



LIFE Project Number
LIFE17 GIC/IT/000091

Final Report
Covering the project activities from 03/09/2018 to 30/06/2022

Reporting Date¹
30/09/2022

LIFE PROJECT NAME or Acronym
LIFE BEWARE

Data Project

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(%) of eligible costs:	60%

Data Beneficiary

Name Beneficiary:	Comune di Santorso
Contact person:	Mrs Elisa Sperotto
Postal address:	Piazza Aldo Moro, 8 - 36014 Santorso (Vicenza - Italy)
Telephone:	0445/649534
E-mail:	beware@comune.santorso.vi.it

¹ Include the reporting date as foreseen in part C2 of Annex II of the Grant Agreement

Project Website:

<https://www.lifebeware.eu/>

This table comprises an essential part of the report and should be filled in before submission Please note that the evaluation of your report may only commence if the package complies with all the elements in this receivability check. The evaluation will be stopped if any obligatory elements are missing.

Package completeness and correctness check	
Obligatory elements	✓ or N/A
Technical report	
The correct latest template for the type of project (e.g. traditional) has been followed and all sections have been filled in, in English <i>In electronic version only</i>	✓
Index of deliverables with short description annexed, in English <i>In electronic version only</i>	✓
<u>Mid-term report</u> : Deliverables due in the reporting period (from project start) annexed <u>Final report</u> : Deliverables not already submitted with the MTR annexed including the Layman's report and after-LIFE plan. Deliverables in language(s) other than English include a summary in English. <i>In electronic version only</i>	✓
Financial report	
The reporting period in the financial report (consolidated financial statement and financial statement of each Individual Beneficiary) is the same as in the technical report with the exception of any terminated beneficiary for which the end period should be the date of the termination.	✓
Consolidated Financial Statement with all 5 forms duly filled in and signed and dated <i>Electronically Q-signed or if paper submission signed and dated originals* and in electronic version (pdfs of signed sheets + full Excel file)</i>	✓
Financial Statement(s) of the Coordinating Beneficiary, of each Associated Beneficiary and of each affiliate (if involved), with all forms duly filled in (signed and dated). The Financial Statement(s) of Beneficiaries with affiliate(s) include the total cost of each affiliate in 1 line per cost category. <i>In electronic version (pdfs of signed sheets + full Excel files) + in the case of the Final report the overall summary forms of each beneficiary electronically Q-signed or if paper submission, signed and dated originals*</i>	✓
Amounts, names and other data (e.g. bank account) are correct and consistent with the Grant Agreement / across the different forms (e.g. figures from the individual statements are the same as those reported in the consolidated statement)	✓
Mid-term report (for all projects except IPs): the c for the second pre-financing payment has been reached	✓
Beneficiary's certificate for Durable Goods included (if required, i.e. beneficiaries claiming 100% cost for durable goods) <i>Electronically Q-signed or if paper submission signed and dated originals* and in electronic version (pdfs of signed sheets)</i>	N/A

Certificate on financial statements (if required, i.e. for beneficiaries with EU contribution $\geq 750,000$ € in the budget) <i>Electronically Q-signed or if paper submission signed original and in electronic version (pdf)</i>	N/A
Other checks	
Additional information / clarifications and supporting documents requested in previous letters from the Agency (unless already submitted or not yet due) <i>In electronic version only</i>	✓
This table, page 2 of the Mid-term / Final report, is completed - each tick box is filled in <i>In electronic version only</i>	✓

**signature by a legal or statutory representative of the beneficiary / affiliate concerned*

Instructions:

Please refer to the General Conditions annexed to your grant agreement for the contractual requirements concerning a Mid-term/Final Report.

Both Mid-term and Final Technical Reports shall report on progress from the project start-date. The Final Report must be submitted to the Agency no later than 3 months after the project end date.

Please follow the reporting instructions concerning your technical report, deliverables and financial report that are described in the document [Guidance on how to report on your LIFE 2014-2020 project](#), available on the LIFE website. Please check if you have the latest version of the guidance as it is regularly updated. Additional guidance concerning deliverables, including the layman's report and after-LIFE plan, are given at the end of this reporting template.

