



# MASTER ADAPT

MAInSTreaming Experiences  
at Regional and local level  
for ADAPTation to climate change

**FINAL REPORT**



Con il contributo dello strumento finanziario LIFE dell'Unione Europea  
With the contribution of the LIFE financial instrument of the European Community

LIFE MASTER ADAPT – MAInSTreaming Experiences at Regional and local level  
for ADAPTation to climate change - LIFE15 CCA/IT/000061



LIFE Project Number

**LIFE15 CCA/IT/000061**

## **Final Report**

Covering the project activities from 01/10/2016 to 30/06/2020

Reporting Date

**30/09/2020**

LIFE PROJECT NAME or Acronym

**LIFE MASTER ADAPT**

### Data Project

<b>Project location:</b>	Italy
<b>Project start date:</b>	01/10/2016
<b>Project end date:</b>	30/09/2019 Extension date: 30/06/2020.
<b>Total budget:</b>	€ 1.591.174,00
<b>EU contribution:</b>	€ 954.702,00
<b>(%) of eligible costs:</b>	60,00% of total eligible budget

### Data Beneficiary

<b>Name Beneficiary:</b>	Regione Autonoma della Sardegna - Assessorato della difesa dell'ambiente
<b>Contact person:</b>	Mr. Filippo Arras
<b>Postal address:</b>	Via Roma n. 80, 09123, Cagliari, Italy
<b>Telephone:</b>	+39 070 606 + direct 8035
<b>E-mail:</b>	farras@regione.sardegna.it
<b>Project Website:</b>	<a href="https://masteradapt.eu/">https://masteradapt.eu/</a>

# 1. Table of contents

1.	Table of contents .....	4
2.	List of key-words and abbreviations .....	5
3.	Executive Summary .....	5
4.	Introduction.....	7
5.	Administrative part .....	9
5.1	Description of the management system (Action F1) .....	9
6.	Technical part.....	11
6.1	Technical progress, per Action .....	11
	Action A1. Climate Analysis and vulnerability assessment at regional level.....	11
	Action A2. Assessment of mainstreaming processes in selected climate change adaptation practices across the EU .....	14
	Action C1. Setting adaptation targets at regional and sub-regional level.....	16
	Action C2. Effective methods for mainstreaming and multi-level governance in the definition of regional adaptation strategies .....	19
	Action C3. Mainstreaming the adaptation strategy and measures for intermediate administrative level: groups of municipalities and metropolitan cities .....	25
	Action C4. Replicability and transferability of the project's results .....	29
	Actions D1 and D2. Monitoring and measuring the LIFE Project Specific Indicators and other relevant indicators .....	33
	Action E1. Communication and dissemination of results.....	35
	Action E2. Networking with other projects.....	40
	Action F1. Project management and monitoring of project progress.....	47
6.2	Main deviations, problems and corrective actions implemented .....	47
6.3	Evaluation of Project Implementation .....	47
6.4	Analysis of benefits.....	53
7.	Key Project-level Indicators .....	57
8.	Comments on the financial report .....	59
8.1	Summary of Costs Incurred .....	59
8.2	Accounting system .....	63
	Brief presentation of the procedure of approving costs .....	64
	Time registration system .....	65
	Procedures for selection of suppliers and sub-contractors .....	65
	Reference to the LIFE project on invoices .....	66
8.3	Partnership arrangements .....	66
8.4	Certificate on the financial statement .....	66
8.5	Estimation of person-days used per action.....	67
9.	Project Gantt Chart.....	68

10. Annexes .....	69
10.1 Administrative Annexes .....	69
10.2 Technical Annexes .....	69
10.3 Dissemination Annexes.....	69

## 2. List of key-words and abbreviations

AB: Associated Beneficiary

AMBIT: Ambiente Italia srl

CA21L: Coordination of Italian Local Agenda 21

CB: Coordinating Beneficiary

CG: Coordination Group

FLA: Lombardy Foundation for the Environment

GA: Grant Agreement

ISPRA: Istituto Superiore per la Protezione e la Ricerca Ambientale

NAP: National Adaptation Plan

PA: Partnership Agreement

PNACC/PRACC: National/Regional Adaptation Plan to Climate Change

PM: Project Manager

RAS\_Amb: Sardinia Region - General Directorate for the Environment

RL\_Amb: Lombardy Region - General Directorate for the Environment, Energy and Sustainable Development

SC: Steering Committee

SD: Sustainable Development

SNACC/SRACC: National/Regional Adaptation Strategy to Climate Change

SNSvS/SRSvS: National/Regional Sustainable Development Strategy

UNISS: University of Sassari

IUAV: Istituto Universitario di Architettura di Venezia

## 3. Executive Summary

The LIFE MASTER ADAPT project aimed to develop and test innovative tools of multi-level governance, to support regions and local authorities in defining and developing adaptation to climate change strategies and policies, and providing a common methodology for mainstreaming adaptation to CC to address the needs of groups of towns or cities that share the same vulnerabilities and whose administrations have a similar capacity to respond to climate change

In these terms, the main results of the project consist of steering documents and guidelines, based on the latest scientific evidence on the effects of climate change, intended for administrators and technicians of the administrations of regions and cities. A further important result, on different administrative levels, has been the direct involvement for the construction of the method of the stakeholders directly affected by the need to integrate the adaptation policies in the sectoral plans and programs.

The project was conceived and written at a time when Italy had adopted the National Strategy for Adaptation to Climate Change (SNAC, June 2015) and had just started the Plan's drafting process (2016); among the Regions, only Lombardy had its own regional strategy and was preparing to draw up an action plan for its implementation (then adopted in December 2016). Only after the MASTER ADAPT funding has been granted, the Italian State has begun the technical and regulatory process for drafting the National Adaptation Plan (currently under SEA procedure), which is expected to be adopted. Thanks to the MASTER ADAPT project and with the use of the developed tools, the Sardinia Region has approved its Regional Strategy of Adaptation to Climate Change (SRACC), as a mainstreaming strategy.

As explained further below, while retaining the idea, the structure and the objectives of the project, MASTER ADAPT has a number of reflections in the process of drafting Regional Adaptation Plans and thus becomes even better in the role of forerunners of LIFE projects: in this case to study and test methodologies to be introduced in ordinary institutional pathways. Furthermore, thanks to a collaboration established with the Italian Ministry of the Environment, it was possible to transfer the tools produced by MASTER ADAPT into the national process (mainly the Action C2 Guidelines) also in order to give a new push to the implementation of the National Adaptation Plan to Climate Change.

The partnership of MASTER ADAPT consists of both important institutional partners (Sardinia Region - coordinator of the Commission for Energy and Environment (CAE) of the national Conference of Regions and Autonomous Provinces and formerly coordinator of the Environment and Energy Commission (ENVE) of the European Committee of the Regions - and Lombardy Region - the first region in Italy to adopt its own adaptation strategy) and scientific partners with specific curriculum on adaptation at international level (ISPRA – Istituto Superiore per la Protezione e la Ricerca Ambientale, Lombardy Foundation for the Environment – FLA and the University of Sassari and IUAV - University of Venice), supported by companies with important planning and design experiences on environmental issues (Ambiente Italia) and strengthened by a collaborative network on the themes of sustainable development, activated for years on the national territory by the Local Agenda 21 Coordination.

The project main results have been:

- to develop and supply a common methodology to support Regions in the identification of principal vulnerabilities and action priorities with the aim to guarantee an effective downscaling of the Italian NAS objectives;
- to prepare and provide the regions with a methodology to optimize the mainstreaming in other regional policies and the multilevel governance of the adaptation policies in the context of sub regional and local authorities;
- to provide guidelines for the adaptation governance in urban areas: municipality aggregation and metropolitan cities will be able to optimize the relationships and coordination with urban planning and the development of private/public partnerships;
- to boost the adoption process of the National Plan of Adaptation to CC, also following the adoption of the Guidelines for Regional Strategies by the Conference of Regions and Autonomous Provinces and sent to the Minister of the Environment;
- to provide a guidance, with a focus on the two selected territorial administrative levels characterizing the project (metropolitan cities and aggregation of municipalities), in order to incentivize the integration of adaptation in large area planning tools (such as the Covenant of Mayors for Climate and Energy initiative or the River Agreements).

During the project, some small deviations or variations with respect to the initial forecasts were necessary, both to seize some opportunities that emerged in the course of activities, such as the involvement of the Regions and the Italian national government and thus improve the project objectives; and, in last months, to address the unpredictable event of the COVID-19 pandemic which required the redesign of some activities. The specific steps are described after in the document in relation to the individual actions.

## 4. Introduction

**Description of background and problems:** In recent decades, the European continent extensively experiences the effect of changes in climate-related environmental conditions, which will become even more relevant in the coming years. The combination of such environmental changes with impacts exerted by human pressure on natural resources are leading to consider Europe as one of the most vulnerable areas to climate change (CC) (IPCC, 2014).

Generally, many risks can be identified: increased number of people affected by flooding in river basins and coasts; significant reduction in water availability; number of people affected by extreme heat events; relevant economic losses in agriculture due to decreasing crop yields driven by changes in temperature and precipitation patterns.

Especially the Mediterranean basin will be among the most affected areas by global climate changes.

Differences between geographical areas (e.g. between Northern and Southern European regions) are expected in the nature and magnitude of climate impacts.

Lombardy (Northern Italy) and Sardinia (centre of the Mediterranean basin) regions could represent the two extreme of the national geographical features (from the Alpine areas of Lombardy to the coastal areas of Sardinia), which will experience and manage all the three key risks identified at EU level.

Lombardy, for its particular regional position and for its geographical, territorial and socioeconomic features, presents a high vulnerability to climate changes impacts. Past trends and future scenarios suggest for the coming decades a marked increase in mean temperatures and in the frequency and intensity of heat waves events, a decrease in snow and ice cover, and changes in seasonal precipitation patterns such as a rainfall decrease in summer season.

Climate projections for Sardinia also show an increase in temperature compared to the baseline period, as well a decrease in the mean annual amount of precipitation. Changes in climatic conditions could affect key sectors for Sardinian economy (i.e. agriculture and tourism). Changes in climatic conditions can alter agricultural productivity, in terms of quantity and quality of agricultural products, water supply and the hydrological regime, with implications for water resources availability. Increases in irrigation requirement are expected for the main crops cultivated in Sardinia because of climate change. Moreover, water demand increases can derive from socio-economic changes, urbanization, population growth, and life style changes, causing a serious concern. Other climate change-related pressures include changes in fire probability and severity, with a longer fire season and increased fire risk, increase of coastal erosion risk and desertification.

Dealing with such different impacts and vulnerabilities is very complex because they affect a wide range of policy sectors, including social and economic factors. There is the need to understand the vulnerability for each specific area to CC, increase the resilience of the EU economy and society to the predicted impacts of CC, and find solutions for adaptation. In this way, Lombardy and Sardinia could be considered representative regions not only at the Italian level, but also at the European one, with specific problems similar to other European areas. The analysis of CC vulnerability and the adaptation mainstreaming in such regions could be useful to guide other Countries in the development of Adaptation Plan.

Individual authorities and departments often lack the means for planning and coordinating adaptation across different sectors. It is very important bringing together the patchwork of research and data already available on climate impacts linking together the main adaptation elements that need to be considered across the region and within any local government sector.

**Description of the objectives:** The project led to identify and test innovative tools of multilevel governance to support regions and local authorities in defining and developing adaptation strategies and policies. In particular, starting from what had been developed in Lombardy region, the project identified an operative and scalable methodology to optimize and

make effective the targeting and integration of sectoral regional policies with respect to the climate change adaptation.

In order to be effective, regional policies need to be developed at the local level combining/integrating a top down and bottom up approach. In particular, the project aimed to address the needs of newly instituted local context, such as the metropolitan cities or the municipal aggregation, which share the same vulnerability and the similar response capacity of the actual local authorities, but are missing a common methodology for adaptation mainstreaming. New models of governance had been defined and tested which could be able to integrate regional and local adaptation policies and measures.

**Replicability and transferability:** The proposed mainstreaming process for the design and implementation of regional adaptation strategies through the "vertical" coordination between different levels of territorial government (i.e. state, regions and other local authorities) and the "horizontal" coordination between different policies (territorial, landscape, environmental, agricultural, civil protection) could be easily replied in other Italian regions (given the role of Sardinia as Italian National Coordinator of the Committee of the Regional Administrations) as well as in other EU local governments, since the mainstreaming process of the proposed adaptation strategy has been designed taking into account the most significant European experiences (Austria, Switzerland, UK, Finland) and the proposed methodologies and tools are suitable for areas with different morphological, sociological, economic, and environmental characteristics, which are pioneers for CC related issues. For this purpose, a cooperation agreement has been signed between FLA (on behalf of the project consortium) and the Environmental Agency of Austria (action C4).

The best practices selected in action A2 involved regional and local authorities from different EU Countries, so strategic international actors connected with the partners have taken advantage from the acquisition of new information and methodologies, and become in turn beneficiaries of the project results. Workshops and other networking activities have started an active collaboration between actors across the EU, encouraging synergies, capitalizing on what has already been done and starting up new initiatives.

In order to amplify the replicability and transferability of MASTER ADAPT results, information about project's activities, methodologies and developed tools (also in term of guidelines) have been published into the European Climate Adaptation Platform (Climate-ADAPT), developed by a partnership between the European Commission and the European Environment Agency with the aim to share initiatives, documents, tools, and essential information on CC adaptation across Europe.

For a better outcome of the project, because the target is entirely of Italian nationality, the project documents are written in Italian, with an abstract in English for dissemination and networking on the international level.

An English version of the most important documents (Layman's Report, leaflet, Notice boards, extended summary of the guidelines and definitive technical documentation) have been realised in order to increase the replicability and the transferability of the method in the international context.

## 5. Administrative part

The LIFE MASTER ADAPT project has been coordinated by the Sardinia Region (hereinafter also referred to as RAS\_Amb) in partnership with the following associated beneficiaries: Lombardy Region - General Directorate for the Environment, Energy and Sustainable Development (hereinafter also RL\_Amb); Ambiente Italia srl (AMBIT); Coordinamento Agende 21 Locali Italiane - Coordination of Italian Local Agenda 21 (CA21L); University of Sassari (UNISS); Lombardy Foundation for the Environment (FLA); Italian National Institute for Environmental Protection and REsearch (ISPRA); Istituto Universitario di Architettura di Venezia - University of Venice (IUAV).

The project benefits of a private funding by Fondazione CARIPLO.

According to the GA, a formal Partnership Agreement, between the coordinating beneficiary and all the partners was signed on 3<sup>rd</sup> March 2017 (sent with the midterm report as Annex A.VI). The project, whose conclusion was initially scheduled for 30/09/2019, has been extended to 30/06/2020 in order to take the opportunity to provide an effective tool for the implementation of the PNACC (Italian NAP to Climate Change), consisting of the "Guidelines for the regional adaptation strategy" of Action C2, that have been shared through the Conference of Regions and Autonomous Provinces and sent to the Italian Minister of the Environment (see better in Action C2). A second reason for the request was that, in mainstreaming processes as the one developed by the project, is necessary to increase the minimum level of knowledge and to strengthen the awareness of target beneficiaries, requiring a sufficient time to mature the results achieved in activities such as workshops or meetings.

According to the project, each AB was directly involved in the coordination of one or more actions, but each partner collaborated in all activities. The group of project representatives constituted the steering committee of MASTER ADAPT.

The partnership, made up of public bodies, universities and public and private research organizations, allowed the project to be developed in all the envisaged parts, starting from the scientific bases of knowledge of past, present and future climatic trends, passing from vulnerability analyses and impacts of climate change, up to the development of the governance method for the mainstreaming of adaptation to climate change in the plans and programs of the regional administrations, municipalities and metropolitan cities.

### 5.1 Description of the management system (Action F1)

In order to manage the project and to translate into operational instructions the contents of GA and of PA, an Operational Manual for the administrative and financial management (*Manuale operativo per la gestione*) was written by the CB and sent to the ABs.

The Operational Manual and its annexes (sent with the midterm report as Annex A.VII), together with the Quality Plan, the Project Operational Agenda and the Indicator Table, constitutes the Executive Project Plan of MASTER ADAPT. The Manual represents a flexible and dynamic tool. The CB monitored quarterly the progress of the expenses on the basis of documents and proofs of expenses sent by ABs.

As stated in the Operational Manual (article 2), each beneficiary made a formal appointment of the staff assigned to the project, with a secondment letter: unless otherwise indicated by the beneficiary, the project management contact person (Article 5 PA) is identified in the project manager. The group of project representatives constituted the *steering committee* of MASTER ADAPT.

The project foresees, for each action, a beneficiary responsible for the implementation and one or more beneficiaries who work together for the implementation.

For the financial management of the project, RAS\_Amb has awarded a contract of collaboration for the entire duration of the project. The collaborator, under the supervision of the PM of RAS\_Amb, deals with the financial representatives of the ABs, and requesting and updating the reporting of the expenses of all beneficiaries. The exchange of project documentation takes place via e-mail and through a specific web exchange area on the reserved area of the *masteradapt.eu* site.

The CB is responsible for the financial management, in particular for collecting beneficiaries' financial statements, controlling the costs reported and the related supporting documents, preparing and submitting Intermediate and Final Reports to the Commission; receiving and transferring the pre-financing payments of the Commission and private co-financer (Fondazione CARIPO) to ABs.

Financial statements are completed in a quarterly manner by all Beneficiaries and uploaded, together with the supporting documents related to the expenditures occurred in the three months concerned, in the secure area of MASTER ADAPT website (*masteradapt.eu*).

