseline, none of the 15 municipalities within the Versa hydrographic sub-basin include the LDN indicator in their planning tools. To achieve the intermediate KPI target - 47% of municipalities (7 out of 15) by 2032 - and the final goal of 100% (15 out of 15) by 2037, an operational programme has been developed. This includes the organisation of policy coordination meetings with local administrators and technical bodies, during which guidelines and management policies will be jointly developed at the municipal level.
- **RI.V 12 Potential Soil Erosion** is calculated using the RUSLE model ($E = R \times K \times LS \times C \times P$), where R represents rainfall erosivity (based on data from 2000–2021), K soil erodibility (derived from the ERSAF soil map), LS slope length and steepness (based on a 20 × 20 m DEM), C land cover (from DUSAF7 – 2021), and P current land management practices. For each monitoring period (baseline 2023, intermediate goal 2032, and final goal 2037), potential soil loss is calculated in order to quantify the decrease (or increase) in erosion risk. The periodic recalculation of RUSLE at predefined milestones enables the assessment of the effectiveness of the actions implemented, providing feedback on the impact of soil erosion mitigation measures within the pilot basin;
- **RI.V 13 LDN Indicator (SDG 15.3.1)** measured as the percentage of degraded land, is calculated using the Land Degradation Neutrality (LDN) methodology. This approach provides an assessment of the key drivers of soil degradation and identifies critical areas (hotspots) where priority interventions should be focused. The methodology applies a binary

classification system (degraded / non-degraded), based on three sub-indicators: changes in land cover over time, primary productivity, and soil organic carbon content. At baseline, the estimated land degradation in the Versa sub-basin was 7.35%. By 2032 - and again by 2037 - a reduction in the LDN Indicator value relative to the baseline ($\leq$ 7.35%) is expected. Comparing the results over the monitoring periods will make it possible to identify the main degradation drivers, confirm the presence of degradation hotspots, and detect areas showing positive trends. This information is essential to support sustainable land-use policies and improve soil management within the identified hydrographic basin.

3.8 WP9: Monitoring and Evaluation of Project Impacts and Complementary Actions

Work Package 9 focuses on assessing the impacts of the project activities up to five years after the project's conclusion. Its activities aim to support the identification and selection of the most appropriate indicators to describe the actions implemented across the different Work Packages, as well as to define baselines, targets, and objectives. More specifically, Task 9.1 assesses the project's contribution to climate objectives, Task 9.2 evaluates its socio-economic impacts, and Task 9.3 reviews the overall implementation of the Italian National Adaptation Strategy (NAS).

In order to assess the socio-economic impact of the project within the District as comprehensively as possible, WP9, through Task 9.2, aims to evaluate 3 KPIs and contribute to one LPI.

- **RI.V 4 Social Capital**: Social capital directly influences a community's ability to prevent, absorb, and manage risks. Strong social networks, mutual trust, and cooperation reduce exposure to social, economic, and environmental risks, making a community less vulnerable to external shocks. Social capital also contributes to the robustness of the social ecosystem by fostering resilience, collective learning, and institutional continuity. Trust-based relationships, shared norms, and multi-level networks (both formal and informal) make the social system more stable, capable of self-organization, and able to respond effectively to disturbances without losing cohesion.

- **PA.A 4 Perceived effectiveness of the actions**: The perception that a project has a positive impact on the system it targets helps legitimize the actions undertaken, ensuring continuity and long-term sustainability. This indicator describes the extent to which beneficiaries and involved stakeholders consider the project actions to have been useful, relevant, and capable of producing tangible changes in relation to the initial needs.
- **PA.A 5 Perception of co-benefits**: Co-benefits are defined as positive effects and benefits that are generated indirectly by project actions. This KPI aims to describe the extent to which stakeholders and duty holders perceive the added value of project outputs, such as the creation of new jobs, increased attention to water quality, ecological improvements in the territories involved in the project activities, and the broader well-being generated by these outcomes.