Regarding the length of your report, try to adhere to the suggested number of pages while providing all the required information as described in the guidance per section within this template.

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2. List of key-words and abbreviations

AB Associated Beneficiaries

AESS Agency for Energy and Sustainable Development

ALDA European Association for Local Democracy

ANCI Association of the Italian Municipalities

C2M Close-2-Market

CB Coordinating Beneficiary

CB APV Consorzio di Bonifica Alta Pianura Veneta

CoI Community of Interest

COMMAR Comune di Marano Vicentino

COMSAN Comune di Santorso

CUP Unique Project Code

DCS Extraordinary Commissioner

EC European Commission

EIB European investment Bank

ENV Projects Environmental Projects

EPC European Project Consulting

FTE Full Time Equivalent

GIE Projects Environmental Governance and Information Projects

IPA Intese Programmatiche d' Area

ISPRA Italian National Institute for Environment and Sustainability

KPIs Key Project Level Indicators

MB Management Board

MEPA Electronic Market for the Public Administration

MoU Memorandum of Understanding

MTR Mid Term Report

NAT Projects Natural Projects
NWRM Natural water retention measures
NWRM Natural water retention measures
OBJ Objectives
PEG Piano esecutivo di gestione/Executive management plan
PM Project Manager
RDF Resource Description framework
RDP Rural Development Programme
SCI Site of Community Importance
SECAP Support for Energy and Climate Adaptation Policies
SME Small and Medium Enterprise
SPA Special Protection Area
SUAP Single Desk for Productive Activities
SUDS Sustainable Urban Drainage Systems
TESAF Dipartimento Territorio e Sistemi Agro-Forestali
UNIPD University of Padua
VA Veneto Agricoltura

3. Executive Summary

The LIFE Beware Project (from now on “the Project”) addresses the problem of the increase in flooding phenomena that was registered in Europe due to climate change. River floods are a common natural disaster and - along with storms - resulted in fatalities and massive direct economic losses, affecting millions of people in the last three decades. The Altovicentino area makes no exception in this respect, with flooding phenomena that have been occurring with growing frequency and intensity over the last decades and are expected to continue in the future. The Project acts within the framework of European policies for adapting cities to climate change and aims to raise awareness on the objectives of the UN Agenda 2030 for Sustainable Development, in particular objectives 6 “Clean Water and Sanitation”; 11 “Sustainable Cities and Municipalities”; and 13, “Climate Action”. Its main objective is to implement a strategy for adaptation to climate change and flood risk in urban and rural areas, through the active involvement of local communities. It proposes an integrated multiple approach, promoting green solutions that restore the water storage capacity of the soil and concur in flood mitigation, following the European Flood directive (2007/60/EC).

With this purpose, the Project combines actions aimed at adopting **Natural Water Retention Measures** (NWRMs) and **Sustainable Urban Drainage Systems** (SUDS) in urban and rural areas to mitigate the risk of flood and increase territorial resilience to climate change with: i) *information and raising awareness activities* involving multiple stakeholders at the local, national and international level; ii) *participatory processes* for the involvement of the local communities in the development of effective public policies to mitigate the risk of flood in the Altovicentino area and for a sustainable water management in agriculture; iii) *support to citizens* interested in adopting sustainable water retention, infiltration and storage measures; iv) *training and educational processes* targeting professionals, technicians and students; iv) *networking and replicability activities* at the national and international level to multiply the impact of the generated good practices and increase the sustainability of the project actions.

The adoption of SUDS and NWRMs is widely implemented in several European countries, nevertheless, in Italy their role as relevant measures for climate change adaptation is still in a developing phase. The project innovative nature is mainly given by the promotion of **sustainable measures for flood risk mitigation** through the implementation of a **participatory approach** which leads to the active involvement of a wide variety of stakeholders (citizens, farmers, local municipal administrators and technicians, engineers, architects, agronomists and foresters, students, teachers, international stakeholders). The adoption of demonstrative interventions combined with several activities of engagement, information, communication and education increases the impact of the project actions at the territorial level, boosting their replicability in other geographic, territorial and social contexts.