The CB controls the financial statements and supporting documents made available, and archives them in the project file "LIFE MASTER ADAPT"; where the case, CB asks for clarifications and integrations to the concerned beneficiaries.

The data of the individual financial statements are then reported in a management form "MA scostamenti.xls" prepared by the CB with specific functions that allow monitoring of financial progress, including charts of the costs incurred, broken down by action and by partners.

All the Beneficiaries used the official "*life\_financial\_reporting\_2014-2016beneficiaries\_231017*" and the official timesheet format (and related updates published on the official website of the LIFE program), with additional functions that allow monitoring of financial progress broken down by action.

Following the first monitoring visit, the EASME<sup>1</sup> suggested a new reporting schedule of the "periodic project reports":

- Mid-term Report: 31 march 2018, submitted on 2nd April 2018
- Progress Report: 30 september 2019
- Final Report: 30 september 2020

Since the project start, several meetings were held to share information, assess and review the project status:

- Kick-off meeting, 25 October 2016, Cagliari;
- First Monitoring Visit, 20-21 March 2017, Cagliari;
- First Management Meeting, 27 November 2017, Cagliari;
- Second Monitoring Visit, 26 June 2018, Cagliari;
- Third Monitoring Visit, 27 June 2019, Cagliari;
- Fourth Monitoring Visit, 7 May 2020 (Financial session) and 20 May 2020 (Technical session) via Webex web-conference (due to COVID-19 emergency);
- Second Management Meeting, 15 April 2019;
- Final Management Meeting, 22 June 2020.

---

<sup>1</sup> Communication EASME B3/BD/fl D (2017) 2869763 of 17 May 2017

## 6. Technical part

### 6.1 Technical progress, per Action

#### ***Action A1. Climate Analysis and vulnerability assessment at regional level***

<b>Foreseen start date:</b> 10/2016	<b>Actual start date:</b> 10/2016
<b>Foreseen end date:</b> 09/2017*	<b>Actual (or anticipated) end date:</b> 02/2018
Status: completed	
<i>*according with the CE communication EASME B3/BD / fl D(2017) 2869763 – 17 May 2017</i>	

Compared with the planned output and the time schedule, the analysis performed in Action A1 required more time. One of the most relevant problem was related to the selection of a conceptual framework and the definition of a common assessment methodological approach.

This aspect was not simple to solve, since the vulnerability concept has undergone a long evolution process. As it is reported in the last IPCC report (AR5, 2014), a new conceptual framework describing vulnerability and risk was proposed: the approach is therefore new and this work represents one of the first attempts to apply it. Time was spent on finding a common definition and approach between partners in order to propose, in the framework of the project, a shared methodology to be used by local stakeholders in the next actions (C1, C2, C3). However, this delay didn't affect the beginning of the other actions.

**Main goal:** to provide a knowledge base in terms of climate-related threats, expected climate change impacts required as input information for the adaptation target setting at Regional and sub-Regional level (Action C1, C2 and C3), and to provide guidelines for climate analysis and vulnerability to local administrations.

**Implemented activities:** A1.1 Climate Analysis, A1.2 Vulnerability assessment at regional and local level, and A1.3 Guidelines development.

**Description:** action A1 was addressed to analyse both current climate trends and future climate (task A1.1), as well as to assess vulnerability to climate change impacts in the target areas of the project (task A1.2). ISPRA performed climate analysis and future climate scenarios over all the target areas. At the regional level, climate trends analysis was carried out over Sardinia, where average variations with respect to the 1971-2000 reference mean of temperature, precipitation and extreme climatic indices were computed. A warming tendency characterizes maximum, mean and minimum temperature since the early '80s.

As regards future scenarios, the evolution of temperature (minimum, maximum and average) and precipitation over Sardinia was examined for the next decades of XXI century. The model outputs followed two different socio-economic and greenhouse emissions scenarios as defined by the IPCC, which respectively represent an intermediate (RCP4.5) and a high emission scenario (RCP8.5). Future climate changes were evaluated as differences between the projected value of climatic variable or index and its corresponding mean of the base period 1971-2000. The analysis was focused on the following three-time horizons: 2021-2050, 2041-2070 and 2061-2090.

Based on a literature review, the partners involved defined the best conceptual framework to adopt for the vulnerability assessment (i.e. IPCC ARV) and shared a common methodological approach.

For each potential climate change impact, each partner identified the indicators for climate hazard, exposure, sensitivity and adaptive capacity. All necessary data were collected and classified, and a common database was created to be used for the vulnerability analysis. As final output, aggregated indices of exposure, sensitivity, adaptive capacity, and the global vulnerability index were calculated and mapped for all the investigated areas and per each potential impacts.

These results helped in understanding the vulnerability to the major impacts of climate change in the target areas, which represent the fundamental input information for the project implementation actions.

Following the common methodology agreed with other partners, the target areas were separately studied by each partner, selecting the potential impacts of climate change for the areas and sectors identified.

In particular: ISPRA performed the vulnerability assessment over the target area of the union of municipalities in northern Salento; UNISS performed the analysis of vulnerability to climate change for the Sardinia Region and for the target areas (Sassari Metropolitan Network and Cagliari Metropolitan City); IUAV carried out the vulnerability assessment for the area around Venice; FLA investigated the target area of the aggregation of municipalities in northern Milan.

**Obtained results:** reference climate scenarios, exposure, sensitivity, adaptive capacity and vulnerability maps, for all project target areas (*deliverable D1* - "Report on climate analysis and vulnerability assessment results in the pilot region (Sardinia region) and in the areas targeted in action c3"). The standardization of the method used for climatic analysis and vulnerability has led to the drafting of specific guidelines for local administrations (task A1.3, *deliverable D2* - "*Linee guida, principi e procedure standardizzate per l'analisi climatica e la valutazione della vulnerabilità a livello regionale e locale*"<sup>2</sup>).

For this reason, although framed as a preparatory action, it has been considered necessary for the partners to devote a coordinated work to the action, as the results have been based not only on the project, but mainly on the methodology that is intended to disseminate outside. The partnership considered it important that this analysis should have the maximum foundation; in this sense, it is good to point out that, at the moment, it is still open to discussion even in the specialist field.

The MASTER ADAPT Vulnerability Analysis are among the first examples in Italy to practice the content of the leading European guide document<sup>3</sup>. This innovative approach has been particularly appreciated even beyond European borders (i.e. at the "*10th International Conference on Urban Climate/14th Symposium on the Urban Environment - ICUC10, New York*").

**Staff involved:** the action has been under the responsibility of ISPRA, with the contribution of IUAV, FLA, AMBIT, UNISS and RAS\_Amb.

**Problems encountered:** an extension of the deliverables deadline was asked in order to complete the planned analysis. Among the major technical problems, the following are indicated:

- elaboration of useful climate trends and future scenarios in order to appropriately support the vulnerability analysis;
- sharing a common conceptual framework and a methodological approach for the vulnerability assessment due to the recent evolution of the definitions and concepts related to vulnerability and risk framework;

---

<sup>2</sup> The document is written in Italian. See paragraph 4 for considerations regarding the language of documents.

<sup>3</sup> "*The Vulnerability Sourcebook*" - *Concept and guidelines for standardised vulnerability assessments* (2014), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH on behalf of German Federal Ministry for Economic Cooperation and Development (BMZ), Special unit 'Climate'

- ensuring a homogeneous local implementation of the global conceptual framework: technical problems are related to the selection of appropriate sensitivity and adaptive capacity indicators, normalization of values, weighting and aggregating of indicators;
- lack/scarcie availability of appropriate data required for the implementation of the methodological approach for the vulnerability assessment.

Due to extra time needed to agree on a common methodology to be used to perform the vulnerability analysis to climate change planned in Action A1, the work carried out within this action was delayed and an extension of the deliverables deadlines was asked in order to complete the planned analysis. However, this delay did not affect other actions.

**Indicators:** the project indicators are monitored by a spreadsheet consisting of three sections, updated on a quarterly basis, on the occasion of the deadlines established for reporting by the partners. The Indicator Table (*deliverable D75*) is attached in Annex T.II.

Advancement indicators: show the progress status of the project deliverables and milestones and is automatically updated following the completion of the schedule ("*MA - All. A cronoprogramma.xls*", attached to the Operational Manual).

Financial indicators: shows the financial progress of the project, in terms of cost incurred for this action, divided by cost category.

Progress indicators: show the physical progress of this action in terms of n. of worked hours for the personnel employees/non employees and n. of travels covered for the implementation of the action.

***Action A2. Assessment of mainstreaming processes in selected climate change adaptation practices across the EU***

**Foreseen start date:** 10/2016

**Actual start date:** 10/2016

**Foreseen end date:** 04/2017

**Actual (or anticipated) end date:** 07/2017

Status: completed

The delay is mainly due to the effort made to collect a more significant number of questionnaires filled.

**Main Goal:** acquire direct and useful information on the best examples and successful practices already implemented in different EU areas regarding top-down and side-by-side mainstreaming processes of climate adaptation policies and innovative governance approach dealing with climate policies at regional and local level.

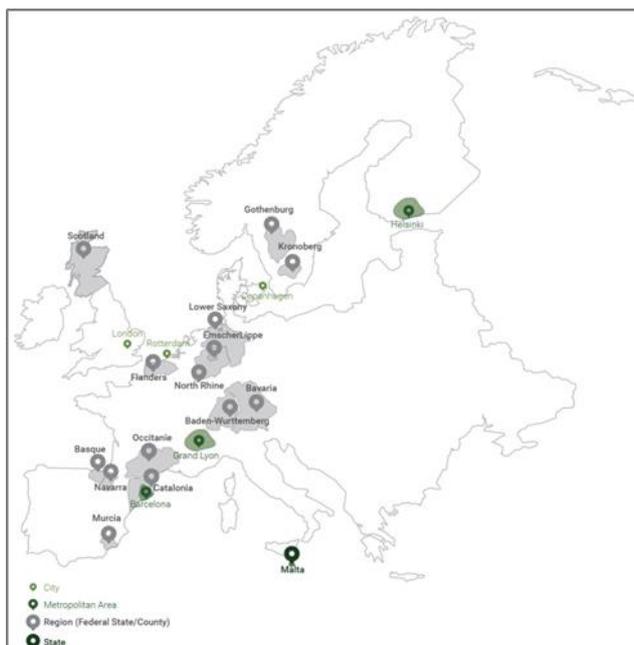
**Implemented activities:** A2.1 Selection and analysis of EU Best Practices and A2.2 Creation of an EU network and capitalisation of experiences.

**Description:** MASTER ADAPT project focuses on adaptation policies at subnational level (regional, provincial and local). In order to acquire direct and useful information in different EU areas, action A2 involved mainly the subnational level from different EU Countries.

To reach the objective it was prepared a questionnaire regarding the main phases in developing Adaptation Policies at sub national level. The self-assessment survey has been conceived as a questionnaire with 25 questions. The main themes addressed included the following: the adaptation strategy setting process (Part A); the adaptation implementation process (Part B); the evaluation of the adaptation setting and implementation process including the administrative bodies and stakeholders involvement on it (Part C).

The partners UNISS and ISPRA collaborated in the preparation of the questionnaire to be submitted to the stakeholders.

Instead of the preview five bilateral meetings, it was organized a workshop ("*Climate change adaptation practice across EU*") on 20 April 2017 in Milan, where three authorities (Catalonia Region, Kronoberg County, Baden-Württemberg Federal State) were invited to present their one experiences. The reason of the change proposed to the project's monitor (EASME B3/BD/fl D(2017) 2869763 of 17 May 2017) was to involve all partners in the exchange experience. Indeed all project partners participated presenting the project (RAS\_Amb), bringing the Lombardia region experience on adaptation strategy (FLA and RL\_Amb), presenting the first results of the questionnaires (AMBIT) and taking part on the discussion with the three authorities (including ISPRA, IUAV UNISS and CA21L).



The 21 answers (sent with the midterm report as *deliverable D6*) of the questionnaire received were fully analysed and a detailed analyse Report was prepared (sent with the midterm report as *deliverable D7* "*Climate Change adaptation practices across the EU - Mainstreaming adaptation policies at regional and local level*"). The Report included also some examples of sectoral mainstreaming of adaptation policies across Europe.

The Report summarise also the experiences of Catalonia Region Climate Change Office (Spain), Environmental Protection Agency of the Baden-Württemberg Federal State (Germany) and County of Kronoberg (Sweden), all three having participated to the workshop that took place in Milan; and experience of Malta acquired during a bilateral meeting.

In Annexes (Annex T.II – Deliverable D7bis) is included a Brief Report with the results of the questionnaire in Italian.

UNISS selected some best practices implemented at EU level for the adaptation of agricultural and forestry sectors to climate change.

The A2 Report was sent with an email of thanks to all 40 authorities contacted, inviting the ones that didn't had time to answer to do it even after the deadline. A 22<sup>nd</sup> questionnaire filled was received after the deadline for the A2 Report presentation (so not considered in the analysis documented in the report).

**Obtained results:** a higher participation of the authorities than expected: 21 questionnaires (the project proposal objective was 10 questionnaires to be collected) received from 40 sent. The higher number of answers received allowed to prepare a more significant analysis of the work that has been done by the public authorities across Europe regarding climate change adaptation, in particular the main critical issues faced by the same authorities during the adaptation policy and planning process. A good result is also the fact that the French association Comité 21 asked the authorization to translate the questionnaire in French and the possibility to distribute autonomously the questionnaire among its members, but unfortunately any news about the outcomes were received until now.

**Staff involved:** the Action has been under the responsibility of AMBIT, with the contribution of all partners.

**Problems encountered:** other than the delay, no major problems have been encountered during the action development.

**Indicators:** the project indicators are monitored by a spreadsheet consisting of three sections, updated on a quarterly basis, on the occasion of the deadlines established for reporting by the partners. The Indicator Table (*deliverable D75*) is attached in Annex T.II.

Advancement indicators: show the progress status of the project deliverables and milestones and is automatically updated following the completion of the schedule ("*MA - All. A cronoprogramma.xls*", attached to the Operational Manual).

Financial indicators: shows the financial progress of the project, in terms of cost incurred for this action, divided by cost category.

Progress indicators: show the physical progress of this action in terms of n. of worked hours for the personnel employees/non employees and n. of travels covered for the implementation of the action.

### **Core Actions. Premise on Actions C1, C2 and C3**

On 21 April 2017, a coordination meeting between the partners aimed to launch the "core" actions of the project was held in Milan. Specifically, the program of activities has been defined and it has been discussed a common terminology. This latter issue is not secondary to a theme in which the main definitions are constantly being updated: it is not superfluous to point out that even in this case the scientific debate is open. As for the vulnerability analysis (Action A1), in order to avoid further misunderstandings and possible delays in the project, we have chosen to devote a lot of space to the deeper into these aspects.

For each of the actions, their respective action coordinator partner (FLA, RAS\_Amb, IUAV) defined an operational agenda, to identify individual tasks, timelines and tasks needed to achieve the intended action targets.

When writing the agendas, it has emerged that actions C1, C2 and C3 cannot be addressed individually in isolation, but have many contact points for which coordination of the three agendas is necessary, as they need to:

- projected activities within a specific action can instead be developed within another action;
- some activities can be developed in parallel in two or more actions with different approaches, then selecting the most representative path.

In order to not introducing variants to the project but merely better specify the activities to improve the results, the priority has been given to the second mode.

In particular, there is discussion about how to define adaptation actions in target areas and the structure of guidelines for the development of regional strategies: both activities are provided in C2 (deliverable), but require that the setting methodology should already start in C1.

### **Action C1. Setting adaptation targets at regional and sub-regional level**

**Foreseen start date:** 04/2017

**Actual start date:** 04/2017

**Foreseen end date:** 12/2019\*

**Actual (or anticipated) end date:** 12/2019

Status: completed

*\*according with the CE communication Ares(2019)3996323 - 24/06/2019*

**Main goal:** All project partners, each for its reference pilot case, have to produce from "basic matrices" to "final matrices" of adaptation objectives and options through a process which integrates expert judgements and framework reference knowledge, with a participatory process of co-production with territorial stakeholders.

**Implemented activities:** C1.1 Setting and mainstreaming the general adaptation goals at regional and sub-regional level, C1.2 Identification, selection and prioritization of local adaptation options and C1.3 Criteria for measures implementation, climate information and the role of "knowledge-brokers"

**Description:** action C1 activities started with the preparation of a coordination meeting that was held at Lombardy Region headquarters on April the 21, 2017. The meeting gathered all project partners involved in action C1. The meeting was the occasion to: i) review action C1 objectives, deliverables and milestones; ii) recall the associated deadlines; iii) discuss about a first proposal of a workplan that FLA presented to all partners.

After the meeting, all partners cooperated to a literature survey (May-September 2017) aimed at collecting and reviewing already available guidelines conceived to drive regional and sub-regional adaptation processes.

The results of the literature review were a necessary support for the further development of a methodology that FLA shared with all partners as a tool to support the process to define local adaptation objectives and options.

This methodology (discussed with the partnership on the occasion of several plenary or bilateral remote meetings) outlines several steps from the vision to climate change adaptation options,

going from a "basic matrix" to a "final matrix" of objectives and options through a process that integrates expert judgements and framework reference knowledge (e.g. National Adaptation Strategy, information available at the regional/local scale) with a participatory process of co-production with territorial stakeholders, carried out in various forms, such as meetings, workshops and questionnaires. The work was done in all target areas of the project.

**Obtained results:** in accordance with the workplan outlined in the methodology, all project partners, each for its reference pilot case, have produced the "final matrices of objectives".