These KPIs are multi-dimensional and qualitative in nature. They will therefore be observed through research methodologies such as interviews, focus groups, and participatory methods, involving different types of stakeholders and duty holders, both those directly involved in the project and those external to it but nonetheless participating in the life of the Po River District.

In this context, Task 9.2 also contributes to the achievement of the LPI "11.3 – B: Surveys carried out to assess awareness and behavior change regarding the environmental/climate problem addressed" through the implementation of a questionnaire that will be shared transversally across all project Work Packages. This activity will also generate data relevant to the Public Acceptance KPIs PA.K 3 "Knowledge/awareness about adaptation measures and their implementation" and PA.K 4 "Knowledge/awareness about how to evaluate the ecological system and hydro-meteorological risk in a specific area".

Table 14: List of Strategic indicators selected in WP9 with a preliminary definition of goals and benefits outside the project.

Code	Indicator	Unit of Measurement	Goal	Possible Benefits Outside the Project	Task
RI.V 4	Social Capital	NA	Description of the social network of the Po river basin district and its resilience to climate change issues		T9.2

PA.A 4	Perceived effectiveness of the actions	NA	Grade of trustfulness of the project actions among stakeholders	T9.2
PA.A 5	Perception of co-benefits	NA	Grade of understanding of positive outcomes generated by projects activities	T9.2

3.9 WP10: Communication, Dissemination and Networking

Work Package 10 aims to ensure wide visibility of CLIMAX PO's results and to promote public and institutional awareness on climate change adaptation in the Po River Basin. Table 15 reflects the multi-level communication strategy of the project, encompassing training activities, dissemination of outputs, public engagement events, online presence, and networking at national and European levels.

The values included in the tables are based on the figures foreseen in the Grant Agreement and are being progressively refined through the monitoring activities carried out within WP10 and WP8. Training activities are a major component of WP10 and involve a wide range of target groups: teachers, professionals, farmers, fishermen, and public officers. The indicator **LPI 10.3 - B Professional training/Capacity building**" aggregates the expected participation across these categories, amounting to several thousand individuals by the end of the project. These figures are expected to double over the five years following the project's conclusion, in line with the long-term capacity-building objectives.

In terms of dissemination, the project foresees a structured production of outputs, including newsletters, video clips, television services, and project deliverables (**LPI 11.2 - B**). Scientific dissemination is also a relevant aspect, with an average of three peer-reviewed articles per year expected on environmental, engineering, and climate adaptation topics. Other key indicators refer to the creation of visual communication materials and the use of digital channels, including social media and platforms, to reach diverse audiences.

Public engagement is another pillar of WP10. A rich calendar of events has been designed to involve citizens, students, local communities, and stakeholders in

awareness-raising actions related to climate risks and adaptation. The communication strategy includes educational programs, unconventional events, festivals, thematic caravans, and participatory campaigns, all of which are monitored through specific indicators measuring attendance, interaction, and outreach capacity.

Table 15: List of Implemented indicators selected in WP10 with a preliminary definition of baseline and goals.

Code	Indicator	Unit of Measurement	Baseline	Goal (2032)	Goal (2037)	Task
LPI 11.1 - B	Access to websites and platforms providing the results developed	No. of unique website visits	0	10000	15000	T10.3
LPI 10.3 - B	Professional training, capacity building and education	No. of individuals	0	2600	5000	T10.2
LPI 11.2 - B	Other tools for reaching/raising awareness: Project reports	No. of outcomes (e.g., reports, events, etc.)	0	78	78	all
LPI 11.2 - B	Other tools for reaching/raising awareness: Media products	No. of outcomes (e.g., reports, events, etc.)	0	67	130	T10.1 T10.3
LPI 11.2 - B	Other tools for reaching/raising awareness: Publication (Journals / Conferences)	No. of outcomes (e.g., reports, events, etc.)	0	30	50	T10.4
LPI 11.2 - B	Other tools for reaching/raising awareness: Information materials	No. of outcomes (e.g., reports, events, etc.)	0	50	100	T10.1