The **7 pilot interventions** realized in urban and rural areas of the municipalities of Santorso, Marano Vicentino and Schio, create a local/national focal point for the promotion and awareness of the benefits of this kind of solutions to mitigate the risk of floods and other climate-related risks. To disseminate knowledge about the benefits of the NWRMs both in urban and rural areas and increase their adoption both among the municipalities and the citizens, the Project developed a raising awareness and education strategy that represents a core transversal element of the whole project implementation.

The core element of the project is its **participatory approach**, made by different actions that aim at the involvement of citizens, farmers, professionals and stakeholders, together with information,

diffusion, educational activities (i.e. conferences cycle and events) from primary schools to University masters, training initiatives at local, national and international level (webinars, publications). The Project promotes a widespread responsibility for facing hydraulic risks, implementing a global best-practice context and increasing motivation to implement local initiatives and measures on water retention actions facing the challenges of climate change. Several raising awareness and knowledge dissemination activities were organized to boost citizens' active involvement as it is the case of the **conferences' cycle**, with national and international experts in climate change and resilience, the **School of Common Goods** to increase citizens' knowledge about the concept of "common goods" and reflect about the challenges faced by the territory of the Altovicentino, the **set of educational activities for students** and teachers to have an impact on the youngest generation and improve their knowledge and awareness about climate change, with a specific focus on the cycle of water and sustainable hydraulic management, and the **Festival** "The Shape of Water. Territories. Resilience. Community", whose aim

Furthermore, through the **hydraulic restoration tour**, students, schools and all the citizens have the opportunity to discover and visit the different measures that can be implemented to mitigate the flood risk in urban and rural areas. The realization of small and diffuse interventions becomes a concrete answer that has a strong demonstrative and multiplying effect, supported by monitoring data, in order to prove the effectiveness of the adopted interventions. The project offers direct support to those citizens who are interested in investing in small water retention and storage measures through the creation of a **help desk on sustainable water retention** and the activation of a **group purchase program for NWRMs**.

Alongside the project implementation, the Consortium implemented a multi-level strategy, establishing synergies with the public sector at the local, regional, national and international level in order to position the project results and produced contents and to increase their impact. As regards the policy-making level, the project implemented a **participatory process** that is leading to the adoption of public policies to mitigate the flood risk through NWRMs (Natural Water Retention Measures) through the updating of the local building codes and the inclusion of the Altovicentino Mayors Adapt Strategy within the SECAPs of a group of municipalities of the Altovicentino, thus contributing to support the "Covenant of Mayors for Climate and Energy" initiative.

Another relevant result achieved by the Project is the **upgrowing network** that was built thanks to the contribution of all the partners and that has resulted in the development of a functioning **Community of Interest (CoI)** that is currently formed by 93 active members coming from 10 European countries, aiming at fostering the involvement of the stakeholders in the project activities and to ensure the replicability of its results. The Project developed a successful media strategy, disseminating its activities and achieving results through different communication channels and products (i.e. comic book) coherent with the aims of the project, targeting different publics and stakeholders, harmonized with project activities through a shared communication plan.

Specifically, the Project was spread through different channels and media, increasing its outreach **capacity** both at the local and international level. Furthermore, the Project counts **18 publications** among scientific papers, reports, case studies publication, Master's and Bachelor's thesis. Starting from February 2020, due to the spread of the Covid-19 pandemic and the related restrictions, the project registered some delays, which mainly affected those activities foreseeing events in presence and those activities depending on specific bureaucratic procedures. The project partners were obliged to adapt some of the project actions to a new online and interactive format without affecting the final results and thus working to achieve the project objectives.

Another moment of re-adjustment of the project was the resignation of the Project manager in January 2021. To mitigate the risk of finding a suitable project manager in the short run, Santorso Municipality, in agreement with the project consortium, opted to appoint a sub-contractor to support the project management activities till the end of the project.