These matrices represent the final version of the deliverables. The developed methodology represented the basis of the Policy Guidance that MASTER ADAPT also produced in the framework of this action. In addition, the methodology for identifying and prioritize adaptation objectives and options developed by MASTER ADAPT was disseminated and shared with other institutions and projects, as part of the networking activities, and it was crucial for the development of two Local Adaptation Plans for Flood Risk in two municipalities of the Sassari Metropolitan network.

Consequently, to the agreed project prolongation, the activities in action C1 go on until June 2019. Within this timespan, more meetings and workshop (also linked to actions C2 and C3) are carried out in the different pilot areas (see for instance the seminar held in Seveso on September 28<sup>th</sup>, 2018 for the pilot area of North Milano – Seveso) in order to refine the basic matrices of adaptation objectives and options into final ones, shared and agreed upon with the local stakeholders and final target users.

Six different deliverables (aggregations of several documents) related to action C1 are produced:

1. D10 A matrix of general and specific objectives of Sardinia Regional Adaptation Strategy, on the basis of the assessment of impacts, vulnerability and risks
  - a. Drought
  - b. Fires
2. D11 A detailed Policy Guidance for setting adaptation objectives and planning for adaptation at regional and sub-regional level (in connection with Lombardy Region)
3. D12 A matrix of general and specific objectives of the area of North Milano - Seveso, on the basis of the assessment of impacts, vulnerability and risks
  - a. Heatwaves
  - b. River Flooding
  - c. Urban Flooding
  - d. A Vision for adaptation in the area of North Milano – Seveso
  - e. Compendium of final matrices for adaptation goals for the area of North Milano – Seveso
4. D13 A matrix of general objectives of the Adaptation Strategy elaborated for the municipalities of North Salento
5. D14 A matrix of general objectives of the Adaptation Strategy elaborated for the metropolitan area of Venice
6. D16 A matrix of general and specific objectives of the Adaptation Strategy elaborated for the territories of 2 municipalities from Sardinia
  - a. Cagliari: Drought
  - b. Cagliari: Fires
  - c. Cagliari: Heatwaves
  - d. Sassari: Drought
  - e. Sassari: Fires
  - f. Sassari: Heatwaves

**Staff involved:** The Action was under the responsibility of FLA, with the contribution of all partners.

**Problems encountered:** No major problems/drawbacks encountered.

**Indicators:** the project indicators are monitored by a spreadsheet consisting of three sections, updated on a quarterly basis, on the occasion of the deadlines established for reporting by the partners. The Indicator Table (*deliverable D75*) is attached in Annex T.II.

Advancement indicators: show the progress status of the project deliverables and milestones and is automatically updated following the completion of the schedule ("*MA - All. A cronoprogramma.xls*", attached to the Operational Manual).

Financial indicators: shows the financial progress of the project, in terms of cost incurred for this action, divided by cost category.

Progress indicators: show the physical progress of this action in terms of n. of worked hours for the personnel employees/non employees and n. of travels covered for the implementation of the action.

***Action C2. Effective methods for mainstreaming and multi-level governance in the definition of regional adaptation strategies***

**Foreseen start date:** 07/2017

**Actual start date:** 07/2017

**Foreseen end date:** 03/2020\*

**Actual (or anticipated) end date:** 03/2020

Status: completed

\*according with the CE communication Ares(2019)3996323 - 24/06/2019

The C2 action proceeded according to the operational schedule prepared and sent to the partners. All tasks have been concluded.

**Main goal:** the action, starting from the experience of FLA in regional planning for adaptation to climate change gained through the cooperation with Lombardy Region (already positively assessed by EC), is aimed to provide the key essential steps to promote a change of the horizon of all regional policies. Strictly linked with C1, action C2 had the main objectives to:

- standardize and upgrade the method to implement an effective horizontal and vertical mainstreaming and to involve stakeholders, elaborating a work plan so that it can be easily transferred and available to other regions;
- apply the methodology in Sardinia Region, involving all the General Directorates and agencies, in order to identify the key areas on which the strategy will be structured;
- define a climate change adaptation regional strategy, indicating the primary objectives, the subjects to be involved and the planning tools on which it is necessary to operate.

**Implemented activities:** C2 action involved the implementation of the following 3 activities: C2.1 Identification of main actors; C2.2 Implementation of the horizontal main streaming methodology; C2.3 Vertical regional mainstreaming test cases.

**Description:** during the coordination meeting of 27 November 2017 (first management meeting), the Coordination Group (CG) foreseen in the task C2.1 has been constituted, involving technical and scientific partners AMBIT, ISPRA, FLA, IUAV and UNISS, supported by the institutional partner RL\_Amb under the coordination of RAS\_Amb and the support of CA21L for the activities of communication and dissemination.

Within the group, each component had specific tasks, consistent with its role in the project and the specific background of each one:

- RAS\_Amb coordinated the CG and organized and coordinated the workshops of task 2;
- AMBIT, ISPRA, IUAV, UNISS and CA21L supported RAS\_Amb in the preparation of the contents of the workshops and for the facilitation activities;
- RL\_Amb collaborated with RAS\_Amb in the preparation of the contents of the workshops, focusing in particular on the experience of the Lombardy regional strategy;
- FLA gave RAS\_Amb the technical support for structuring the matrix of objectives and adaptation options;
- CA21L communicated the results of the workshop activities.

In the task C2.2, to describe the competence framework needed to define the governance structure and to map the existing adaptation actions in regional plans and programs, the CG developed:

- a "questionnaire for building the competence framework", addressed to the regional structures, with which identifying the relevant subjects<sup>4</sup>;

---

<sup>4</sup> The questionnaire is available online at the link:

[https://docs.google.com/forms/d/e/1FAIpQLSeB9N8FFMLXPZmmaZpS\\_J7OdvNBzZdVV15R-fi-BO4aCvRng/viewform](https://docs.google.com/forms/d/e/1FAIpQLSeB9N8FFMLXPZmmaZpS_J7OdvNBzZdVV15R-fi-BO4aCvRng/viewform)

- an addressing document for the mapping of sectoral Plans and Programs, intended for officials and executives responsible for processing and implementing P/P, with which making the mapping process intrinsic in drafting the planning/programming process itself.

These two instruments have been considered fundamental to define how to structure the guidelines for regional strategies, since only once the framework is defined it will be possible to identify the process for the implementation of priority adaptation actions.

In task C2.2, RAS\_Amb involved the mapped stakeholders (regional departments, general directorates and agencies - more detailed in Annex D.II sent with the mid-term report) in a series of workshops oriented to identify the key areas where the adaptation strategy will be structured and generate an active involvement of the agencies and departments of the Sardinia Region. This work contributed to the construction of a methodology for the prioritization of the adaptation sectoral measures in the framework of the regional adaptation strategy to CC.

A work methodology layout was represented in Annex T.IV (sent with the mid-term report), in which the scheduled workshops are strictly connected with the project deliverables and the coordination group meetings.

During the first two workshops (*deliverable D23* in Annex T.II, pictures in Annex D.IV) the methodology was presented, sharing with the stakeholders the most important scientific knowledge of climate change and presenting the results of the preliminary actions A1 and A2, as well with the basic structure of the matrix of objectives and options for climate change adaptation.

In particular, this workshop was oriented to: (i) provide a basis of common knowledge on adaptation to climate change, (ii) illustrate the scenarios and impacts expected for the Sardinia Region and (iii) complete a first mapping of the regional administration's skills.

The second workshop was oriented to explain the process of planning and implementation of the adaptation strategy adopted by the Lombardy Region and to present the first bases of the adaptation strategy for the Sardinia Region.

During the third workshop, the interventions of the experts were oriented to present experiences of governance, planning and representation of climate phenomena according to adaptation - with some examples already realized - and to provide the construction of objectives for adaptation to climate change in sectoral or territorial plans.

The fourth workshop aimed to use a different approach for the construction of strategic adaptation goals, inspired by the conceptual framework of *Future Studies*, with the secondary objective of understanding the difference in approach compared to the one developed so far, focused on the past and oriented to the present.

The cycle of meetings proceeded with a fifth workshop, in which the representatives of Regional Departments, bodies and agencies and of the target areas of Sardinia were involved in the planning of the path aimed at identifying the adaptation actions to be included in the regional sectoral planning.

During a further VI workshop at regional level (Cagliari, 24 October 2019), the participants discussed how to take into account the impacts of climate change and related adaptation actions in the elaboration of the Regional Sustainable Development Strategy (SRSvS).

In detail, the participants were invited to build an "impact chain" starting from the identification of a specific climatic risk (risk of death due to "heat waves"), a geographical context (Metropolitan City of Cagliari) and a sector (public health), trying to identify the basic factors for increasing the adaptive capacity, sensitivity and exposure, and trying to correlate these factors to the SDGs sustainable development goals (see report in Deliverable D27).

Regarding complementary actions carried out outside the LIFE project, it is significant to report that in August 2017, the Region of Sardinia signed an agreement with the University of Sassari (regulated by a specific agreement with own funding) for the preparation of a study aimed at drafting the Regional Adaptation Strategy (SRACC). In this framework, the Sardinia Region, with the support of the University of Sassari, extended the methodology for the validation of options and priorities for the implementation of adaptation strategies studied in MASTER ADAPT to the

whole process of drawing up of the Regional Strategy and Plan for ACC. This collaboration, thanks also to the various scientific partners, further strengthened MASTER ADAPT's character, in terms of innovation and experimentation characterizing the LIFE projects, strengthening and qualifying both pathways. The SRACC was awarded, at national level, with the first Prize as a Best Practice for Sustainable Development in a National Competition for Public Administration (ForumPA).

The most relevant result of Action C2 is constituted by the "Guidelines for the regional strategies of CCA" (deliverable D24) and by the path of sharing and dissemination of them on a national scale.

The MASTER ADAPT partnership, thanks to the participation of the partners in various national and international working groups, has assessed that the Guidelines could be a useful tool to support the Regions in drafting their adaptation strategies, as well as support for the Offices of the Ministry of the Environment in the path of supporting the Regions of the CREIAMO PA project.

In fact, at the moment, the document is still the only one officially available at national level to guide the adaptation process and translate the major objectives of international agreements into concrete actions on the territory.

The Guidelines were shared with the Environment and Energy Commission (CAE), formally adopted by the Conference of Regions and Autonomous Provinces that sent them in december 2019 to the Minister of the Environment (see file "*Lettera a Ministro Costa.pdf*" in deliverable D42) as a good practice appreciated by the Regions to form the basis of the NAP.

Thanks to the anticipation, both in its SRACC and in the MASTER ADAPT regional guidelines, of the methods of integration between adaptation to climate change and sustainable development, the Sardinia Region was called to share its experience as leader of the grouping of regions of the CREIAMO PA – L2WP1 project, focused precisely on the integration between CCA and SD. The grouping includes Lazio, Liguria and Puglia and is part of a broad path of support to the Italian Regions for the drafting of the Regional Sustainable Development Strategies (SRSvS). The experience of Sardinia is considered important and endorsed by the MATTM as it has developed the adaptation strategy to the CC in a positive sense and has placed it as the basis for its Sustainable Development Strategy. The agreement with Puglia, initially envisaged in the project as the dissemination of the results of MASTER ADAPT (see action C4), has therefore developed within a broader and more important exchange with several regions, further qualified by the participation and coordination of MATTM. During the project, some meetings were held between the regions of the group (Genoa, July 2019; Bari, September 2019) and a final plenary workshop of the first cycle of meetings, which was held in Cagliari (November 2019) in which the Metropolitan City of Cagliari is also involved. In this VII regional workshop, a dialogue was developed between stakeholders (at local, regional and national level) aimed at implementing the 2030 Agenda of sustainable development, starting from climate impacts, in order to integrate strategic tools both at regional and metropolitan level and local.

Starting from the tools developed by the Sardinia Region as part of the Climate Change Adaptation Strategy and the MASTER ADAPT Guidelines, the laboratory involved the participants in the guided compilation of the "impact chain" relating to a given climate risk in order to define the actions to be included in the plan tools to reduce exposure to climate risks and increase adaptive capacity in an integrated manner with the other Sustainable Development Goals.

In the After LIFE period the activity will continue and will be further developed: also thanks to this activity and to Sardinia's role in the grouping, a first result already achieved beyond the terms of the project is that the SRACC and MASTER ADAPT formed the basis of the SustainADAPT project funded by the Ministry of the Environment for the development of connections between adaptation and sustainable development coordinated by the University of Sassari in implementation of the SNSvS. The project will run for 18 months and will be a further opportunity to strengthen the path outlined so far.

Also thanks to this role, the SRACC and MASTER ADAPT also formed the basis of the SustainADAPT project funded by the Ministry of the Environment for the development of

connections between adaptation and sustainable development and coordinated by the University of Sassari in implementation of the SNSvS.

In the regional path, RAS\_Amb involved the cities of Cagliari and Sassari in the "Climathon"<sup>5</sup> event (including the annual events of 2017, 2018 and 2019): launched as part of the collaboration of the Sardinia Region with the Climate-KIC Italy, the initiative has been an interesting opportunity to develop the strategic themes of adaptation to climate change with the target areas of the project in Sardinia and thus optimize the ongoing research of MASTER ADAPT.

Furthermore, the Climathon events allowed the dissemination of the project in the target areas and to test the MASTER ADAPT tools, even as a partial replacement of the territorial events foreseen in C4 and which was not possible to carry out due to the restrictions imposed by the Covid-19 emergency (compensation for impossibility to carry out the events foreseen in action C4 "due to force majeure". For this reason, specific actions will be carried out also in the After LIFE).

The resulting ideas, developed by Cagliari and Sassari in collaboration with RAS\_Amb in the actions of MASTER ADAPT, allowed the introduction of specific priority criteria into financial instruments such as European SIF (also as deliverable of action C2) and promoted the design of innovative interventions at urban scale (i.e. for the Urban Innovative Actions - UIA and European Green Capital award) and introducing specific measures in the guidelines for the urban plans (within the instruments analysed in action C3) of the cities involved.

Regarding the CCA actions at Sardinia regional Level, the project focused in particular on sharing, support and participation activities, to create the conditions so that the identification of adaptation actions in the sectoral plans and programs could be set in a path of increasing awareness and skills of decision makers, not as a sterile selection exercise from a portfolio of solutions proposed by experts. With regard to the adaptation measures relating to the efficient use of water resources in agriculture, these ones were identified in a workshop series at regional level. A participatory discussion among the invited stakeholders allowed, starting from the National CCA Plan actions, to identify the measures that best contributed to pursuing the specific objectives in the Agriculture sector identified in the workshop series, up to the prioritization of the actions. The action that stakeholders have indicated most frequently as it contributes to pursuit of sectoral objectives (in particular for objective "*Efficiency and monitoring of water infrastructure*") is "*Investments in tangible fixed assets for network efficiency and water saving*"; then follow the action "*Programming of economic tools for managing climate risk (insurance, funds mutual aid, etc.)*", in particular for the objective "*Ability of financial institutions to support the community (insurance)*", and the action "*Training initiatives for local administrators and for technicians and professionals in the various sectors identified by the PNACC*" for the objective "*Increase the availability of information: systematize knowledge; making existing information systems efficient so that they are updated, usable and dialogue with each other*".

Moreover, on the occasion of the launch of the written procedure for the changes and the approval of the 2018 annual implementation report of the ERDF Sardinia 2014-2020 program, the regional DG Environment - in its role of Environmental Authority of ESIF - under the thrust of the project MASTER ADAPT proposed a modification of the selection criteria, with the introduction of the reward criterion "*Ability to implement mitigation and adaptation strategies to climate change*" within the reward/priority criteria of the program (deliverable D26).

One of the objectives of task C2.3 is the development of 8 adaptation measures in the Lombardy Region, through the implementation of the Lombardy Region Adaptation Strategy (2014) and the Lombardy Region Document for Action (2016), to test the concrete development of adaptation options.

According to this, FLA with RL\_Amb shared the path for the identification of 8 measures among those indicated in the Regional Strategy and the actions defined in the Document for Action,

---

<sup>5</sup> "Climathon" is a world-wide 24-hour climate change event that took place simultaneously in many cities around the world where each city identifies a local climate challenge to be solved (<https://climathon.climate-kic.org/>)

during a plenary workshop (05 November 2017) with all the General Directions of the Lombardy Region engaged in the regional adaptation process (Deliverable D19).

The measures try to respond to some criteria:

- i) they are present in the Document for Action and in the Regional Strategy of the Lombardy Region;
- ii) they have a low cost intensity;
- iii) they are already included in the current regional plans and programs or provide for tools that can be in the current sectoral planning;
- iv) they can be immediately implemented;
- v) they are spread over different sectors and identify some priority and/or high impact interventions;
- vi) there is the possibility of integrating/connecting them with interventions implemented on a local scale (8 municipalities of the Seveso river basin) in the C3 action;
- vii) in some cases they are win-win with mitigation policies.

The activities continued with bilateral and plenary meetings to define the eight adaptation measures envisaged by the C2 action.