LPI 11.2 - B	Other tools for reaching/raising awareness: Events and exibitions	No. of outcomes (e.g., reports, events, etc.)	0	66	130	T10.2
LPI 11.2 - B	Other tools for reaching/raising awareness: Print media released	No. of outcomes (e.g., reports, events, etc.)	0	60	120	T10.3
LPI 12.1 - B	Networking and synergies with projects/initiatives	No. of projects/ initiatives	0	9	15	T10.4

3.10 WP11: Sustainability, Replication and Exploitation

The aim of WP11 is to consolidate the work carried out on adaptation, identify and exploit the main results and achievements, and embed these in the standard planning and management activities of the institutions and organisations involved in governing the Po River Basin District. As well as focusing on exploitation and sustainability, this work package will replicate and scale up project results at regional, district, national, and EU levels (**LPI 10.1.2**).

Consequently, the primary activities of the WP11 centre on ensuring the sustainability of the results, as well as their replication and exploitation. Consistently, the KPIs selected, which are reported in Table 16, are largely related to engagement activities that are vital for exploiting and replicating the project results at different levels.

In particular, the aim of Task 11.4 is to exploit the project results at the Po River Basin District Level. Within this Task, **the results obtained in WP 5-8 will be capitalized, promoted and replicated through sharing them in national and international initiatives** (**PI 17**). In addition, Task 11.6 focuses on peer-to-peer replication and exchange with other national and European river basin districts. Within this task, European and National authorities will be engaged as well as regional and local authorities will be involved, in synergy with WP4.

New jobs will be created within the project consortium thanks to the institutionalization of climate adaptation at the Po River District Level. This will be achieved through Task 11.2 in terms of Po River Basin District plans, as well as

through Work Package 2 (thanks to the multilevel governance deal) and Work Package 4 (thanks to the stakeholder boards).

Table 16: List of Implemented indicators in WP11 with a preliminary definition of baseline and goals.

Code	Indicator	Unit of Measurement	Baseline	Goal (2032)	Goal (2037)	Task
PI 17	Number of national and international initiatives within which the activities carried out in WP5-8 will be capitalized, promoted, or replicated	No. of national and international initiatives	0	20	30	T11.4
LPI 13 - B	New job created within the project consortium	No. of FTE	0	2	1	T11.2
LPI 10.1.2 - B	Number of European Authorities engaged by the project as supervisory/ enforcement bodies	No. of supervisory / enforcement bodies involved	0	3	5	T11.4 T11.6
LPI 10.1.2 - B	Number of National authorities engaged by the project as supervisory/ enforcement bodies	No. of supervisory / enforcement bodies involved	0	9	9	T11.4 T11.6
LPI 10.1.2 - B	Number of Local authorities engaged by the project as supervisory/ enforcement bodies	No. of supervisory / enforcement bodies involved	0	9	15	T11.4 T11.6
LPI 10.1.2 - B	Number of Regional authorities engaged by the project as supervisory/ enforcement bodies	No. of supervisory / enforcement bodies involved	0	6	20	T11.4 T11.6

4 Conclusions

The CLIMAX-PO project aims to operationalise the national climate-change adaptation strategy within the Po River Basin by tailoring it to local contexts and promoting the sustainable management of water resources. Achieving this objective requires a coordinated 9-year effort involving research institutions and governance bodies at national, regional, and local levels across the entire basin. Within this complex framework of actions, WP9 would provide a common and coherent evaluation framework to monitors progresses and impacts of the project activities and promote synergies among the other WPs**.**

The present report updates the CLIMAX-PO Key Performance Indicator (KPI) Library with the aim of optimising indicator selection in line with the activities implemented across the project WPs and their related Tasks. The KPI Library is conceived as a tool for long-term planning and maximization of project outcomes. The achievement of these objectives required a continuous dialogue among WP and Task Leaders, ADBPO, and UNIBO.