4. Introduction

The Project addresses the problem of the increase of floods in Europe mainly caused by climate change. The Italian National Adaptation Strategy indicates climate change and alterations of the hydro-geological system could increase the risk of landslides, mud and debris flows, rock avalanches and flash floods. The frequent floods that have occurred during the last years in the Veneto Region have shown the public opinion the fragility of the Region. In the sub-urban/urban area of the building interventions of the Project, farming activities coexist with a diffuse urban development and industrial activities (Small and Medium Enterprises – SMEs). The Project proposes an integrated multiple approach to this main issue, offering concrete answers at the local level that aim at becoming best practices in land planning, creating a strong multiplying effect, involving stakeholders and policy makers.

The project strongly encourages the adoption of **NWRMs** and **SUDS** through the all-possible best practices (i.e. by means of progressively accepting new water regulations in the Veneto/EU Municipalities - Action C2) and bottom-up approaches (e.g. by means of participative and transferable tools like the “water retention group purchase program” - Action C1), to encourage families to realize small water retention and storage investments in their own properties. Pilot interventions were implemented in the urban areas of the Municipalities of Santorso and Marano Vicentino (Action C4) in order to create a province/regional focal point for the promotion and awareness of the benefits of this kind of solution against floods and other climate-related risks. The Project aims at identifying and promoting small and diffuse interventions also in rural areas (Action C3) for the increase of the climate resilience in particular for flood risk mitigation. The creation of storage basins promotes this type of work with the scope of storing water during overflow, together with farmers’ involvement for a correct and shared water management (Action C5).

The project has a strong demonstrative character for the promotion of the idea that **both private and public owners can retain water in their properties**, thus delaying its inflow into the hydrographical network during major atmospheric events and allowing irrigation also during years of water scarcity. The project does not limit its action to communication and dissemination, but tries to involve citizens, farmers and other stakeholders in concrete actions (i.e., water retention group purchase program, formal conventions/Memorandum of Understanding (MoU), etc. – Action C5 and C6).

Participation, information, formal and informal educational activities for stakeholders and citizens’ active involvement are at the core of this Project, which aims at creating an awareness raising process among the local communities concerning problems, risks and solutions, implementing a communication campaign able to engage various target groups and stakeholders (policy-makers, national/local administrators, technicians and researchers, farmers, teachers etc.), having effects not only at the local, but also at the national and international levels. This campaign consists of a set of strategies which identifies the categories of target groups, the communication tools and the key messages for promoting the adoption of best practices, as well as a Communication and Dissemination Plan setting up all the communication activities in a defined timeline (Action E1, E2, E3, E4).

The project foresees a multilateral approach to monitoring, in order to collect data and evaluate the effectiveness of interventions, but also their socio-economic impacts. The collected data are also used in the dissemination actions, in order to prove the effectiveness of the adopted interventions. Each component of the project actions has been constantly monitored throughout the whole project implementation. Action D1 foresees quantitative monitoring, with a precise estimation of accumulating water for irrigation and/or peak discharge reduction during flood events, as well as qualitative measurements on the irrigation waters (Action C3) and SUDS interventions (Action C4) to measure water-quality improvements. The environmental situation was evaluated ex-ante, before the implementation of the interventions (Action C3 and C4) and subsequently compared all over the project lifetime. Specifically, two main categories are being monitored: vegetation and fauna. For all the investigations, the richness of each category will be used as an indicator. The expected increase of flora biodiversity will be an indicator of habitat improvement. For wild animals, the indicators are both the number of species and the presence of species protected by EU legislation, demanding a high habitat quality. Under Action D3, all the indicators are monitored and updated through the contribution of all the monitoring actions. The benefit and cost analysis planned in Action D4 focuses on the evaluation of the economic benefits of the main actions of the project and related costs. In addition, an estimation of expanded social-economic impacts will be achieved through a simulation tool, which directly links hydrological scenarios for the two Municipalities to the related socio economic effects of the interventions. The “Handbook on the real costs” to sustain the realization of SUDS interventions has been realized in order to provide citizens detailed information on the expected costs of the implementation of these interventions (Action D4).