In May 2020, RL\_Amb supported by FLA produced and delivered a report on the identification of the adaptation measures for Lombardy (see Deliverable D28 "*Azione C.2 – Rapporto sulle misure di adattamento identificate per Regione Lombardia (2017-2020) – v.12.05.2020*", in Italian). Following the identification (see Deliverable D19) of a set of possible adaptation measures in the context of the regional administration course in Lombardy, Deliverable D28 completed the identification of 10 measure and illustrated their description, developments and implementation in the frame of various initiatives and plans to which they respectively belong. The document presents the links of the identified actions with the Regional Adaptation Plan by Region Lombardy and provides a form for the description of each measure. The identified measures come from an information campaign on climate change (with a description of the main impacts on the territory and the adaptation path undertaken by the Lombardy Region) aimed: to the integration of the Regional Territorial Plan (PTR) in accordance with the regional law for the reduction of land consumption and the revision of the Regional Landscape Plan; to the update of the Action Plan of the Seveso River Contract; to incentivise the introduction and maintenance of agricultural practices with low environmental impact, through production models more attentive to a sustainable use of resources and forest management interventions of the Lombardy Region, consistent with the objectives of the Regional Action Document for Adaptation to Climate Change.

**Obtained results:** With the workshop series, a path of stakeholder involvement was carried out, with the aim of conducting a mainstreaming methodology for CCA in the regional administration structures. 69 stakeholders and 25 regional structures have been involved (see deliverable D23) in a cycle of five workshop aimed to: provide a basis of common knowledge on adaptation to climate change; illustrate the scenarios and impacts expected for the Sardinia Region; raise awareness in the Public Administration. The regional stakeholders participated to the construction of objectives for adaptation to climate change in sectoral or territorial plans, according to their competence, up to the identification of adaptation actions to be included in the regional sectoral planning.

In relation to the stakeholders involved, it is believed to have reached good levels of participation with respect to the potential necessary to activate a process of mainstreaming on a regional scale, as well as on a national scale thanks to the ability of the partnership to promote the MASTER ADAPT results as good practices able to support national planning processes for adaptation to climate change (NAP). The most important result is certainly the official acquisition of the regional guidelines by the Conference of Regions and the sending to the Italian Minister of the Environment as a good practice to be shared on a national scale.

Finally, the action carried out at the regional level made it possible to identify a wide set of adaptation actions to be included in the sectoral plans of the Sardinia Region and to implement ten adaptation actions in the Lombardy Region (see above in the description of the action).

**Staff involved:** The C2 action was conducted by RAS\_Amb (beneficiary responsible for implementation) with the technical support of AMBIT, ISPRA, UNISS, FLA, IUAV, RL\_Amb.

**Problems encountered:** No specific problem has been found and the action has been concluded according to the established deadlines.

**Indicators:** the project indicators are monitored by a spreadsheet consisting of three sections, updated on a quarterly basis, on the occasion of the deadlines established for reporting by the partners. The Indicator Table (*deliverable D75*) is attached in Annex T.II.

Advancement indicators: show the progress status of the project deliverables and milestones and is automatically updated following the completion of the schedule ("*MA - All. A cronoprogramma.xls*", attached to the Operational Manual).

Financial indicators: shows the financial progress of the project, in terms of cost incurred for this action, divided by cost category.

Progress indicators: show the physical progress of this action in terms of n. of worked hours for the personnel employees/non employees and n. of travels covered for the implementation of the action.

***Action C3. Mainstreaming the adaptation strategy and measures for intermediate administrative level: groups of municipalities and metropolitan cities***

**Foreseen start date:** 01/2018

**Actual start date:** 01/2018

**Foreseen end date:** 03/2020\*

**Actual (or anticipated) end date:** 06/2020

Status: completed

\*according with the CE communication Ares(2019)3996323 - 24/06/2019

**Main goal:** the action has the main objective of mainstreaming the adaptation strategy at the local level in order to integrate climate issues into the different topics of local strategic plans.

**Implemented activities:**

The methodology proposed and shared by IUAV was discussed and approved by all partners during several remote meetings. Each partners applied the methodology for mainstreaming adaptation objectives and options in the target areas, after a first review of sectoral plans and programmes on going in the different pilot areas. Participatory approaches have been carried out in order to share the methodological approach for mainstreaming adaptation in metropolitan cities and municipalities aggregation and to set adaptation priorities, based on the matrices developed in Action C1 for Cagliari and Venice metropolitan areas and for the aggregations of municipalities in Sassari, Seveso and Puglia areas. The entire process represented the knowledge base for developing the deliverables associated with Action C3, including the two Guidelines:

- Guidelines for the implementation of mainstreaming in metropolitan cities (deliverable D34);
- Guidelines for the implementation of mainstreaming in groups of municipalities (deliverable D35).

CA21L has supported the facilitation processes of the following meetings:

- **3 local technical workshops** in Sardinia (Alghero, 19/7/2018, Sassari 22/10/2018, Cagliari 23/10/2018);
- **3 local technical workshops** in Veneto (Mestre, 25-31/10/2018);
- **1 plenary meeting** (3/10/2018) and **1 local technical workshop** in Puglia (4/10/2018).

CA21L has provided its methodological and technical contribution for the preparation of materials for the territorial workshops. CA21L also contributed to the development and elaboration of the guidelines for the implementation of mainstreaming in metropolitan cities and in groups of municipalities in order to realize guidelines easy to be used by local administrators and public technicians.

In April 2020, FLA provided a final report on the activities performed on the pilot area of North Milano – Seveso concerning action C3 (see "*Report caso di studio Nord Milano – Seveso*", in deliverable D36-D37-D38 - "MA Report Areas.pdf"). The report presents the work carried out on the pilot area of the 8 municipalities in the river Seveso basin, the cooperation set up with local and regional institutions and describes 4 measures that have been identified and supported within the frame of ongoing local territorial processes, plus 4 measures that are going to be implemented thanks to MASTER ADAPT. The actions identified for the North Milan - Seveso pilot area largely relate to the Action Plan of the Seveso River Contract in its November 2019 version and therefore relate to the management and mitigation of the hydraulic risk in the Fiume Seveso sub-basin, such as infrastructural (flood basins), methodological and governance actions at sub-basin or municipal scale. Added to these, there are further actions implemented thanks to the process activated by MASTER ADAPT: the signing of agreements and conventions ("Agreement for the action of the municipalities of the Seveso river basin towards local adaptation to climate change" and "BrianzaAcque Convention, ATO and FLA "); the support equipment for a civil protection exercitation; the definition of the exposure and vulnerability framework of the assets of the local cultural heritage.

In May 2020, RAS\_Amb and Metropolitan City of Cagliari signed a collaboration agreement for the implementation of LIFE MASTER ADAPT project and the SRACC in metropolitan areas (see "MA accordo CittàMetroCagliari.pdf" in Deliverable D27). The agreement provides for a collaboration between these public authorities to identify the plans and programs deemed of mutual interest in order to develop adaptation objectives and actions, using the methods and tools developed by MASTER ADAPT project, with the objective to strengthen the forecasting capacity and management of risk and emergency situations. The collaboration will help to strengthen the territories for developing local strategies for adaptation to climate change according to a participatory process and allowing for a coherent implementation of the regional CCA strategy (SRACC). The agreement aims to apply the guidelines for evaluation, the methods and the tools identified in the SRACC and by MASTER ADAPT within - among others - the Metropolitan Strategic Plan, the Sustainable Mobility Urban Plan, the Metropolitan Agenda for Sustainable Development and the Santa Gilla Lagoon contract, with the aim of defining and implementing strategies, objectives and actions to adapt to climate change.

**Staff involved:** the action has been conducted under the responsibility of IUAV, with the contribution of all partners.

**Description:** this action led to the definition of two guidelines ("Guidelines for the implementation of mainstreaming in metropolitan cities" and "Guidelines for the implementation of mainstreaming in groups of municipalities") mainly addressed to local administrators, technicians and officials of Public Administrations and to the local government bodies.

The main purpose of the documents is to suggest a method for mainstreaming adaptation to climate change in Plans, Strategies and policies of Metropolitan Cities and Groups of Municipalities, according to a vertical and horizontal process.

The two documents are both structured in two parts:

- the first part, considered as introductory, contains a general introduction to the topic and context within which adaptation to climate change in public administrations is currently taking place;
- the second part contains the guidelines for the mainstreaming of adaptation to climate change within the territorial governance processes specifically delegated to Metropolitan Cities and Groups of Municipalities.

The results obtained for this action are also evident from the Report areas ([https://www.masteradapt.eu/wordpress/wp-content/uploads/2020/05/MA\\_Report\\_finale-areepilota.pdf](https://www.masteradapt.eu/wordpress/wp-content/uploads/2020/05/MA_Report_finale-areepilota.pdf)), which demonstrates how LIFE MASTER ADAPT project accompanied policy makers in the mainstreaming of adaptation actions to climate change in their existing plans and programs.

Through the MASTER ADAPT project, awareness-raising actions have been developed to promote adherence to the CoM, as SECAPs are voluntary tools useful for developing adaptation objectives and actions, especially at the supra-municipal or metropolitan city level, which would allow the Regions to implement its own regional Strategies on the local scale and direct the planning of local authorities to CCA.

Thanks to the project, 17 mayors signed a commitment for developing and adopting adaptation strategies and action plans. Of which, 10 mayors signed the Mayors Adapt or the new Covenant of Mayors for Climate & Energy (Municipalities of Campi Salentina, San Donà di Piave, Cagliari, Alghero, Sassari, Verona, Piacenza, Cuneo, Comacchio, Union of Municipalities of Tresinaro Secchia), and 7 municipalities signed the "*Carta per l'azione dei comuni del bacino del Seveso verso l'adattamento locale ai cambiamenti climatici*", a document for the action of municipalities towards local CCA promoted by FLA, which involves the municipalities of the Seveso river basin (Municipalities of Bovisio Masciago, Cesano Maderno, Seveso, Meda, Barlassina, Lentate sul Seveso and Varedo) and commits them to develop and adopt adaptation strategies, including SECAPs, as a direct consequence of the work carried out within the MASTER ADAPT project (deliverable D33).

In general, it is possible to state that more than 30 Municipalities were involved in various capacities with MASTER ADAPT in the commitment process to develop their own SECAPs (among the others, the Municipality of Oristano and the 7 Municipalities of Northern Salento) and various CCA actions will be implemented thanks to the process which MASTER ADAPT activated as, among others:

- "*Acquisition of green areas through the <<building credit>> tool*": the action promotes the design of public green areas with the aim of climate adaptation, increasing the number of trees in urban regeneration actions, creating ecological corridors and green-belts;
  - "*Schools Training Campaign in reference to adaptation to CC*": the action intends to develop specific training events at schools, with the involvement of all citizens, on issues related to adaptation to climate change;
  - "*Pilot project on the Rain Garden*": the measure aims to promote "pilot projects" to be extended throughout the territory, in particular in the parking areas, replacing asphalt with the use of highly draining materials;
  - "*Integration of adaptation measures into municipal plans/programs/agreements*";
  - "*Strengthening of urban drainage backbones*": the objective of the action is to increase the resilience of the territory to exceptional phenomena related to climate change, increasing de-waterproofing interventions in urbanized areas and promoting sustainable urban drainage;
- "Planning and management of public green areas in urban context"*: the purpose of this action is to support the ecosystem services provided by the green areas to the city, to establish networks of green infrastructures with recreational and ornamental value, mitigating the effects of climate change with the aim of reducing summer temperatures in cities, heat waves, the effects of the heat island, changing the methods of surface runoff and soil permeability of rainwater, favourably modifying the urban microclimate, mitigating the effects of pollutants.

The long-term vision of SECAPs, which combines mitigation, adaptation and sustainable energy, is strongly correlated with the main objectives of MASTER ADAPT. For this reason, it is likely that the number of signatories to the agreement will continue to grow during the After Life phase.

In addition to the 17 signatory municipalities, further n. 8 good practices were directly or indirectly involved in signing action plans and adaptation strategies thanks to the support of LIFE MASTER ADAPT (Municipality of Novoli, Venice, San Stino, Caorle, Concordia Saggittaria, Stra, Reggio Emilia, Città Metropolitana di Cagliari).

**Problems encountered:** as also emerged from the direct confrontation with the European Coordination Office of the Covenant of Mayors (the confrontation took place during the webinar of May 6, 2020, as described in deliverable D33), starting from 2015 the CoM has suffered a slowdown at national and European level, despite several awareness-raising actions. The same Office, as well as various local coordinators, struggle to encourage new members or even to keep the activity of the already signatory Municipalities.

During the meeting, some weaknesses of the path were jointly assessed, for example deriving from the complexity of some passages and the lack of scientifically valid and sufficiently clear accompanying documents, to which the MASTER ADAPT project intended to respond, with some proposals of possible solutions for overcoming these difficulties. Through the MASTER ADAPT project, awareness-raising actions have been developed to promote adherence to the CoM, as SECAPs are voluntary tools useful for developing adaptation objectives and actions, especially at the supra-municipal or metropolitan city level, which would allow the Regions to implement its own regional Strategies on the local scale and direct the planning of local authorities to CC. The MASTER ADAPT partnership presented to the Coordination Office some useful proposals to overcome these problems, developed in the project documents. Some dedicated actions at regional level have also been included in the After LIFE Plan in order to further strengthen the process of signing the CoM and implementing SECAPs.

**Indicators:** the project indicators are monitored by a spreadsheet consisting of three sections, updated on a quarterly basis, on the occasion of the deadlines established for reporting by the partners. The Indicator Table (*deliverable D75*) is attached in Annex T.II.

Advancement indicators: show the progress status of the project deliverables and milestones and is automatically updated following the completion of the schedule ("*MA - All. A cronoprogramma.xls*", attached to the Operational Manual).

Financial indicators: shows the financial progress of the project, in terms of cost incurred for this action, divided by cost category.

Progress indicators: show the physical progress of this action in terms of n. of worked hours for the personnel employees/non employees and n. of travels covered for the implementation of the action.

### ***Action C4. Replicability and transferability of the project's results***

**Foreseen start date:** 07/2018

**Actual start date:** -

**Foreseen end date:** 06/2020\*

**Actual (or anticipated) end date:** 06/2020

Status: completed

*\*according with the CE communication Ares(2019)3996323 - 24/06/2019*

**Main goal:** to verify the replicability and transferability of the results at regional level in Italy and Europe and at local level in Italy.

**Implemented activities:** In order to amplify the replicability and transferability of MASTER ADAPT results, information about project's activities, methodologies and developed tools (also in term of guidelines) have been published into the European Climate Adaptation Platform (Climate-ADAPT), developed by a partnership between the European Commission and the European Environment Agency with the aim to share initiatives, documents, tools, and essential information on CC adaptation across Europe.<sup>6</sup>

Replicability of project's results was ensured through dissemination at two levels, according to C4 sub-actions:

- C4.1 - Replicability and transferability of the results at regional level in Italy and Europe;
- C4.2 - Replicability and transferability of the results at local level in Sardinia and Lombardy.

CA21L has promoted and disseminated MASTER ADAPT method, tools and lesson learnt in order to involve public administrations interested in developing the path of mainstreaming for adaptation to climate change.

CA21L has promoted the replicability of results (methods, tools and the lessons learnt) developed by MASTER ADAPT within the national institutional tables in which CA21L participates (e.g. national working groups "Pianeta" (Planet) and "Persone" (People) of the national Forum on Sustainable Development set up by the Ministry of Environment) and through all contacts in the networks with which it is connected at national, European and international level (Rete Città Sane, Associazione Comuni virtuosi, Borghi autentici di Italia, Kyoto Club, ICLEI - Local Governments for Sustainability, Climate Alliance, Comitè 21).

CA21L is also committed as supporter of the Covenant of Mayors Initiative and it contributed to share MASTER ADAPT methods and tools as reference for Municipalities and local authorities working on climate change adaptation.

#### **Description:**

At National and European level, the partnership joined efforts to share the outputs of the project with the other Italian regions and propose the tools developed by the project for the NAP implementation. Thanks to this activity, the implementation of horizontal and vertical mainstreaming at regional level in Italy and Europe was facilitated, on the basis of the actions A1, C1 and C2 outcomes. At national level the following activities were undertaken in order to reach Action's main goal:

- continuous interaction between project partners and Italian Minister of the Environment during the preparation of Italian National Adaptation Plan;
- participation of Lombardy and Sardinia Regions in the activities of the Italian State – Regions Assembly (=Conferenza Stato – Regioni);

<sup>6</sup> <https://climate-adapt.eea.europa.eu/metadata/projects/mainstreaming-experiences-at-regional-and-local-level-for-adaptation-to-climate-change>

- contribution to the project promoted by the Italian Minister of the Environment for increasing green skills of public officials CREIAMOPA and transfer to Liguria, Lazio and Puglia Regions of MASTER ADAPT's outcomes;
- common participation with other Italian regions (Abruzzo, Umbria, Marche) in the UNFCCC Conference of Parties in Madrid in December 2019.

At European level, the activities performed to transfer project results are:

- Inclusion of MASTER ADAPT in the document developed by the Committee of Regions "Regional and Local Adaptation in the EU since the Adoption of the EU Adaptation Strategy in 2013" (2016).
- Active participation in events organized by European institutions such as EC DG Clima, EC JRC, CoR (see also Action E2).
- Involvement of international networks with focus on environmental and climate themes such as 4Motors for Europe, ACB Alpine Convention, Regions4, The Climate Group, Under 2 Coalition.

Moreover, a cooperation agreement has been signed between FLA (on behalf of the project consortium) and the Environmental Agency of Austria.

The Parties agreed on three main points of desirable cooperation, namely:

- the integration of key outputs of LIFE MASTER ADAPT into the CAPA knowledge platform (Climate Adaptation Platform for the Alps). The portal is managed by UBA-Austria on behalf of the Austrian Federal Ministry of Agriculture, Regions and Tourism in the context of the EUSALP process;
- Updating the transnational website "Mapping the Governance of Adaptation to Climate Change in the Alpine Space" (<https://www.wsl.ch/gov-vis-cca/>) with contents analyzed and developed by the LIFE MASTER ADAPT project;
- Presenting and discussing results and experiences of the LIFE MASTER ADAPT project at the network of adaptation policy makers in the Alpine countries (a transnational network of policy makers, coordinated by UBA Austria).