Compared to the previous update reported in Deliverable D9.6, the current revision differentiates the LIFE Project Indicators (LPIs) from the KPI Library. This choice is made to clearly distinguish between (i) the overall project objectives related to supporting the implementation of the National Adaptation Strategy (NAS), which are described through LPIs; and (ii) the objectives arising from the direct actions and synergies implemented within each WP, which are captured by KPIs. LPIs are therefore retained only for completeness within the overall evaluation framework of WP9 and will be updated in the next version of Deliverable D9.1, released during the second phase of the project.

Apart from the distinction of LPIs, the current version of the library includes 62 KPIs, confirming those selected in Deliverable D9.6. Only minor refinements have been applied to KPIs to improve conceptual clarity.

In addition, this report advances the operationalisation of the KPI Library as a tool for the generation of a shared logbook documenting baseline conditions, goals, and activities for selected KPIs. More specifically, the KPIs have been linked to the related activities of WPs and Tasks.

The operationalisation of the KPI Library will continue during the second phase of the project and will be further documented in forthcoming updates on the project

status, both in the internal report (Deliverable D9.6) and in the final one at the end of the subsequent phase (Deliverable D9.7).

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Annex 1 Selected KPIs and LPIs at the End of the First Project Phase

The following Annex reports the lists of KPIs (Table A1) and LPIs (Table A2) selected for the assessment of project outcomes in CLIMAXPO.

Table A1: List of 62 KPIs included in the CLIMAX-PO KPI Library classified in Project, Climate, and Impact KPIs. The table provides the following information: thematic area, category, sub-category, identification code and related WPs.

Area	Category	Sub-category	Indicator	Code	WP
Project KPIs					
Project Impacts			New governance proposals implemented in new policies or supporting existing ones	PI 1	WP2
Project Impacts			Number of embedded datasets	PI 2	WP3
Project Impacts			Number of climate analyses	PI 3	WP3
Project Impacts			Inventory of assets	PI 4	WP3

Project Impacts			Number of accesses to the developed products by expert users for further post-processing (e.g., by API)	PI 5	WP3
Project Impacts			Number of hazard-specific workflows developed	PI 6	WP3
Project Impacts			Building a hydro-climatological database of the Great Lakes, taking advantage of the highly-replicable ERA5 global database	PI 7	WP5
Project Impacts			Set up and feeding of a water discharge database	PI 8	WP5
Project Impacts			Set-up and feeding of an agricultural water use database	PI 9	WP5
Project Impacts			Selection of an open-source hydrological model platform for the assessment of water availability in various scenarios	PI 10	WP5
Project Impacts			Selection of an open-source hydraulic model platform for the simulation of the real-time water storage	PI 11	WP5
Project Impacts			Dataset inventory for blue-green infrastructure analysis	PI 12	WP6

Project Impacts			Number of predictive models (based on open-source codes) developed or exploited in the different Tasks, also through relocatable platforms for an easier and faster implementation	PI 13	WP7
Project Impacts			Number of products related to new actions showing a technology advancement (Technology Readiness Level, TRL)	PI 14	WP7
Project Impacts			Number of Local Administrations involved in the process of reaching Land Degradation Neutrality	PI 15.1 (contribute to 10.1.2 - B)	WP8
Project Impacts			Ratio between the number of municipalities that will update the plan contemplating the Land Degradation Neutrality and the total number of involved municipalities	PI 15.2 (contribute to 10.1.3-B)	WP8
Project Impacts			Ratio between the farms that adopted Conservation Agriculture techniques (in the five years of activities) and the total farms (traditional) involved in the capacity building programme	PI 16 (contribute to 10.1.3-B)	WP8
Project Impacts			Number of national and international initiatives within which the activities carried	PI 17	WP11

			out in WP5-8 will be capitalized, promoted, or replicated		
Climate KPIs					
Water Cycle			Annual volume delivered to irrigation districts from large natural lakes	C.W 1	WP5
Water Cycle			Standardized Flow Index	C.W 2	WP5
Impact KPIs					
Performance of Hazard-Mitigation Measures	Impact Variables	Drought	Water use efficiency	HA.I 1	WP5
Performance of Hazard-Mitigation Measures	Impact Variables	Drought	Water level of lakes	HA.I 2	WP5
Performance of Hazard-Mitigation Measures	Impact Variables	River and Urban Floods	Inundation depth	HA.I 3	WP7