Overall, the differentiated concrete actions that are carried out within the Project aim to reduce the hydraulic hazard and the risk of direct damages for the private and public infrastructures and buildings and the economic activities. Moreover, the whole composite framework of small-scale project actions has an expected socio-economic positive impact, like:

- An increased yearly average income from farming due to an improvement of water availability in case of water shortages and a reduced risk connected to hydraulic hazards;
- Indirect benefits for the actors operating in the design and supply chain of the implemented SUDS and NWRMs;
- Direct and indirect positive effects to the amelioration of recreation facilities, local environment and landscape, information provision on sustainable actions, producing an increasing welfare of the civil society;
- A better cohesion among people living in the area and the social responsibility, proactive preparatory behaviour also in Veneto Region and other EU Municipalities involved in the project.

The results of the project and the concrete actions proposed will continue to be spread among different target groups (farmers, technicians, stakeholders, students, citizens) at local, regional and national levels through the actions of the different involved partners (trainings for technicians and farmers of VA, Master course at the University of Padua by TESAF, etc.). In Europe, the project results will be spread during ALDA’s activities and thanks to the support of the CoI and the created network of national and international stakeholders, which will give continuity to the dissemination of the generated knowledge and the Project good practices.

In the long term, BEWARE will contribute to localizing the EU Adaptation Strategy through the scaling up and continuation of the participatory process. The implementation of concrete public policies to mitigate the flood risk through the adoption of NWRMs addressed by this project, can have positive effects in terms of urban and rural resilience to climate change and sustainable management of water resources, thus contributing to the 2030 climate and energy framework. The Project is contributing to support the “Covenant of Mayors for Climate and Energy”, supporting the drafting of a common SECAP in the Altovicentino, which will include the results of the

Altovicentino Mayors Adapt Strategy implemented within the participatory process (Action C2). The documents cannot be included here because there are only draft versions and they are more or less different from one Municipality to another. These documents should be approved by the end of 2022.

Regarding the rural environment, the draft of a new **National Strategic Plan** called “Complemento per lo Sviluppo Rurale (CSR)” that will be in place for the period 2023-2027 allows as eligible investment also the retention basins such as the one described in Action C3. The involvement of the farmers and their national associations, creating a bottom-up approach to include water issues in the next agricultural policies, as described below (Action 5.3), was surely effective to achieve this purpose and give indications for the CSR.

Lastly, the 7 pilot interventions developed in Santorso and Marano Vicentino municipalities will be maintained in the long run and will represent the starting point to widespread the adoption of NWRMs to mitigate the flood risk in the Altovicentino and beyond, also thanks to the NWRMs purchase group that will boost the implementation of nature-based solutions among the citizens. This intention is visible in the **Area Programming Agreement (IPA)** of the Altovicentino, that was issued in May 2022 and that established a working group about “climate change and water infrastructures” and, starting from the experience of life Beware, foresees the promotion of natural water retention measures and aid to public and private subjects for the collection and use of rainwater for non-drinking purposes (irrigation and domestic), but also trainings for professionals and the adoption of building regulations and territorial action plans which support citizens who undertake works/constructions in the building sector aimed at collecting rainwater and reusing it and gradually releasing it into the ground.

5. Administrative part

Within the Coordinating Beneficiary (CB), the head of the General Affairs Unit is responsible for the ordinary management, activities coordination and relationship with the European Commission (EC) and monitoring team. The CB presides over the Management Board (MB), with whom it shares the coordination activities, problems solving and quality supervision of the outputs through regular meetings and communications. The MB is constituted by one representative of each Associated Beneficiary (AB) and is chaired by the representative of the CB. A constant communication with the partners is considered fundamental for maintaining the commitment of the consortium and the focus on the objectives of the project, sharing priorities, actions and steps.