At local level, the activities implemented in order to promote project results and transferability are:

- Active participation in the Covenant of Mayor workshops on how to develop, finance and implement PAESCs: Rome and Milan, 4-7 June 2019.
- Organization of the public conference "Brianza Cambia Clima" in Seveso on 03.10.2019 with the participation of municipalities of the area north Milan and signature of the Adaptation Chart.
- Adoption of the Sardinia Regional Council Resolution "Framework for institutional cooperation agreements between Sardinia Region and Local Authorities", 5.12.2019.<sup>7</sup>
- Call with Committee of Regions, Covenant of Mayor, JRC, ENEA and ISPRA to transfer project results on 06.05.2020.

Furthermore, the following action were implemented at international level with direct results on the territories investigated in MASTER ADAPT:

- Upload of MASTER ADAPT experience on EU Climate-ADAPT web-platform.

---

<sup>7</sup> On May 25, 2020, a first agreement was signed between the Sardinia Region and the Metropolitan City of Cagliari. The agreement aims to integrate adaptation objectives and actions into the metropolitan Urban Sustainable Mobility Plan, the Santa Gilla Lagoon Contract, the three-year Strategic Plan and the Metropolitan Agenda for Sustainable Development.

- Synergies established with the project financed by the Alpine Convention "Local Adaptation to Climate Change in the Alps: bringing the Budoia Charter on the Ground", where municipalities and groups of municipalities of different Regions were involved: from Valle d'Aosta to Friuli-Venezia Giulia regions.

**Staff involved:** the action was conducted under the responsibility of FLA, with the contribution of all partners.

**Problems encountered:**

In the final phase, some dissemination activities were strongly conditioned or cancelled due to the COVID-19 health emergency which, as is known, prevented or severely limited (in Italy before that in the rest of the world) travel and physical encounters between people. In particular, important effects have been experienced on activities related to workshops, meetings and bi-multi-lateral meetings.

There has been also a considerable difficulty in identifying the measures for implementing adaptation strategies, and in particular for their financial coverage, both in the horizontal and vertical mainstreaming. This in fact is due to the reprogramming of EU funds for the Sardinia Region, still underway and aimed at directing investments both in the health system and in other sectors of the regional economy capable of guaranteeing an immediate and effective response to the COVID-19 epidemic, in implementation of the "Coronavirus Response Investment Initiative" (CRII) of the European Commission (Communication COM (2020) 112 final of 13.03.2020).

A further difficulty has been experienced in the stipulation of agreements (both technical and political), because of the efforts of the administrations (main target of MASTER ADAPT) were (and in some cases, still are) concentrated on the emergency management.

However, these agreements will be very useful for the recovery phase, in which it will probably be even more necessary to redefine a sustainability path that has adaptation to climate change as a design element (a proper activity in the After LIFE Plan has been foreseen)..The CB has been aware that the recovery of the situation could not take place in the short term fixed in a potential project extension, whereas, it thinks that to postpone these activities in the After LIFE Plan could produce a major impact and significant advantages; in particular:

- every two years, the CCA Forum event (see the After LIFE Plan) will be linked to capitalization initiatives or projects, as well as upon presentation of the results achieved during the project and its medium-term effects, with an approach more in line with what has already been verified in the project about the need for sedimentation and follow-up of mainstreaming policies and methods developed;
- in the post-emergency phase, the CB can act for channelling the adaptation process to climate change in the reprogramming process of the ERDF 2014-2020 Regional Program which is the strategic project hypothesis, already set out in the previous monitoring reports, to interpret mainstreaming actions not as a mere identification of adaptation measures but as a methodology aimed at integrating adaptation in all sectors of administration and on multiple institutional levels;
- signing of agreements (both technical and political) with regional and local administrations that could be very useful for the recovery phase, in which it will probably be even more necessary to redefine a pathway of sustainability that has adaptation to climate change as one of its priorities. Therefore, the signing of the agreements has been partially postponed to the After LIFE phase, working in the last weeks of the project on the possible further implementation of the contents of the agreements.

**Indicators:** the project indicators are monitored by a spreadsheet consisting of three sections, updated on a quarterly basis, on the occasion of the deadlines established for reporting by the partners. The Indicator Table (*deliverable D75*) is attached in Annex T.II.

Advancement indicators: show the progress status of the project deliverables and milestones and is automatically updated following the completion of the schedule ("*MA - All. A cronoprogramma.xls*", attached to the Operational Manual).

Financial indicators: shows the financial progress of the project, in terms of cost incurred for this action, divided by cost category.

Progress indicators: show the physical progress of this action in terms of n. of worked hours for the personnel employees/non employees and n. of travels covered for the implementation of the action.

***Actions D1 and D2. Monitoring and measuring the LIFE Project Specific Indicators and other relevant indicators***

<b>Foreseen start date:</b> 01/2017	<b>Actual start date:</b> 01/2017
<b>Foreseen end date:</b> 06/2020*	<b>Actual (or anticipated) end date:</b> 06/2020
Status: completed	
<i>*according with the CE communication Ares(2019)3996323 - 24/06/2019</i>	

The actions required more time, as they needed to follow the whole duration of the project, which was granted an extension in June 2020.

**Main goal:** monitoring of the impact of the project actions is aimed at measuring the effectiveness of the project actions as compared to the initial situation in the target areas (baseline situation before the project).

**Implemented activities:** monitoring and measuring the LIFE Project Specific Indicators and other relevant indicators.

**Description:** ISPRA, with the support of the partners involved in the action (RAS\_Amb, AMBIT, CA21L, UNISS, FLA, IUAV), developed a monitoring matrix in order to identify and associate:

- project actions;
- environmental and socio-economic objectives;
- outputs;
- possible indicators to be monitored.

ISPRA, as responsible for the action, conducted a data collection process with the final purpose to elaborate the environmental and socio-economic indicators describing the baseline situation, updated after the vulnerability assessment analysis of the action A1. Each partner contributed to define and populate the indicators and to prepare the two related deliverables (Deliverables D48-D51):

- D48 - Assessment of the environmental impacts of the project actions;
- D51 - Assessment of the socio-economic impact of the project actions on the local economy and population.

The indicators described paint a complex picture of the implementation of the LIFE MASTER ADAPT project. As it often happens, the idea and the implementation can look different.

The project certainly produced some undeniable results: among the most tangible are the tools and guidelines available to the regional and local administrations wishing to undertake the adaptation process as well as the number of local authorities that signed the Covenant of Mayors and are going to prepare a SECAP, or have already done so. Furthermore, the adaptation measures that each target area resolved to implement will only show their effects some years from now, but they are nevertheless a very significant result as they represent pioneering examples that could be replicated in other similar contexts.

As stated previously, mainstreaming is a hardly tangible process and cannot be easily measured and assessed. All this notwithstanding, the socio-economic indicators show that there has been some gained understanding and awareness of climate change and the need to adapt. If the results could not clearly show it, the number of workshop organized and of people reached should mean that some of them, be them professionals, administrators or laypersons, might have come out with a better knowledge of the climate issues at hand.

In terms of outreach, the numbers on the use of website and social media show a good level of engagement. The partners participated to various conferences and disseminated the project results. The issued guidelines are unanimously considered to be valid tools for those administrators who want to tackle climate change in their local authorities. The other documents produced provide useful references for those who want to study the issues of climate vulnerability and adaptation.

Summing up, this document sought to provide an idea of the implementation of the LIFE MASTER ADAPT project, by illustrating the results of the monitoring activity. There has been some progress so far. Even in the uncertain times brought about by the CoVID-19 pandemic there is hope that the project will continue its dissemination in the years following its conclusion.

**Staff involved:** the action is led under the responsibility of ISPRA, with the contribution of all partners.

**Problems encountered:** no specific problems were encountered in the progress of the action.

**Indicators:** the project indicators are monitored by a spreadsheet consisting of three sections, updated on a quarterly basis, on the occasion of the deadlines established for reporting by the partners. The Indicator Table (*deliverable D75*) is attached in Annex T.II.

Advancement indicators: show the progress status of the project deliverables and milestones and is automatically updated following the completion of the schedule ("*MA - All. A cronoprogramma.xls*", attached to the Operational Manual).

Financial indicators: shows the financial progress of the project, in terms of cost incurred for this action, divided by cost category.

Progress indicators: show the physical progress of this action in terms of n. of worked hours for the personnel employees/non employees and n. of travels covered for the implementation of the action.

## **Action E1. Communication and dissemination of results**

<b>Foreseen start date:</b> 10/2016	<b>Actual start date:</b> 10/2016
<b>Foreseen end date:</b> 06/2020*	<b>Actual (or anticipated) end date:</b> 06/2020
Status: completed	
*according with the CE communication Ares(2019)3996323 - 24/06/2019	

**Main goal:** The main goal of the Action E1 was to define a communication and dissemination strategy in order to guide the partners' outreach, optimising the dissemination of results obtained and the knowledge acquired.

### **Implemented activities:**

E1.1 Communication and Dissemination Plan, E1.2 MASTER ADAPT Web site and E1.3 Communication and dissemination tools.

### **Description:**

#### E1.1 Communication and Dissemination Plan

On 21 march 2017 the steering committee approved the "*Communication and dissemination plan*" drawn up by the partner CA21L.

The document lists all the tools and communication activities were meant and have actually been implemented during the project taking into account the specific targets that are to be achieved in the different phases.

The Plan, produced at the beginning of the project, provided a general vision to manage and coordinate the differentiated communications within the project.

Within the Communication Plan, the various key targets, possible overlapping, support for networking actions were identified and coordination of specific actions is established, in order to increase the impact of partnership communications.

The Communication Plan includes the correct use of the project logo, standard communication formats and rules and procedures to eventually correct the activities that are not functional to the purpose. The Communication Plan has been used throughout the duration of MASTER ADAPT for a homogeneous, standard and shared communication by everyone: this modality has represented the basis for a correct management of the project image and guaranteed the coordination of communication and dissemination activities. As foreseen in the project, it identifies the contents to be conveyed, the communication channels, the responsibilities, the timing and the expected results.

#### E1.2 MASTER ADAPT Web site

On 18 January 2017, the website master plan has been approved by all project partners. The website is online from March 2017 at *masteradapt.eu*.

MASTER ADAPT web site is realised in Italian and English version and it has "open" and "restricted" areas (only for MA partners).

The main web site's sessions are:

- Project, with a general project presentation, partners, territories, steps, duration, etc.
- Tools, with all deliverables and technical documents realized by the project
- Library, with the key concepts and international references on climate change
- Communication, with all the news, articles and communication and dissemination produced (i.e. leaflets, Notice boards, Roll-ups)
- Networking area, with the list and link to all the European projects involved
- Contacts, with the contacts of MASTER ADAPT consortium.

The LIFE MASTER ADAPT web site has been updated regularly for the entire duration of the project in order to ensure that the main outputs and results are open for the public.

Updated news have been periodically published in the section "News", about all the events regarding the contents of the MASTER ADAPT project and the project's presentations realized by the partners with all the material (presentations, publications, articles, etc.).

On MASTER ADAPT website all the final outputs are available: the MASTER ADAPT final video with the main results achieved and implemented actions, final communication and dissemination documents with project's results (Layman's Report, leaflet, Notice boards with project's and pilot areas results) in Italian and English version; all deliverables produced during the project period.

The main data related to the website are here reported:

- News published (from April 2017 until the end of the project - 30/06/2020): 104 news, further increased reaching a total of 111 news published at the date of 1/09/2020.
- Uploaded documents: 22 deliverables and technical documents and 10 communication tools (all in double version in Italian and English)
- Documents downloads (from 08/2019): 4,944
- Website users (from 02/2018): 4,014
- Website page views (from 02/2018): 15,049
- Website sessions (from 02/2018): 6,372
- Average visit duration (minutes): 2:20 minutes

### *Social Media*

Specific accounts for the LIFE project MASTER ADAPT have been created on social media:

- Facebook (starting from 2017): <https://www.facebook.com/LIFEMasterAdapt/>
- Twitter (starting from 2017): <https://twitter.com/LIFEMasterAdapt>
- Youtube: playlist of the LIFE MASTER ADAPT project with the final video and the videoclips with the testimonials of all partners:  
[https://www.youtube.com/channel/UCZFFrgoLsYqW\\_XRbBm97aIQ](https://www.youtube.com/channel/UCZFFrgoLsYqW_XRbBm97aIQ)

Contacts generated in the social media amounts to 482 (on 30/06/2020, increased to 526 at the date of 01/09/2020), to which must be added about 8,000 direct contacts of the partners, through their networks (target foreseen: 10,000).

**Facebook:** Followers: 289 (on 30/06/2020) – 327 (on 01/09/2020),

Posts: 204 (on 30/06/2020) – 214 (on 01/09/2020),

Likes: 279 (on 30/06/2020) – 317 (on 01/09/2020).

**Twitter:** Followers: 193 (on 30/06/2020) – 199 (on 01/09/2020),

Tweets: 114 (on 30/06/2020) – 120 (on 01/09/2020).

**Youtube** (from June 2020): 10 videos with 283 visualizations.

The website will continue to be the main channel for the dissemination of the project results and outputs and it will be kept active at least for five years after the end of the project. Even after the project closure, the "News" section of the website will be updated on regularly basis, with all the events concerning MASTER ADAPT. Any presentations issued by the project partners will be available on the website. Even the links to MASTER ADAPT website realized and eventually present on the official partners' websites will be kept active.

### E1.3 Communication and dissemination tools

This action carried out by CA21L, with the collaboration of all partners, allowed to develop all communication and dissemination tools in order to better communicate the results of the project at local, regional, national and European level.

All the foreseen dissemination and communication materials were produced within the deadline of the project (updated with the postponement to June 2020): Notice boards, Project leaflets, Final Layman's report, textile roll ups, video clip, gadgets (see Annex D,I for pictures of dissemination material and deliverables: D54, D57, D58, D58bis and D59 for further information).

***Notice Boards:*** It is a tool intended for the presentation of the project, posted at partner sites, in public spaces, but also a tool to be used also in various dissemination events and exhibitions.

Notice boards were foreseen in 5 different versions (4 in Italian and 1 in English), in colour.

At the beginning of the project, an initial version in Italian and English was realized with the general presentation of the project.

4 Notice boards (1 for each pilot area: Sardinia, Lombardy, North Salento, Venice; 40 copies printed) were realized in Italian and English version with the main results and activities implemented in the territories.

Moreover, a final version of the Notice board (in Italian and English, 16 copies printed) at the end of the project has been realized, with the results achieved and the key numbers.

The final Notice Board, together with the pilot areas ones, can be used by all the partners also as exhibition in the poster sessions in conference or public events, to present the results in local, regional, and national events (in Italian) and at international level (in English).

***Initial Leaflet:*** n. 4000 copies of the initial leaflet in Italian and n. 2000 in English were printed. The format used is a 3-leaf folding in colour (size 30x21 cm opened). The leaflet contains a brief description of the project and its main steps and expected results. Leaflets are distributed mainly during national and international dissemination events.

***Final Leaflet:*** at the end of the project an updated version with results achieved has been realised (2,000 copies in Italian and 2,000 in English were printed). The format used is a 3-leaf folding in colour (size 30x21 cm opened). The leaflet contains a brief description of the project, its main results achieved, its key numbers and the main deliverable produced. Printed leaflets are distributed mainly during national and international dissemination events. An interactive electronic version (pdf file) has been produced and upload on the project website with active link to all documents (deliverable D58).

***Layman's Report:*** 1,000 copies of the Layman's Report in Italian and 500 copies in English were printed. The format used is a A5 booklet in colour (size 14.8x21 cm closed). The Layman's Report contains the complete storytelling of the project, its main results achieved, its key numbers and the main deliverable produced. Printed Layman's Reports will be distributed mainly during national and international dissemination events. An interactive electronic version (pdf file) has been produced and upload on the project website with active link to all documents and guidelines (deliverable D59).

***Roll ups:*** 8 textile roll-ups with pedestal were produced (1 roll up available to each partner), in colour, in Italian language (size 830 x 2000 mm). Roll-ups contain a brief description of the project and its main results, to be exhibited at fairs and events in order to present the project.

At the end of the project, a final version of the Roll-up (in Italian and English) has been realized with the main results and final numbers of the project. This final version has been produced as file ready for printing when – after the emergency situation related to the COVID-19 pandemic – it will be possible for the partners realize events and meetings in the After-LIFE communication activities.

***Final video:*** the video clip, lasting 2.40 minutes, was made by RL\_Amb at the end of the project for the dissemination of the main results and objectives. Available on the dedicated Youtube channel: <https://www.youtube.com/watch?v=37V5T10kJuQ> (Deliverable D58bis).

***Clip video:*** moreover, 8 videoclips with the testimonials of all project partners, who tell the experience and the results gained by MASTER ADAPT, has been realized – at no cost – and disseminated – together with the final video of the project – on the dedicated Youtube channel ([https://www.youtube.com/channel/UCZFFrgoLsYqW\\_XRbBm97aIQ/videos](https://www.youtube.com/channel/UCZFFrgoLsYqW_XRbBm97aIQ/videos)).

***Gadgets:*** at the end of the project, gadgets for final communication and dissemination have been produced: 1,600 pencils, 400 folding fans, 500 organic shoppers, 400 usb pendrives containing MASTER ADAPT deliverables, guidelines and final communication and dissemination tools in file version (Annex D.I).