Performance of Hazard-Mitigation Measures	Impact Variables	River and Urban Floods	Surface water level	HA.I 4	WP7
Performance of Hazard-Mitigation Measures	Impact Variables	River and Urban Floods	River discharge	HA.I 5	WP7
Performance of Hazard-Mitigation Measures	Impact Variables	River and Urban Floods	Flow velocity	HA.I 6	WP7
Performance of Hazard-Mitigation Measures	Impact Variables	River and Urban Floods	Urban runoff	HA.I 7	WP7
Performance of Hazard-Mitigation Measures	Impact Variables	Salt-Water Intrusion	Volume salt flux	HA.I 8	WP7
Performance of Hazard-	Impact Variables	Salt-Water Intrusion	Salt wedge length	HA.I 9	WP7

Mitigation Measures					
Performance of Hazard-Mitigation Measures	Impact Variables	Coastal Floods, Coastal Erosion & Storm Surges	Damages to public and private goods caused by extreme events/storms	HA.I 10	WP7
Performance of Hazard-Mitigation Measures	Actionable Variables	Drought	Water requirements	HA.A1	WP5/WP8
Performance of Hazard-Mitigation Measures	Actionable Variables	Drought	Irrigation requirements for specific crops per unit area	HA.A 1	WP5
Performance of Hazard-Mitigation Measures	Actionable Variables	Drought	Percentage variations in reservoir capacity	HA.A 2	WP5
Performance of Hazard-Mitigation Measures	Actionable Variables	Eutrophication	Duration of water turbidity monitoring period downstream of the reservoir	HA.A 3	WP5

Performance of Hazard-Mitigation Measures	Actionable Variables	River and Urban Floods	Vegetation cover on riverbanks	HA.A 4	WP6
Risk	Vulnerability	Adaptive Capacity	Existence of adaptation policies/strategies	RI.V 1	WP2
Risk	Vulnerability	Adaptive Capacity	Existence of integrated development plans: conservation, protection, adaptation, land use planning, controls by authorities	RI.V 2	WP2
Risk	Vulnerability	Adaptive Capacity	Composite risk indices	RI.V 3	WP3
Risk	Vulnerability	Ecosystem robustness	Social capital	RI.V 4	WP9
Risk	Vulnerability	Ecosystem robustness	Extension of agricultural canal network (km), normalised upon the total network	RI.V 5 (contribute to 2.2 - B)	WP5
Risk	Vulnerability	Ecosystem robustness	Morphological quality index (IQM)	RI.V 6	WP6
Risk	Vulnerability	Ecosystem robustness	Linear meters of restored shore	RI.V 7	WP6

Risk	Vulnerability	Copying capacity	Monitoring system	RI.V 8	WP7
Risk	Vulnerability	Copying capacity	Critical Success Index (CSI) for Urban Flash Flood Forecasts	RI.V 9	WP7
Risk	Vulnerability	Copying capacity	Irrigation technology and pumps	RI.V 10	WP8
Risk	Vulnerability	Ecosystem susceptibility	Rate of change of SOC, in the arable layer (0-30 cm), within case studies in the reference basin	RI.V 11	WP8
Risk	Vulnerability	Ecosystem susceptibility	Potential soil erosion	RI.V 12	WP8
Risk	Vulnerability	Ecosystem susceptibility	Land Degradation Neutrality indicator (UNEP SDG 15.3.1)	RI.V 13	WP8
Risk	Exposure	Social system exposure	Population density exposed to flood hazards in the whole regions territories of the District	RI.E 1	WP7
Co-benefits	Environmental co-benefits		Number of analysed water samples at monitored sites	CB.E 1	WP6
Co-benefits	Environmental co-benefits		Ecological/ landscape connectivity and scenarios	CB.E 2	WP6