At the beginning of the project, an additional staff member was added to act as project manager with specific competence in management of EU funded projects. After leading and managing the project with very good results, he decided to leave for another position at the end of 2020. Therefore, in March 2021 the project management support was assigned to Studio Progetto Soc. Coop. Soc., with competences and experiences in project management. To ensure an appropriate handover, an incremental transfer of knowledge and operation was planned (See Section 6.2). Additional external support with the European Project Consulting Srl (EPC) was added after the first monitoring visit, as an answer to the need of methodological support mostly to the financial managers of the beneficiaries, thus registering a positive impact in the following monitoring visits. Activities related to the **administrative and financial management** are performed on the basis of regular procedures adopted by the beneficiaries and in relation to the contract (in terms of keeping separate books, admissibility of costs, accounting methods). Each beneficiary designated an administrative manager among its staff for financial reports to the EC, who sends financial reports every trimester to the CB. The administrative managers are constantly updated and informed about eligible expenses, payments, budget variations and statements of account. Each beneficiary is responsible for the procurement activities, as determined by the project proposal and the financial forms. The procurement procedures follow the national and Community legislation. Each beneficiary is responsible for the relations with the sub-contractor and for the delivery of products agreed, as required by the proposal. The communication with the Monitoring Team is regular and transparent, mostly by e-mail and telephone, allowing a mutual relationship of trust that is fundamental for a successful and solid project management. When necessary, the Consortium addresses direct communications to the Agency, under suggestion of the Monitoring team. The internal communication among the Project Partners is fluid and constructive allowing an efficient collaboration. Each partner, contribute with its recognised added value:

- COMMAR and COMSAN: local institutions, entrusted by local citizens, with the possibility to manage local activities and structures. They have similar visions and cooperate on other activities and projects together with other municipalities.
- TESAF: technical know-how and competences connected to the international academic level being updated about recent developments in the field of action. TESAF guarantees the scientific validity and correctness of the activities: all technical interventions and documents are checked and approved in order to verify the coherence of the project with scientific bases.
- VA and CB APV: technical know-how and competences connected to local stakeholders, technicians and professionals, allowing to facilitate their connection and participation and to spread information among them about the project's results.
- ALDA: strong communication and information skills and competences, with a wide connection and outreach capacity both at the local, national and international level thanks to its network of more than 350 members and more than 250 partners that brings to a very high diffusion and multiplying performance.

6. Technical part

6.1 Technical progress per Action

C1 - Participatory tools for resilient communities

Foreseen start date: September 2018 Actual start date: November 2018

Foreseen end date: June 2022 Actual end date: June 2022

C1.1 Common knowledges for resilient-communities

The Project partners designed a set of activities, promoting a participatory approach raising awareness among the local communities regarding the risk of floods in urban and rural areas and spreading knowledge about the characteristics, benefits and challenges of the adoption of small water retention and storage investments. The set of activities include a cycle of conferences with experts in climate change and territorial resilience (see table 1 below), a special edition of the School of Common Goods with a specific focus on the thematic of the project (<https://www.lifebeware.eu/en/the-school-of-common-goods/>) and the first edition of the “Altovicentino land of water and resilient-community Festival” (<https://www.lifebeware.eu/en/the-school-of-common-goods/>) hosted by the municipalities of Santorso and Marano Vicentino.

C1.1 Conference’s cycle (milestone 09/2020)

The first cycle of events organized by the project started in September 2019 and ended in January 2020. **953 people** were involved in excursions, training and debates, addressing the issues related to climate change effects, hydraulic risk prevention and the different NWRMs that can be implemented to best protect water resources. The cycle of conferences has registered a high level of participation, involving the citizens of the Altovicentino’s municipalities, and has been promoted by the network of the municipal libraries and the city halls. In the following table, a detailed list and description of the organized events is provided.