**Obtained results:** Thanks to the dissemination strategy contained in the Plan and to the other dissemination tools (MASTER ADAPT website and dissemination materials), the project was presented in several dissemination events, as better reported in detail in the Annex D.IV.

During all the disseminating events and exhibitions (Annex D.IV), leaflets (both in Italian and English version) were distributed, notice boards and textile rollups were shown (where possible). All the documents presented (technical reports and slides for presentations) have been prepared in accordance with the shared image defined by the Communication and dissemination Plan.

Over 250 different stakeholders have been involved in the workshops organized within the project (in particular administrators and technicians of municipalities and metropolitan cities). The expected results were achieved in terms of level of involvement, awareness raising, identification of strategic and sectoral objectives/options, identification of actions and selection of the most suitable planning tools for the mainstreaming process. Over 140 professionals took part to the project workshops within the actions C. The main aim was to achieve an active participation of an appropriate number of associations, agencies, local authorities and professionals, in order to make the mainstreaming as multidisciplinary and transversal as possible and this result can be defined fully achieved.

The number of professionals involved and trained regards the quantity of people involved in workshops on the project itself, Climathon events (in Cagliari and Sassari) and other workshops and activities (Europrogettazione in Cagliari, Urbanpromo in Venice), in which MASTER ADAPT partners were involved in the organization and facilitation.

For more information about the web site statistics and the use of the social media (number of documents uploaded in the partner's areas; number of contacts generated in the social media) see above in the description of the action.

**Staff involved:** All the partners are involved, under the responsibility of CA21L.

**Problems encountered:** In the final phase, some dissemination activities have been strongly conditioned or cancelled as a consequence of the COVID-19 sanitary emergency that, as widely known, has stopped or limited travels and physical meetings between people (in Italy earlier than in the rest of the World), preventing all the project activities related to workshops, conferences, and bi- or multi-lateral meetings. However, even with some difficulties or needs of small adjustments, the main project actions have been fully implemented and concluded with regards to the contents and quality of the foreseen deliverables (guidelines).

In the proactive spirit of MASTER ADAPT partnership, the troubles encountered have made it possible to seize some opportunities to experiment new ways for After LIFE activities, and a new format of the Layman's report.

Some of the planned project activities has been reformulated (i.e. printing a smaller number of brochures).

Communication and dissemination activities online have been reinforced, and the communication and dissemination material have been conveyed virtually. The dissemination material, reports and guidelines of the project have been produced also on paper, foreseeing a revival of events and manifestations in presence, later to an attenuation of the disease situation.

Brief versions of the main project guidelines have been realized and printed, both in Italian and English, for a more immediate communication.

Similarly, the Layman's report has been prepared in a more dynamic format, in accordance with the need of follow-up, thus becoming a further tool for the mainstreaming, other than a summary of the reached results.

**Indicators:** the project indicators are monitored by a spreadsheet consisting of three sections, updated on a quarterly basis, on the occasion of the deadlines established for reporting by the partners. The Indicator Table (*deliverable D75*) is attached in Annex T.II.

**Advancement indicators:** show the progress status of the project deliverables and milestones and is automatically updated following the completion of the schedule ("*MA - All. A cronoprogramma.xls*", attached to the Operational Manual).

Financial indicators: show the financial progress of the project, in terms of cost incurred for this action, divided by cost category.

Progress indicators: show the physical progress of this action in terms of n. of worked hours for the personnel employees/non employees and n. of travels covered for the implementation of the action.

## ***Action E2. Networking with other projects***

**Foreseen start date:** 10/2016

**Actual start date:** 10/2016

**Foreseen end date:** 06/2020\*

**Actual (or anticipated) end date:** 06/2020

Status: completed

*\*according with the CE communication Ares(2019)3996323 - 24/06/2019*

**Main goal:** The action E2 aims to create a national and international network with other European projects, especially in the field of climate changes in order to disseminate projects results and tools and to create collaboration with other experiences and opportunity based networks.

**Implemented activities:** The implemented activities are shown in the attached list "MA\_E2\_Agenda Communication and networking event" and "Master Adapt\_Communication and networking table.xlsx" in Annex D.III.

E2.1 International Panel on Adaptation Approaches and multilevel governance for Regions and Local Governments of European Union, E2.2 International, EU and National Events for dissemination and networking and E2.3 Networks of Regional Boards for Adaptation.

### **Description:**

MASTER ADAPT project results have been disseminated through networking activities focused on creating collaboration with other projects and groups of interests, already existing networks and opportunity based networks.

The networking activities has been carried out mapping all Italian and European LIFE projects on climate change adaptation, implemented and on-going, starting from the LIFE Programme database and EU Climate Adaptation Platform database, integrated with the possibility to exchange/share information and practices in meetings, events and conferences.

Networking activities have capitalised all the relationships generated through Action A.2 and developed also through Action C.4, strengthening and spreading them through the involvement of other EU projects in building up a specific network sharing different climate adaptation initiatives.

CA21L has dealt with strengthening the networking between the partners, fostering the exchange of experiences, and pooling a common set of the governance tools for disseminating the good practices on climate changes.

All the activities of communication, dissemination of results and networking have been carried out by all the partners in the framework of institutional tables, other European and national projects, partnerships and networks in which they are involved or members. Each partner has contributed on the mapping of existing projects on the base of its own knowledges and relationships and of its information and communication channels.

In light of the activities carried out with other EU funded projects during the project's period, contacts have been activated overall with 31 projects co-funded by European programmes regarding adaptation, involved in the activities related to the MASTER ADAPT project.

In a nutshell:

### **18 LIFE projects:**

- 7 LIFE projects (foreseen in the approved proposal): LIFE ACT, LIFE BLUE AP, LIFE DERRIS, LIFE GAIA, LIFE GESTIRE2020, LIFE GPP Best, LIFE Sec Adapt.
- 11 LIFE projects (contacts activated during the project's implementation): LIFE Adapt2Clima, LIFE ADAPTATE, LIFE FRANCA, LIFE IRIS, LIFE LOCAL ADAPT, LIFE METRO ADAPT, LIFE PRIMES, LIFE RAINBO, LIFE SIC2SIC, LIFE Urban Proof, LIFE Veneto ADAPT.

**8 Interreg projects:** Interreg ADAPT, Interreg Alpine Space GoApply, Interreg MAREGOT, Interreg Proterina3 Evolution, Interreg RESPONSe, Interreg TRIG-Eau, Interreg RETRALAGS, Interreg ALCOTRA Adapt Mont-Blanc

**3 Horizon 2020 projects:** H2020 Urban Green Up, H2020 Urban WINS, H2020 CLARA.

**1 DG ECHO project:** EPICURO

**1 Climate KIC project:** SUSHI SUSTainable Historic city districts.

All partners have implemented the action of networking with the following projects consortia on adaptation – with meetings, both virtual and in person - to promote the uptake of the tools and lessons learnt of MASTER ADAPT:

Program	Project	Description	Website
LIFE	ACT	Adapting to climate change in time	<a href="http://www.actlife.eu">www.actlife.eu</a>
LIFE	ADAPT2CLIMA	Adaptation to Climate change Impacts on the Mediterranean islands' Agriculture	<a href="http://adapt2clima.eu/en/">http://adapt2clima.eu/en/</a>
LIFE	BLUE AP	Bologna Local Urban Environment Adaptation Plan for a Resilient City	<a href="http://www.blueap.eu">www.blueap.eu</a>
LIFE	DERRIS	DisastEr Risk Reduction InSurance	<a href="http://www.derris.eu">www.derris.eu</a>
LIFE	FRANCA	Flood Risk ANticipation and Communication in the Alps	<a href="http://www.lifefranca.eu/it">www.lifefranca.eu/it</a>
LIFE	GAIA	GAIA – Urban Forestation	<a href="http://www.lifegaia.eu">www.lifegaia.eu</a>
LIFE	GESTIRE 2020	Nature Integrated Management to 2020	<a href="https://www.facebook.com/naturachevale">www.facebook.com/naturachevale</a>
LIFE	GPP Best	Best practices exchange and strategic tools for GPP	<a href="http://www.gppbest.eu/">www.gppbest.eu/</a>
LIFE	IRIS	Improve Resilience of Industry Sector	<a href="http://www.lifeiris.eu/">www.lifeiris.eu/</a>
LIFE	LOCAL ADAPT	Integration of climate change adaptation into the work of local authorities	<a href="https://life-local-adapt.eu">https://life-local-adapt.eu</a>
LIFE	Metro ADAPT	Enhancing climate change adaptation strategies and measures in the Metropolitan City of Milan	<a href="http://www.lifemetroadapt.eu/it/">www.lifemetroadapt.eu/it/</a>
LIFE	PRIMES	Preventing flooding RISks by Making resilient communitiES	<a href="http://www.lifepimes.eu/">www.lifepimes.eu/</a>
LIFE	RAINBO	LIFE RAINBO - Monitoring system for rain and urban flooding	<a href="http://www.rainbolife.eu">http://www.rainbolife.eu</a>
LIFE	SEC ADAPT	Upgrading sustainable energy communities in Mayor adapt initiative by planning climate change adaptation strategies	<a href="http://www.lifeseadapt.eu">www.lifeseadapt.eu</a>
LIFE	SIC2SIC	By bike through the Italian Natura 2000 network	<a href="https://lifestic2sic.eu/">https://lifestic2sic.eu/</a>
LIFE	URBANPROOF	Climate Proofing Urban Municipalities (LIFE15 CCA/CY/000086)	<a href="http://urbanproof.eu/it">http://urbanproof.eu/it</a>
LIFE	Veneto ADAPT	Central Veneto Cities netWORKing for ADAPTation to Climate Change in a multi-level regional perspective	<a href="http://www.venetoadapt.it/">www.venetoadapt.it/</a>

<b>Program</b>	<b>Project</b>	<b>Description</b>	<b>Website</b>
DG ECHO	EPICURO	European Partnership for Innovative Cities within an Urban Resilience Outlook	<a href="http://www.epicurocp.eu/">http://www.epicurocp.eu/</a>
H2020	CLARA	Develop a set of leading edge climate services building upon the newly developed Copernicus Climate Change Services near term forecasts and sectorial information systems (SIS) and sustain their marketability and value	<a href="http://www.clara-project.eu/">http://www.clara-project.eu/</a>
H2020	Urban Green Up	Renaturing Urban Plans with Nature-based solutions	<a href="https://www.urbangreenup.eu/">https://www.urbangreenup.eu/</a>
H2020	UrbanWINS	Innovative strategic plans for urban waste reduction and management	<a href="https://www.urbanwins.eu/">https://www.urbanwins.eu/</a>
H2020	REPAIR	integrated models and methods to develop fast and reliable alternatives for spatial sustainable development strategies	<a href="http://h2020repair.eu/">http://h2020repair.eu/</a>
Interreg	ADAPT	Assist the ADaptation to climate change of the urban systems of the Transfrontier Space	<a href="http://interreg-maritime.eu/web/adapt">http://interreg-maritime.eu/web/adapt</a>
Interreg	ALCOTRA Adapt Mont-Blanc	Adaptation of territorial planning to climate change in the area espace of Mont-Blanc	<a href="http://www.interreg-alcotra.eu/it/decouvrir-alcotra/les-projets-finances/adapt-mont-blanc-adattamento-della-pianificazione">http://www.interreg-alcotra.eu/it/decouvrir-alcotra/les-projets-finances/adapt-mont-blanc-adattamento-della-pianificazione</a>
Interreg	Alpine Space GoApply	Adaptation governance: vertical implementation across territorial levels; horizontal mainstreaming into sector policies; and more active involvement of local, regional & non-governmental actors.	<a href="https://www.alpine-space.eu/projects/goapply/en/home">https://www.alpine-space.eu/projects/goapply/en/home</a>
Interreg	MAREGOT	Coastal Erosion Risk Management and Cross-border Governance actions	<a href="http://interreg-maritime.eu/web/maregot">http://interreg-maritime.eu/web/maregot</a>
Interreg	Proterina3 Evolution	The third step in protecting the territory from natural hazards: participatory evolution	<a href="http://interreg-maritime.eu/web/proterina-3evolution">http://interreg-maritime.eu/web/proterina-3evolution</a>
Interreg	RESPONSe	Strategies to adapt to climate change in Adriatic regions	<a href="https://www.italy-croatia.eu/web/response">https://www.italy-croatia.eu/web/response</a>
Interreg	TRIG-Eau	Cross-border, Resilience, Innovation & Governance for the prevention of Hydrogeological Risk	<a href="http://interreg-maritime.eu/web/t.r.i.g-eau">http://interreg-maritime.eu/web/t.r.i.g-eau</a>
Interreg	RETRALAGS	TRAnsfrontier network of LAGunes, lakes and ponds	<a href="http://interreg-maritime.eu/web/retralags">http://interreg-maritime.eu/web/retralags</a>
Climate KIC	SUSHI	SUStainable Historic city districts	<a href="https://www.climate-kic.org/areas-of-focus/urban-transitions/our-initiatives/smart-sustainable-districts/">https://www.climate-kic.org/areas-of-focus/urban-transitions/our-initiatives/smart-sustainable-districts/</a>

CA21L have promoted the dissemination of results (methods, tools and the lessons learnt) developed by MASTER ADAPT within the national institutional tables in which CA21L participates

(e.g. national working groups "Pianeta" (Planet) and "Persone" (People) of the national Forum on Sustainable Development set up by the Ministry of Environment).

CA21L have also disseminated MASTER ADAPT project results through all contacts in the networks with which it is connected at national level:

- Rete Città Sane (<https://www.retecittasane.it/>): WHO Italian network of Municipalities
- Associazione Comuni virtuosi (<https://comunivirtuosi.org/>): national association of Municipalities
- Borghi autentici di Italia (<https://www.borghiautenticiditalia.it/>): national association of small towns and cities
- Kyoto Club (<https://www.kyotoclub.org/>): non-profit organisation founded in February 1999. Its members are business companies, associations and local municipalities and governments engaged in reaching the greenhouse gas reduction targets set by the Kyoto Protocol, by the EU ones for 2030 and by the December 2015 Paris Agreement.

at European and international level:

- ICLEI - Local Governments for Sustainability (<https://iclei-europe.org/>) is a global network of more than 1,750 local and regional governments committed to sustainable urban development active in 100+ countries.
- Climate Alliance (<https://www.climatealliance.org/home.html>): 1,800 member municipalities and districts covering 27 European countries as well as a variety of regional governments, NGOs and other organisations are actively working to combat climate change.
- Comité 21 (<http://www.comite21.org/>): the main French network of actors for sustainable development with more than 450 members.

CA21L is also committed as supporter of the Covenant of Mayors Initiative and it has contributed to share MASTER ADAPT methods and tools as reference for Municipalities and local authorities working on climate change adaptation.

For more details on communication, dissemination and networking activities see Annexes D.III, D.IV and D.V.

#### E2.1 International Panel on Adaptation Approaches and multilevel governance for Regions and Local Governments of European Union

One event has been directly organised and managed by the consortium as a connection between action C2 and C3 and as follow-up of all the EU meetings that action A2 has conducted. The International Panel foreseen in northern Italy was held in Milan on 20<sup>th</sup> June 2018. The event titled "Resilienza per le città adattative: sperimentazioni per l'adattamento in ambito urbano" (Resilience for adaptive cities: innovative experiences for urban adaptation) was focused on international approaches to urban adaptation and multi-level governance for Regions and local authorities. It has been an important occasion for disseminating the first results and for sharing best practices among more than 10 LIFE and European projects on adaptation to climate change. A total of 100 people, among participants, speakers and roundtable experts, have taken part.

For more details on this event see Annexes D.III and D.IV.

#### E2.2 International, EU and National Events for dissemination and networking

Networking and dissemination have been pursued also by organising events and participating to already existing events at International, European and National level.

In a nutshell:

##### **5 events directly organized by MASTER ADAPT consortium:**

- 25° Anniversary of the LIFE Programme (Rome, 24/5/2017)

- CA21L 20<sup>th</sup> National Meeting (Mantua, 5-6/10/2017)
- MASTER ADAPT International workshop in Northern Italy (Milan, 20/6/2018 – see task E.2.1)
- MASTER ADAPT International Conference “Urban forestry and resilience cities: how to adapt to climate change” – in the framework of FAO World Forum on Urban Forests (Mantua, 30/11/2018)
- Brianza cambia clima (Seveso, 3/10/2019)

**65 Dissemination events** (participation of MASTER ADAPT partners): 11 events (in the year 2017), 25 events (in 2018), 25 events (in 2019), 4 events (in 2020).

**39 Networking events and activities** (participation of MASTER ADAPT partners): 6 events (in the year 2017), 17 events (in 2018), 14 events (in 2019), 2 events (in 2020).

Dissemination and networking events planned in 2020 have been cancelled due to COVID-19 outbreak: 4 events in Sardinia (May 2020) and the Final Conference MASTER ADAPT in Cagliari (June 2020).

Considering what foreseen in the approved proposal, the MASTER ADAPT partners actively participated to the following main events to exchange and share their experiences and research results about all aspects of adaptation to climate change:

#### International level

- instead of participating to the ICECC – International Conference on Environment and Climate Change in September 2018, University of Sassari presented MASTER ADAPT project’s results at the “10th International Conference on Urban Climate (ICUC10) and 14th Symposium on the Urban Environment of American Meteorological Society (AMS)”, held in New York (USA) on August 2018.