Co-benefits	Environmental co-benefits		Ecosystem services assessment	CB.E 3	WP6
Co-benefits	Environmental co-benefits		Improved understanding of riparian zone functioning as a nutrient buffer	CB.E 4	WP6
Public Acceptance	Mainstreaming		Dissemination of project results	PA.M 1 (contribute to 11.1 - B, 11.2 - B)	WP10
Public Acceptance	Acceptance		Willingness of relevant stakeholders to engage in this project and future ones	PA.A 1	WP2/WP4/ WP6/WP10/WP11
Public Acceptance	Acceptance		Commitment of relevant stakeholders to engage in this project and future ones	PA.A 2	WP2/WP4/ WP6/WP10/WP11
Public Acceptance	Acceptance		Perceived effectiveness of the actions	PA.A 4	WP9
Public Acceptance	Acceptance		Perception of co-benefits	PA.A 5	WP9
Public Acceptance	Knowledge		Awareness and behavioral change regarding the environmental and climate problems addressed	PA.K 1	WP4

Public Acceptance	Knowledge		Understanding the importance of the actions	PA.K 2	WP6
Public Acceptance	Knowledge		Knowledge/awareness about adaptation measures and their implementation	PA.K 3 (contribute to 11.3 - B)	WP9, WP10
Public Acceptance	Knowledge		Knowledge/awareness about how to evaluate the ecological system and hydro-meteorological risk in a specific area	PA.K 4 (contribute to 11.3 - B)	WP9, WP10

Table A2: List of 38 LPIs included in the LPI Webtool (Deliverable 9.1). The table provides the following information: identification code, first- and second-level descriptors, and related WPs.

LIFE Project Indicators Webtool				
LPI Code	**Indicator**	**First level descriptor**	**Second level descriptor**	**WP**
2.1 - B	Reduction in terrestrial area or length affected by floods, droughts/scarcity or other water-related pressures	Reduction in terrestrial area or length affected by droughts/scarcity		WP5
2.1 - B	Reduction in terrestrial area or length affected by floods, droughts/scarcity or	Reduction in terrestrial area or length affected by floods		WP2

	other water-related pressures			
2.2 - B	Reduction in area or length of surface fresh water bodies or volume of groundwater bodies whose status is affected by issues addressed by the project	River (except reservoir)	Part of the total area/length of the surface water body where physical alterations were addressed	WP5
2.2 - B	Reduction in area or length of surface fresh water bodies or volume of groundwater bodies whose status is affected by issues addressed by the project	River (except reservoir)	Part of the total area/length of surface water bodies or part of the total volume of groundwater where water quantity issues were addressed (e.g. flooding or scarcity)	WP5
2.2 - B	Reduction in area or length of surface fresh water bodies or volume of groundwater bodies whose status is affected by issues addressed by the project	River (except reservoir)	Part of the total length of river turned into free-flowing river	WP5

2.2 - B	Reduction in area or length of surface fresh water bodies or volume of groundwater bodies whose status is affected by issues addressed by the project	River (except reservoir)	Part of the total area/length of the surface water body where hydromorphological alterations were addressed	WP5
2.2 - B	Reduction in area or length of surface fresh water bodies or volume of groundwater bodies whose status is affected by issues addressed by the project	River (except reservoir)	Part of the total area/length of surface water bodies or volume of groundwater where other improvements were made	WP5
2.2 -B	Reduction in area or length of surface fresh water bodies or volume of groundwater bodies whose status is affected by issues addressed by the project	River (except reservoir)	Part of the total length of river (except reservoirs) or area of surface body (reservoir, lake, or transitional waters) or volume of groundwater body whose ecological/chemical status or volume are affected by issues addressed by the project	WP5