Table 1. List of conferences held from September 2019 to January 2020

Date	Title of the event	N. of participants
17 th /19 th September 2019	<u>Meeting: “Weather emergency in Santorso: A problem for all, which are the solutions?”</u>	114
28 th September 2019	<u>Trekking: “How the forest protects us: Hike to Tretto following the watercourse”</u>	51
8 th October 2019	<u>Meeting: “The climate that is changing us: the consequences of a sick planet on our territory”</u>	98
16 th October 2019	<u>Meeting: “Returning to nature for safer cities: urban greenery as a tool for resilience”</u>	85
9 th November 2019	<u>Trekking: “The water bombs on the industrial area of Schio and Santorso: from yesterday's decisions to today's problems”</u>	61
12 th November 2019	<u>Meeting: “Weather Emergency in Marano: Problem for all, which are the possible solutions?”</u>	41
10 th December 2019	<u>Meeting: “The case of Vicenza flood”</u>	46
13 th December 2019	<u>Meeting-Jury Trial: “Anthropocene and human wounds on our planet: is a cure still possible or are we at a dead end?”</u>	361
17 th January 2020	<u>Meeting: “The way the wind is blowing: the case of cyclone Vaia”</u>	96

C1.1 School of common goods (milestone 09/2020).

From the 16th to the 24th October 2020, a new edition of the School of Common Goods took place in the municipalities of Santorso and Marano Vicentino. During two weekends, the event involved many interesting good practices related to the management of common goods, and, despite the pandemic in progress, it had a successful participation and raised the interest of several people, even beyond the Altovicentino area.



Image 1. Pictures regarding the School of Common Good

C1.1 Altovicentino land of water and resilient-community Festival

The Festival “**The Shape of Water. Territories. Resilience. Community**”, that was organized by the consortium in synergy with other fourteen local partners and associations, took place in the Altovicentino area between Santorso, Marano Vicentino and Giavenale (Schio) from **Monday 20th of September until Tuesday 28th of September 2021**.

Due to the Covid-19 pandemic, the project dissemination strategy was renewed, having to transform some of the planned events into online activities. This Festival represented the occasion to attract a wider public, highlight and spread information about the project and its mid-term results, re-launching some of the activities that were affected by the pandemic the most, such as the "help desk for citizens" and "the water retention group purchase program".

The festival, which consisted of conferences, photographic exhibitions, meetings, workshops, shows and projections, focused on the need to collectively develop effective resilience strategies to the increasingly devastating consequences of the climate change process that the world is witnessing, with the involvement of local communities, using a variety of methods and forms of expression.

20 - 26 SETTEMBRE 2021
LA FORMA DELL'ACQUA
 TERRITORI. RESILIENZA. COMUNITÀ.



SANTORSO - MARANO VICENTINO



LA FORMA DELL'ACQUA
 TERRITORI. RESILIENZA. COMUNITÀ.

Realizzato nell'ambito del progetto LIFE Beware dal 20 al 26 settembre 2021, a Santorso e Marano Vicentino, il festival "La forma dell'acqua" darà voce a esperti, artisti e professionisti per raccontare come ridurre i rischi da alluvioni e allagamenti, e costruire collettivamente una strategia di adattamento al cambiamento climatico.

La rassegna è composta da incontri, conferenze, spettacoli, proiezioni e mostre e sarà un'occasione per conoscere più da vicino il progetto LIFE Beware (acronimo di "Better Water Management for Advancing Resilient Communities in Europe"), le sue attività e gli interventi realizzati per il miglioramento della sicurezza e resilienza idraulica del territorio, grazie al coinvolgimento attivo delle comunità locali.

Il Programma LIFE è un fondo dell'Unione Europea a sostegno di progetti per la salvaguardia dell'ambiente, del clima e della natura.



SCOPRI IL PROGRAMMA DEL FESTIVAL



VENERDÌ 24 SETTEMBRE, ORE 21.00

Auditorium Comunale (Via G. Marconi, 7)
 Marano Vicentino

AQUAQUEO - UN PIANETA MOLTO LIQUIDO

Conferenza spettacolo con **Telmo Pievani** e **Banda Osiris**.
 L'acqua diventa il pretesto per un viaggio musicale e scientifico attraverso i problemi che affliggono il nostro pianeta.



SABATO 25 SETTEMBRE, ORE 17.00

Piazza della Libertà - Santorso

TOUR CON I FRATELLI DALLA VIA

Passaggiata sul territorio comunale, accompagnati dai **Frattelli Dalla Via** (piccola impresa familiare che costruisce storie) e da **Francesco Bettella** (TESAF - Università di Padova) per approfondire le tematiche di LIFE Beware e le opere realizzate in questi anni di Progetto.