#### European level

1. The 4<sup>th</sup> ECCAC – European Climate Change Adaptation Conference, in Lisbon (Portugal) on May 2019.
2. Resilient Cities 2019 – the ICLEI managed congress in Bonn (Germany) on June 2019.
3. EU High level meeting, held in Brussels (Belgium) on May 2019. A meeting with General Director of EC General Directorate of Climate (Mr. Mario Petriccione) and FLA (Dr. Antonio Ballarin Denti and Mrs. Mita Lapi). The meeting has been organised in order to activate a discussion process on the new European Strategy for adaptation to climate change and to disseminate the methods and tools developed within the LIFE MASTER ADAPT project to support the local actions of Municipalities.
4. Participation of UNISS to EGU 2020 International Conference (The European Geosciences Union) held in May 2020 as video-conference with presentation in the session “Climate change vulnerability and impacts assessment in a Mediterranean region for adaptation purposes”

As regarding European events, RAS Amb participated to the “10th International Conference on Innovation in Urban and Regional Planning” (Viterbo – Italy, September 2018) and CA21L, with the collaboration and participation of RAS Amb and IUAV, organized the International Conference “Urban forestry and resilience cities: how to adapt to climate change”, in the framework of FAO World Forum on Urban Forests (Mantua – Italy, November 2018).

#### National level

1. Participation to the INU (Italian National Urban Planning Institute) webinar on “Urban adaptation planning. Strategies and costs” (organized by INU Veneto in collaboration with IUAV (May 2020). Participation to AESOP (Association of European Schools of Planning) 2019 Annual Congress - Planning for Transition (July 2019 – Venice).

2. Participation to the 22<sup>th</sup> SIU (Italian Society of Urban Planners) National Conference (June 2019 - Bari/Matera) and to the 23<sup>th</sup> SIU National Conference (June 2020 - Turin).
3. Participation to 2 National Fairs: Urban Promo Green (September 2017, 2018 and 2019 - Venice); Compraverde-Buygreen Forum (October 2018 and 2019 – Rome); Levante Fair (Bari) Bari Fiera del Levante (September 2019).
4. National MASTER ADAPT Final Conference, scheduled in Cagliari on June 2020, cancelled due to the COVID-19 outbreak.
5. Participation to the 5<sup>th</sup> SISC – Annual Italian Conference for Climate of the Italian Society for Sciences held in Bologna on October 2017 (“SISC Conference - Climate actions in support of the Paris Agreement” and “Workshop on Climate change adaptation - exchange among Regions”), to the 6<sup>th</sup> SISC Conference held in Venice on October 2018 (“6<sup>th</sup> SISC Conference – Recent trends in climate sciences, adaptation and mitigation” and Side event “Planning urban adaptation to climate change: examples of multi-level actions”) and to the 7<sup>th</sup> SISC Conference in Trento on October 2019 (“ClimRisk19. Climate Risk: implications for ecosystem services and society, challenges, solutions”).

All opportunity based events the partners took part in have also been a strong chance to promote the MASTER ADAPT tools and lessons learnt to Italian cities, and the whole consortium has been strongly committed to that.

The details of all communication, dissemination and networking activities realised are shown in the Annexes D.III and D.IV.

### E2.3 Networks of Regional Boards for Adaptation

RAS\_Amb presented MASTER ADAPT methods, tools and results at Regional and National networking scale, participating at national and regional coordination tables and institutional working groups with other Regions, National and European governmental institutions, researchers and experts on climate change adaptation.

RAS\_Amb presented the results of MASTER ADAPT to the:

1. “Conferenza Stato Regioni” (State-Regions Committee), in occasion of the meeting of the Environment and Energy Commission in Rome on 13<sup>th</sup> November 2018.
2. Committee of Regions, during the European Week of Regions and Cities in Brussels on 9<sup>th</sup> October 2018. A poster presentation of MASTER ADAPT was done in the session “The green economy as a development opportunity for EU islands”.

**Staff involved:** The whole partnership has been involved in the implementation of the action, which is under the responsibility of CA21L.

**Problems encountered:** No specific problems have been encountered in the progress of the action.

As indicated above, the final dissemination and networking events planned in 2020 have been cancelled due to COVID-19 outbreak: 4 events in Sardinia (May 2020) and the Final Conference MASTER ADAPT in Cagliari (June 2020).

**Indicators:** the project indicators are monitored by a spreadsheet consisting of three sections, updated on a quarterly basis, on the occasion of the deadlines established for reporting by the partners. The Indicator Table (*deliverable D75*) is attached in Annex T.II.

**Advancement indicators:** show the progress status of the project deliverables and milestones and is automatically updated following the completion of the schedule (“MA - All. A *cronoprogramma.xls*”, attached to the Operational Manual).

**Financial indicators:** show the financial progress of the project, in terms of cost incurred for this action, divided by cost category.

Progress indicators: show the physical progress of this action in terms of n. of worked hours for the personnel employees/non employees and n. of travels covered for the implementation of the action.

***Action F1. Project management and monitoring of project progress***

<b>Foreseen start date:</b> 10/2016	<b>Actual start date:</b> 10/2016
<b>Foreseen end date:</b> 06/2020*	<b>Actual (or anticipated) end date:</b> 09/2020
Status: completed	
*according with the CE communication Ares(2019)3996323 - 24/06/2019	

**Description:** The project management system has already been described in section 5.1. To monitor the physical and financial performance of the project, a table of indicators was created. The Indicator Table (*deliverable D75*) is a spreadsheet consisting of three sections:

- "*Advancement indicators*": shows the progress status of the project deliverables and milestones, and is updated automatically following the completion of the schedule ("*MA - All. A cronoprogramma.xls*", attached to the Operational Manual) by the partners.
- "*Financial Indicators*": shows the financial progress of the project, reporting the expenditures reported by the partners detailing it by action and by cost category;
- "*Progress Indicators*": shows the physical progress of the project, reporting the number of hours / days worked, detailed by partner and by action.

For the automatic monitoring of financial and progress indicators, the *Financial statement* spreadsheet was integrated with an additional column relating to the reference action of the single expense/activity item. This integration allows to minimize the errors in the allocation of expenses and hours/man-days by each AB and the BC to immediately and accurately check any remaining errors. The sheet has not been changed anywhere else.

The Indicator Table was updated on a quarterly basis, on the occasion of the deadlines established for reporting by the partners.

**Indicators:** see above. The Indicator Table (*deliverable D75*) is attached in Annex T.II.

**6.2 Main deviations, problems and corrective actions implemented**

One of the problems encountered by the public ABs of the partnership was the new regulation on contracts for external collaborators, modified twice during the project period, which in some cases resulted in a considerable delay for the recruitment of additional staff.

As a corrective measure, during the intervening period, the activities assigned by the project to the additional staff were carried out by the internal staff.

Specific problems and corrective actions deriving from the COVID-19 pandemic have been exposed above.

**6.3 Evaluation of Project Implementation**

Action	Foreseen in the proposal (Objectives/Results )	Achieved	Evaluation
<b>A1</b> - Climate Analysis and vulnerability assessment at regional level	<b>O1</b> - To develop and supply a common methodology to support Regions in the identification of principal vulnerabilities and action priorities with the aim to guarantee an effective downscaling of SNAC	Methodology has been developed and described in the R1 and R2	The selected methodology is able to perform the vulnerability analysis in a speditive way, is simple to apply and requires more accessible input with input respect to other quantitative methods; results are clear and easily understandable and allow to perform a comparison between different areas in order to identify which areas are more vulnerable and therefore need more urgent adaptation actions.

Action	Foreseen in the proposal (Objectives/Results )	Achieved	Evaluation
	objectives.		
	<b>R1</b> - Report on climate analysis and vulnerability assessment results in the pilot region (Sardinia) and in the selected project's areas.	Completed	The report represents the scientific knowledge base for the following actions planned into the project. It contains elements to understand the major vulnerabilities associated to climate change for the pilot region (Sardinia) and the target areas.
	<b>R2</b> - Guidelines and standardized procedures for climate analysis and vulnerability assessment at regional and local level.	Completed	The guidelines illustrate in detail an innovative methodology in 7 steps for the elaboration of the vulnerability analysis on a regional and supra-municipal scale. The main target of the document are the technicians and administrators of cities and group of municipalities.
<b>A2</b> - Assessment of mainstreaming processes in selected climate change adaptation practices across the EU	<b>O3</b> - To establish guidelines for the adaptation governance in urban areas: municipality aggregation and metropolitan cities will be able to optimize the relationships and coordination with urban planning and the development of private/public partnerships.	Achieved	A synthesis of the state of the art across Europe by means of acquiring and analysing direct and useful information in sub-national level from different EU Countries, and in particularly putting of evidence also the mains critical issues highlighted by public authorities, aids Italian authorities to fill less unprepared to afford a new challenge, the adaptation on climate change, in policy making and planning processes.
	<b>R3</b> - Creation of an Italian and EU network and capitalisation of experiences from selected CCA practices across EU.	Achieved	21 questionnaires (the project proposal objective was 10 questionnaires to be collected) received and almost completed filled in, from the 40 sent corresponds to 53% of the contacts made, which is a good result. The added value of the EU network is that it has been consolidated through the use of survey and questionnaire, but also during the workshop organized, in which experiences and best practices on climate adaptation were shared.
<b>C1</b> - Setting adaptation targets at regional and sub-regional level	<b>O2</b> - To prepare and equip the regions with a methodology to optimize the mainstreaming in other regional policies and the multilevel governance of the adaptation policies in	Achieved	The methodology for setting adaptation objectives and options at regional and sub-national level was developed and applied by all partners in each target areas, allowing the identification of adaptation targets at regional and sub-regional level.

Action	Foreseen in the proposal (Objectives/Results)	Achieved	Evaluation
	the context of sub regional and local authorities.		
	<b>R4.</b> Policy Guidance for setting adaptation targets and planning at regional and sub-regional levels.	Achieved	The document was released in coordination with the development of actions C2 and C3. The developed methodology was transferred and tested by the INTERREG Project ADAPT to develop two Local Adaptation Plan from flood risk in two municipalities in Northern Sardinia.
	<b>R5.</b> Creation of general and specific targets' matrixes of the Adaptation Strategies developed for: Sardinia Region, North of Milan, 2 municipalities from Sardinia, 3 municipalities from Puglia, metropolitan areas of Venice and Cagliari.	Achieved	A targets' matrixes of the Adaptation Strategies was developed for: Sardinia Region, North of Milan, Lombardy, Salento Area, metropolitan areas of Venice, Cagliari and Sassari. The matrix developed for Cagliari was also used as knowledge base for the development of the Metropolitan Strategic Plan.
<b>C2</b> - Effective methods for mainstreaming and multi-level governance in the definition of regional adaptation strategies	<b>O2</b> - To prepare and equip the regions with a methodology to optimize the mainstreaming in other regional policies and the multilevel governance of the adaptation policies in the context of sub regional and local authorities.	Achieved	The path for preparing regions for mainstreaming CC was developed through 5 regional workshops and the collaboration with the National Network CreIamoPA
	<b>R5.</b> Creation of general and specific targets' matrixes of the Adaptation Strategies developed for: Sardinia Region, North of Milan, 2 municipalities from Sardinia, 3 municipalities from Puglia, metropolitan areas of Venice and Cagliari.	Achieved	The matrice for Sardinia Region was developed as scheduled.

Action	Foreseen in the proposal (Objectives/Results )	Achieved	Evaluation
	<b>R6.</b> Development of an effective and reproducible method for mainstreaming and multi-level governance in the definition of regional adaptation strategies.	Achieved	A method for mainstreaming at the regional level has been tested through workshops and participatory approaches involving stakeholders from different regional offices. In addition, the involvement of Sardinia Regional in the national network CreIamoPA, as lead for CC adaptation actions, ensured the start of the mainstreaming process.
	<b>R10</b> - Vertical regional mainstreaming test cases for I sector in Lombardy and 1 in Sardinia.	Achieved	In the Lombardy Region the involvement of the stakeholders was started with a plenary meeting (05/11/2017). The activities continued with bilateral and plenary meetings to define the eight adaptation measures envisaged by the C2 action. In Sardinia Region a participatory laboratory was conducted through the use of the methods and tools developed with the LIFE MASTER ADAPT project (development of an impact chain) for vertical mainstreaming in the agriculture sector, in the territorial context of the Metropolitan City of Cagliari.
	<b>R11</b> - Enhancement in all the territories involved of at least 40 CCA measures.	Achieved	Over 40 actions have been identified with this path, whose follow-up is foreseen both in the continuation of the project and, presumably, with specific activities of the After LIFE Plan
	<b>R13</b> - Training and involvement of at least 250 selected decision makers	Achieved	Over 250 different decision makers have been involved so far in the workshops organized within the project (in particular administrators, municipal and metropolitan cities technicians). The expected results were achieved in terms of level of involvement, awareness raising, identification of strategic and sectoral objectives/options, identification of actions and selection of the most suitable planning tools for the mainstreaming process.
<b>C3</b> - Mainstreaming the adaptation strategy and measures for intermediate administrative level: groups of	<b>R7</b> - Guidelines for the implementation of mainstreaming in groups of municipalities and in metropolitan cities	Achieved	The project produced: " <i>D32 - Common guidelines for the implementation of the two paths: "testing set of tools" and "adaptation strategy definition and implementation"</i> ", "D34 - Guidelines for the implementation of mainstreaming in metropolitan cities" and "D35 - Guidelines for the implementation of mainstreaming in groups of municipalities"

Action	Foreseen in the proposal (Objectives/Results )	Achieved	Evaluation
municipalities and metropolitan cities.	<b>R9</b> - At least 15 mayors signing the Mayors Adapt or the new Covenant of Mayors for Climate & Energy;	Achieved	17 Mayors signed the Mayors Adapt, the new Covenant of Mayors for Climate & Energy, or the Adaptation Action Charter. More than 30 Municipalities were involved in various capacities with MASTER ADAPT in the commitment process to develop their own SECAPs and several actions will be implemented thanks to the process which MASTER ADAPT activated. n. 8 good practices were directly or indirectly involved in signing action plans and adaptation strategies thanks to the support of LIFE MASTER ADAPT
	<b>O4</b> - To supply a guidance for the integration of the two main volunteer initiatives linked with the Covenant of Mayors and Mayors Adapt	Achieved	This objective was achieved with the 2 Guidelines ("D34 - Guidelines for the implementation of mainstreaming in metropolitan cities" and "D35 - Guidelines for the implementation of mainstreaming in groups of municipalities")
<b>C4</b> - Replicability and transferability of the project's results in other Regions (in Italy and in Austria) and Municipalities.	<b>R8</b> - Implementation of the guidelines in the selected municipalities of Lombardy, Sardinia and Venice area	Achieved	Guidelines for the implementation of mainstreaming in metropolitan cities, in groups of municipality have been disseminated through publication in the "tools" section of the LIFE MASTER ADAPT website. Many meetings and workshops ( <a href="https://www.masteradapt.eu/wordpress/wp-content/uploads/2020/05/MA_Report_finale-arepilota.pdf">https://www.masteradapt.eu/wordpress/wp-content/uploads/2020/05/MA_Report_finale-arepilota.pdf</a> ) have implemented the knowledge on the issues of the project in public and technical decision makers of Public Administrations.
	<b>R12</b> - Cooperation agreements with the Environment Agency Austria, Apulia Region, Trento Province and selected municipalities from Sardinia and Lombardy for the transferability of the project's results.	Partially Achieved	A cooperation agreement between FLA (as the representative of the consortium of partners of LIFE MASTER ADAPT) and the Environment Agency of Austria (Umweltbundesamt Oesterreich, UBA Austria) has been signed In order to amplify the replicability and transferability of MASTER ADAPT results, information about project's activities, methodologies and developed tools (also in term of guidelines) have been published into the European Climate Adaptation Platform (Climate-ADAPT),
<b>E1/E2</b> -	<b>R14</b> - Organization of	Achieved	n. 28 technical workshops at regional and

Action	Foreseen in the proposal (Objectives/Results)	Achieved	Evaluation
Communication and dissemination of results. Networking with other projects	at least 30 regional and local meetings, 1 national event and 6 workshops and panels at EU level, participation to 1 international event. Participation to 5 EU conferences and 5 national conferences.		<p>local level were organized (a total of 4 meetings at local level were organized for the Sassari and Cagliari target areas, 7 in Sardinia, 11 in Lombardy, 3 in Venice area, 3 in Northern Salento)</p> <p>Dissemination and networking events (total numbers in the project period):</p> <ul style="list-style-type: none"> <li>- 5 events directly organized by MA consortium</li> <li>- 65 Dissemination events (participation)</li> <li>- 39 Networking events and activities (participation)</li> </ul> <p>1 National event directly organized: MASTER ADAPT International workshop in Northern Italy (Milan, 20/6/2018 – see task E.2.1). The MA Final Conference planned in Cagliari in June 2020 have been cancelled due to COVID-19 outbreak.</p> <p>Participation to 6 workshops and panels at EU level: participation to 8 events. Achieved</p> <p>Participation to 1 international event: participation to 3 international events. Achieved</p> <p>Participation to 5 EU conferences and 5 national conferences: participation to 6 EU conferences and 9 national conferences. Achieved</p> <p>The complete list of the dissemination and networking events available in Annex D.III</p>

The RAS\_Amb project team worked alongside the authorities responsible for strategic environmental assessments of regional plans of Sardinia (Plan for Adaptation to CC, Environmental Energy Plan, Flood Risk Management Plan, Cycling Mobility Plan, Plan of Molentargius Park) with the aim of modifying the SEA procedure as a vehicle for the mainstreaming of adaptation strategies and policies in the sectoral plans and programs.