2.2 - B	Reduction in area or length of surface fresh water bodies or volume of groundwater bodies whose status is affected by issues addressed by the project	River (except reservoir)	Part of the total area/length of surface water bodies or part of the total volume of groundwater where pollution was reduced	WP5
2.2 - B	Reduction in area or length of surface fresh water bodies or volume of groundwater bodies whose status is affected by issues addressed by the project	River (except reservoir)	Part of the total length/area of surface water bodies where other connectivity improvements were made excluding free flowing river (e.g. connectivity improvements due to fish passes)	WP5
2.4.2 - B	Water Efficiency - Reduction in new water produced/supplied, due to appropriate water saving measures	Water savings in Agricultural Sector	Reduction in new water produced/supplied, due to appropriate water saving measures (please clarify how in the lines a - e).	WP2

2.4.2 - B	Water Efficiency - Reduction in new water produced/supplied, due to appropriate water saving measures	Water savings in Agricultural Sector	Part of the reduction achieved by avoiding water losses/leakages	WP2
2.4.2 - B	Water Efficiency - Reduction in new water produced/supplied, due to appropriate water saving measures	Water savings in Agricultural Sector	Part of the reduction achieved through reduction/prevention of water demand (e.g. using processes/techniques/behaviors that are less water demanding)	WP2
2.4.2 - B	Water Efficiency - Reduction in new water produced/supplied, due to appropriate water saving measures	Water savings in Agricultural Sector	Part of the reduction achieved through other reuse of treated wastewater (urban, industrial, etc)	WP2
2.4.2 - B	Water Efficiency - Reduction in new water produced/supplied, due to appropriate water saving measures	Water savings in Agricultural Sector	Part of the reduction achieved through reuse of treated urban wastewater for agricultural irrigation	WP2

2.4.2 - B	Water Efficiency - Reduction in new water produced/supplied, due to appropriate water saving measures	Water savings in Agricultural Sector	Part of the reduction achieved through other means (other than reuse, loss/leakage reduction, or demand reduction)	WP2
2.4.3 - B	Water Pollution - Diffuse or Point source pollution	CAS_14797-55-8 - Nitrate	Diffuse Source pollution	WP8
9.1 - B	Adaptation area - Reduction of areas vulnerable to climate change	Adaptation of particularly vulnerable area	Particularly vulnerable - Flood management area	WP2
9.2 - B	Infrastructures targeted for climate resilience	Water and sewage facilities		WP5
10.1.1 - B	Number of duty holders engaged by the project			WP2
10.1.2 - B	Number of supervisory/enforcement bodies engaged by the project	European Authorities		WP11
10.1.2 - B	Number of supervisory/enforcement	National Authorities		WP11

	bodies engaged by the project			
10.1.2 - B	Number of supervisory/enforcement bodies engaged by the project	Regional Authorities		WP11
10.1.2 - B	Number of supervisory/enforcement bodies engaged by the project	Local Authorities		WP11
10.1.3 - B	Achievements by project in compliance, enforcement or legislation	Duty holders with increased compliance capacities (e.g. due to improved knowledge, technical means, etc)		WP2
10.2 - B	Involvement of other stakeholders (not duty holders or enforcement/supervisory bodies) in project activities	Other stakeholder entities (e.g. trade unions, sector associations, industrial districts, to be specified in the comments box)		WP4
10.3 - B	Professional training, capacity building and education			WP8/ WP10

11.1 - B	Website	Access to websites and platforms providing the results developed		WP10
11.2 - B	Other tools for reaching/raising awareness	Project reports		WP10
11.2 - B	Other tools for reaching/raising awareness	Media products		WP10
11.2 - B	Other tools for reaching/raising awareness	Publication (Journals / Conferences)		WP10
11.2 - B	Other tools for reaching/raising awareness	Information materials		WP10
11.2 - B	Other tools for reaching/raising awareness	Events and exibitions		WP10
11.2 - B	Other tools for reaching/raising awareness	Print media released		WP10

11.3 - B	Surveys carried out to assess awareness and behavior change regarding the environmental/climate problem addressed	Other civil society organisations (excluding NGOs) (employees/individuals or entities)		WP4
12.1 - B	Networking and synergies with projects/initiatives	LIFE projects		WP10
13 - B	New jobs created	New jobs created within the project consortium		WP11
14.2 - B	Cumulative investments triggered or finance accessed			WP2