Thanks to networking with other projects, MASTER ADAPT has accompanied some local administrations in Sardinia (Alghero, Sassari, Oristano) in the path for the adhesion to the Covenant of Mayors for Climate and Energy, and in developing Adaptation and/or Strategic Plans. By providing the mainstreaming methodology described above, that supports the regions in identifying major vulnerabilities and priorities for climate actions and provide guidelines for the governance of adaptation in urban areas, MASTER ADAPT aimed to provide contribute to the EU priorities:

- developing and implementing local adaptation strategies and action plans, such as those linked to the urban adaptation initiative (Covenant of Mayors for Climate and Energy) and mainstreaming adaptation into urban land use planning, building layouts and natural resources management;
- low GHGs emission projects devised in such a way to contribute at the same time to climate mitigation and adaptation.

## 6.4 Analysis of benefits

### 1. Environmental benefits

#### *a. Direct/quantitative environmental benefits:*

Actions A1 and A2 provide quantitative indirect rather than direct environmental benefits. In fact, these actions contributed to create the appropriate knowledge base and increase awareness regarding climate resilience in the investigated areas. Major climate risks and the level of vulnerability were identified and help in selecting adaptation objectives, priorities and options.

The project also had positive effects in disseminating climate change issues towards local administrations. A series of workshops were organized to inform local stakeholders on climate change phenomenon and definition, on climate risks and the needed adaptation actions. The project activities on promotion and dissemination of scientific information on climate change contributed to sensitize public opinion and authority to the risks - but also to the opportunities - that climate change brings with it, to provide tools and to prepare them to build a "sustainable vision" of the future of the investigated areas.

#### *b. Qualitative environmental benefits:*

Action A1 indirectly contributes to the improvement of climate change adaptation planning: in fact, the achieved results provided a better informed scientific context as a basis for a more appropriate planning framework (developed in actions C1, C2 and C3). Adaptation objectives, priorities and options, and the whole adaptation planning process, has been (as they have to be) strictly based on the results of the vulnerability assessment. So, actions C1, C2 and C3 have direct impacts on local policies since they helped in selecting adaptation priorities and in the mainstreaming process. This could help in performing a better allocation of the available funds thus saving costs. In addition, through these actions, some administrations started the mainstreaming process for CC adaptation and/or developed local adaptation plans (i.e. for flood risk).

### 3. Economic benefits:

Since the project was granted a 9-month extension, we need to take into account the additional time spent on the project. The extension took into account the need for longer times for the effects of the project actions to be clearer. Mainstreaming is a process, and as such it takes time to be implemented. Moreover many activities, such as an administration subscribing to a program, take more time than the official allotted meetings, requiring extra work such as e-mails, phone calls and informal meetings to ensure all involved parties agree with the decisions being made.

The value at the beginning of the project was 4.5, and grew up to 6.0 at the end of the project. Moreover, the partners expect to start a new part-time contract for managing the After Life plan, which will increase the FTE index by 0.2.

### 3. Social benefits:

Adaptation is a process that seeks to reduce the vulnerability of natural and human systems to the effects brought about by climate change and its monitoring is therefore a fundamental feature within a project. In particular, LIFE MASTER ADAPT project aimed to bring about change in the environment, the society and the economy and sought to promote the mainstreaming of climate change adaptation as a new approach within local authorities, thus making it an integral part of the administration day-to-day work.

It should be noted that measuring the changes occurred thanks to the project actions in terms of environmental and socio-economic benefits it is not easy to read, when adaptation is seen as a complex action of environmental policy integrating with other public policies. In fact, it is important to underline that adaptation is a slow process and the benefits it produces could be appreciated over a long time horizon. For this reason, it must be taken into account that MASTER ADAPT action affects processes rather than

more easily measurable factors. This is because the project's focus was mainstreaming, that is, integrating adaptation within local administration processes.

As stated previously, mainstreaming is a hardly tangible process and cannot be easily measured and assessed in a short period.

All this notwithstanding, the socio-economic indicators show that there has been some gained understanding and awareness of climate change and the need to adapt. If the results could not clearly show it, the number of workshop organized and of people reached should mean that some of them, be them professionals, administrators or laypersons, might have come out with a better knowledge of the climate issues at hand.

The KPI indicator n. SE.1, concerning the awareness in climate change of the stakeholders who participated in the survey, seeked to assess whether administrators and professionals from the target areas are aware of the challenge posed by climate change, and it show that a growth in awareness might have taken place thanks to the LIFE MASTER ADAPT project.

In performing a vulnerability assessment, Action A1 also contributed to address social injustice, by exposing the differential burden of vulnerability borne by different population groups. In order to extend the environmental and socio-economic benefits of the project in the long term, the replicability and transferability of the project results will be guaranteed in the next five years through the activities planned in the After LIFE Plan (Deliverable D73).

#### 4. Replicability, transferability, cooperation:

The proposed mainstreaming process of MASTER ADAPT for the design and implementation of regional adaptation strategies, through the "vertical" coordination between different levels of territorial government (i.e. state, regions and other local authorities) and the "horizontal" coordination between different policies (territorial, landscape, environmental, agricultural, civil protection), could be easily replied in other Italian regions, thanks to the role of Sardinia Autonomous Region as Italian National Coordinator of the Committee of the Regional Administrations and the involvement in the CReIAMO PA network of the MATTM.

The process could be as well easily implemented in other EU local governments, since the mainstreaming process of the proposed adaptation strategy has been designed taking into account the most significant European experiences (Austria, Switzerland, UK, Finland) and the proposed methodologies and tools were tested on areas with different morphological, sociological, economic, and environmental characteristics, which are pioneers for CC related issues. To facilitate this process, the project guidelines have been translated into English and in reduced versions for greater readability.

Workshops and other networking activities allowed an active collaboration between actors across the EU, encouraging synergies, capitalizing on what has been done and starting up new initiatives. The Agreement signed between FLA (on behalf of MASTER ADAPT partnership) and the Umweltbundesamt GmbH (Environment Agency Austria) gave the opportunity of a better replicability in the 9 Austrian federal provinces (deliverable D45). Furthermore, Sardinia Autonomous Region is well connected with other European regions as Member of the EU Committee of Regions (CoR) and the CPRM (Conference of Peripheral Maritime Regions). Finally, the project was included into the CLIMATE ADAPT platform<sup>8</sup>, developed by EEA for sharing information adaptation across Europe.

In order to extend the environmental and socio-economic benefits of the project in the long term, the replicability and transferability of the project results will be guaranteed in the next five years through the activities planned in the After LIFE Plan (Deliverable D73).

---

<sup>8</sup> <https://climate-adapt.eea.europa.eu/metadata/publications/climate-change-adaptation-practices-across-the-eu>

In particular, as described in the plan, the project activities will be managed by the coordinating beneficiary RAS\_Amb, through the support of the MASTER ADAPT partnership (each partner for their own institutional roles and skills) through both human and financial resources.

The procedures for implementing the actions will include the following steps:

- strengthening of the policy relevance: how to strengthen policy relevance, transferring results of the project to institutions and organization, both at national and international level (transferability of MASTER ADAPT's tools and methods through guidelines and supporting activities);
- consolidation of results: how to capitalize and consolidate the results of the project, through institutional activities and new projects;
- dissemination of results in events and publications: it provides a possible planning of future events on a national and local scale, where the results of the project can be disseminated;
- communication: how the beneficiary plans to continue disseminating and communicating results after the end of the project, and indicates what external support could be helpful (i.e. website and social media);
- networking: how to strengthen networking activity with other projects.

#### 5. Best Practice lessons:

Starting from the best practices selected in action A2 (Flood and water management, Land use and spatial planning, Nature and biodiversity, Integrated coastal zone and planning), which involved regional and local authorities from different EU Countries (from Belgium, UK, Scotland, France, Italy, Spain, Netherlands, Germany, Sweden, Croatia, Portugal, Ireland, Finland, Czech Republic, Greece, Poland, Hungary and Malta), strategic international actors connected with the partners took advantage from the acquisition of new information and methodologies, and became in turn beneficiaries of the project results.

In turn, some tools developed by the project have become good practices at national level: "Guidelines for the regional adaptation strategy" of Action C2 have been shared through the Conference of Regions and Autonomous Provinces and sent to the Italian Minister of the Environment (see better in Action C2 description) and, through the National Network CReIAMOPA, have been transferred to Liguria, Lazio and Puglia Regions for increasing green skills of public officials.

Sardinia Region, with the support of the University of Sassari, using the methodology for the validation of options and priorities of MASTER ADAPT drew up the Regional Strategy and Plan for ACC (SRACC). The SRACC was awarded, at national level, with the first Prize as a Best Practice for Sustainable Development in a National Competition for Public Administration (ForumPA) and was presented to the European Climate Change Adaptation (ECCA) Conference in Lisbon in 2019.

#### 6. Innovation and demonstration value:

Sardinia Region, with the support of the University of Sassari, extended the methodology for the validation of options and priorities for the implementation of adaptation strategies studied in MASTER ADAPT to the whole process of drawing up of the Regional Strategy and Plan for ACC (SRACC). This collaboration, thanks also to the various scientific partners, further strengthened MASTER ADAPT's character, in terms of innovation and experimentation characterizing the LIFE projects, strengthening and qualifying both pathways.

#### 7. Policy implications:

Actions C1, C2, and C3, have had direct impacts on local policies since they had helped in selecting adaptation priorities and in the mainstreaming process. In particular, the project contributed to the implementation of the following adaptation policies:

- Climate Change Adaptation National Plan (ongoing consultation and SEA);

- Climate Change Adaptation Lombardy Strategy and Plan;
- Commitments to develop Adaptation Action Plans at local level in the different pilot areas (Lombardy, Sardinia, Metropolitan areas of Cagliari and Venice, North Milan area, North Salento area);
- the Regional Strategy for Adaptation to Climate Change for the Sardinia Region (SRACC), approved in February 2019, was prepared in line with the mainstreaming approach defined by the MASTER ADAPT project, and taking into account the MASTER ADAPT guidelines for vulnerability analysis.

In this framework, the results and deliverables of the project have actually been used in the following activities:

- in producing guidelines on climate vulnerability and risk assessment (Deliverable D2);
- in developing and mainstreaming 10 adaptation measures at regional level in the different planning tools through the implementation of the sectors in the Lombardy Adaptation Plan (Deliverable D28);
- in the target area of north Milano (Seveso river basin) partners met the representatives (both political and technical levels) of the municipalities to identify the most appropriate local policy instruments to be integrated in the mainstream process. Particularly, the cooperation with the local "contratto di fiume" (River Contract), allowed to interact firstly and most importantly with the local Urban and Spatial Planning policies (PGT); yet also with the regulations on Green Public Areas, the local Parks plans, the local Risk & Emergency plans (Deliverable D36-37-38). At the regional level also the Water Use and Protection plan (PTUA), the set of policies regulating the Seveso river basin (PSSB) and the policies about biodiversity and ecologic connectivity (Deliverable D28)
- proposal for review of the JRC monitoring manual and the CoM guidelines for SECAPs (Deliverable D33);
- flood risk management program (PGRA) of Sardinia Region has been updated (Deliverable D25);
- Sardinia FESR PSR funds: the selection criteria have already been modified - refer also to the Annual Implementation Report 2019 of the PO FESR 2014-2020 (Deliverable D26);
- in Sardinia Region the climate risk analysis was included in the catalogue of services dedicated to SMEs (Deliverable D27);
- with the "CreiamoPA" project (in collaboration with the MATTM-Environmental Ministry) dedicated to CCA in regional sustainable development strategies SRSvS, it has been transferred the experience of the MASTER ADAPT and Sardinian SRACC tools to the Sardinia/Puglia/Liguria/Lazio regions group (Deliverable D42);
- the role of Sardinia Region inside the Italian State-Regions Conference (CAE) which allowed to share the "Guidelines for the regional adaptation strategy" (Deliverable D21) among the Regions and sent it to the Italian Minister of the Environment as a basis for the National CCA plan (Deliverable D42);
- the cooperation with the River Contract tool is a concrete opportunity for the transferability of the results in other areas in Italy. The environment department (RAS\_Amb, MASTER ADAPT's project leader), as part of the project, participated in the various ministerial tables and workshops (Ministry of the Environment and National Observatory of River Contracts) in order to contribute to the integration of planning documents to the River Contracts (document of intent, cognitive framework, Action Program, Contract) with the elements of adaptation to climate change resulting from the project, such as: the introduction of adaptation objectives; the integration of the Action

Program with specific adaptation actions; raise awareness to adaptation to the CC through the participatory processes provided for in the River Contracts. The RAS\_Amb group of MASTER ADAPT is the referent of the regional network of River Contracts, established with the Regional Council Resolution n. 40/21 of 10/10/2019, with the aim to coordinate local authorities in the establishment and implementation of the River Contracts (Deliverable D20bis).

## 7. Key Project-level Indicators

The Key Project-level Indicators aim to describe how MASTER ADAPT performed in the sectors that it sought to improve.

For more details please refer to deliverable D48 – D51.

Although at the end of the project, for some indicators it is difficult to find a correlation with the objectives and therefore to monitor the performance of the project, as most of the results have not been immediately visible, but will only become apparent after a long time period (5 years after the end).

All these indicators were calculated before the project was launched, and some of them have changed in the light of new information that was made available during the implementation of the project.

The KPI indicators which are relevant in order to measure the appropriate knowledge base, created as a basis for environmental benefits (i.e. increase climate resilience,) are the following:

- area covered by vulnerability assessment (16.5);
- area potentially affected by climate change covered by adaptation measures (no. 9.1);
- particularly vulnerable areas (no. 9.2);
- total area to be affected by the project (10.2);
- adaptation actions identified (16.6).

More in details, at the beginning of the project the indicators regarding vulnerability (no. 9.2) were calculated before the vulnerability analysis was actually carried out in action A1. Therefore, the team unanimously decided to amend the values, in order to include the new knowledge acquired during the vulnerability analysis.

Thanks to the implementation of adaptation measures, the project aims to reduce the number of vulnerable areas in time. Even though some actions to reduce vulnerability were undertaken at the end of the project, it is likely that the effects will be felt after some time.

Furthermore, indicator values regarding adaptation (n. 9.1) have been updated on the basis of new information about the number of approved adaptation before the project start and during the project lifetime.

The increase in value is due to the implementation of the project's main aim: mainstreaming adaptation within Italian local authorities, in order to better equip them in the face of climate change. It is expected that the indicator will keep growing in the five years following the end of the project, both because mainstreaming is a process that takes time to show visible effects, and because the After Life activities will help implementing mainstreaming in the target areas.

The indicators regarding information and awareness (no. 12.1.1, 12.1.2) evolved along project activities; therefore, it was shown their evolution. As regards the website, the final values are as follows:

- the number of documents uploaded in the MA website is 32: 22 deliverables and technical documents and 10 communication tools (all in double version in Italian and English) (target foreseen: 10). The other main data related to the website are reported in §6.1 task E.1.2.

- the number of contacts generated in the social media is 482 on 30/06/2020 (of which 289 followers on Facebook and 193 followers on Twitter), increased to 526 at the date of 01/09/2020, to which must be added about 8,000 direct contacts of the partners, through their networks (target foreseen: 10,000). The other main data related to the social media are reported in §6.1 task E.1.2.

With respect to dissemination activities, these are the final values:

- 10,000 printed leaflets: 6,000 initial leaflets (4,000 in Italian and 2,000 in English) and 4,000 final leaflets (2,000 in Italian and 2,000 in English);
- regarding dissemination and networking events, the partners directly organized 5 events and took part to 65 dissemination events and 39 networking events and activities with the involvement of 31 other EU projects on adaptation.

The other main data related to the dissemination tools and events are reported in §6.1 task E.1.3 and E.2.2.

At the end of the project, all the other indicators changed, in order to reflect the evolution of the project. For a more in-depth version of the indicators, please refer to the Monitoring report, which contains deliverables D48 - D51. The most notable indicators are as follows:

- 11.2 Implication of NGO and regional authorities. This indicator testifies to the involvement of a large number of Regions, starting from the original 2 and growing to 5, while NGOs reach n. 6, starting from just one at the beginning of the project.
- 16.1 Cities with Mayor Adapt Signature. The indicator grew from 1 at the beginning of the project to 18 at the end of the project.
- 16.6 Adaptation actions identified. The number of adaptation actions rose to 432 at the end of the project. Among these, 86 were regional actions in Sardinia, 292 municipal actions in Sardinia, 23 actions in Venice metropolitan area, 10 in Lombardy, 19 in Northern Milan-Seveso and 2 in Northern Salento.
- SE.1 Awareness of climate change. This indicator is based on the surveys that the partners administered in the target areas. It concerns the awareness with respect to climate change of the stakeholders who participated in the survey. The indicator seeks to assess whether administrators and professionals from the target areas are aware of the challenge posed by climate change. The partners administered 7 surveys: three in Sardinia (regional survey, workshop survey, europroject survey) and one each in Sassari, Northern Salento, Venice and Seveso. Had it not been for the CoViD-19 pandemic, a second round of surveys would have provided the answer to those same questions at the end of the project. Unfortunately, this was only possible for two Sardinian surveys (workshop and europroject) and in Sassari. Notably, when compared to the values at the beginning of the project (2.68; 2.10; 2.40), the values at the end of the project (2.89; 2.16; 2.59) have slightly grown in Sardinia (workshop and europroject surveys) and Sassari respectively.

The requested completion of the Key Performance Indicators online was completed and sent within by the end of the project.