Partenza da Piazza della Libertà con arrivo presso la Casa del Custode.

DOMENICA 26 SETTEMBRE, DALLE ORE 10.00

Piazza Santa Maria - Marano Vicentino

LABORATORI SCIENTIFICI PER BAMBINI E RAGAZZI A CURA DI COOP. BIOSPHAERA

Ore 11.00



TOUR CON NICOLA SORDO

Passaggiata sul territorio maranese, accompagnati da **Nicola Sordo** (clown, attore, performer), **Lucia Bertolini** (TESAF - Università di Padova) e **Laura Di Prima** (Consorzio di Bonifica Alta Pianura Veneta) per approfondire le tematiche di LIFE Beware e le opere realizzate in questi anni di Progetto.

Partenza da Piazza Santa Maria con arrivo presso il Laghetto di Giavenale.

Ore 12.00

Laghetto di Giavenale
 (Via Martiri di Malga Zonta) - Schio

INAUGURAZIONE DEL LAGHETTO

Inaugurazione del Laghetto di Giavenale in presenza delle autorità e dei partner del Progetto LIFE Beware.

DOMENICA 26 SETTEMBRE, DALLE ORE 15.30

Villa Rossi - Santorso

LABORATORI SCIENTIFICI PER BAMBINI E RAGAZZI A CURA DI COOP. ECOTOPIA

LUNEDÌ 20 SETTEMBRE, ORE 18.00

Casa del Custode (Via Santa Maria)
 Santorso

PROBLEMATICHE E PROPOSTE DEL MONDO AGRICOLO IN MERITO ALLA GESTIONE IDRAULICA DEL TERRITORIO

Sintesi e confronto sul documento prodotto dal progetto LIFE Beware con **Marco Grendele**, collaboratore presso Veneto Agricoltura.



Foto di Michele Lapini

MARTEDÌ 21 SETTEMBRE, ORE 19.00

Stazione delle Arti (Via Stazione)
 Marano Vicentino

INAUGURAZIONE DEL FESTIVAL E DELLA MOSTRA FOTOGRAFICA "ECOGRAFIE DELLA CONTAMINAZIONE" DI MICHELE LAPINI

Le fotografie, stampate su grande formato e affisse negli spazi pubblici dei Comuni di Santorso e Marano Vicentino, saranno liberamente visitabili per tutta la settimana del Festival.

MARTEDÌ 21 SETTEMBRE, ORE 20.30

Cinema Campana (Via Vittorio Veneto, 2)
 Marano Vicentino

PREMIAZIONE DEL CONCORSO FOTOGRAFICO "ENORE MARINI"

A cura del Movimento Salvaguardia Ambiente.

A seguire

PROIEZIONE DI "ANTROPOCENE. L'EPOCA UMANA"

di J. Baichwal, E. Burtynsky, N. de Pencier
 (Documentario, 2018, Canada, 87').

MERCOLEDÌ 22 SETTEMBRE, ORE 18.00

Sala Consiliare delle Cal' Vecie
 (Via Santa Lucia) - Marano Vicentino

PROBLEMATICHE E PROPOSTE DEL MONDO AGRICOLO IN MERITO ALLA GESTIONE IDRAULICA DEL TERRITORIO

Sintesi e confronto sul documento prodotto dal progetto LIFE Beware con **Marco Grendele**, collaboratore presso Veneto Agricoltura.

GIOVEDÌ 23 SETTEMBRE, ORE 20.30

Teatro del Centro Giovanile (Via Santa Maria)
 Santorso

PRESENTAZIONE DEL SERVIZIO DI HELP DESK E DEL GRUPPO DI ACQUISTO DEI SISTEMI DI DRENAGGIO URBANO SOSTENIBILE

A cura di **Francesco Bettella** (TESAF - Università di Padova) e Associazione Buona Pratica.

A seguire



VIAGGIO NELL'ITALIA DELL'ANTROPOCENE. LA GEOGRAFIA VISIONARIA DEL NOSTRO FUTURO

Presentazione del libro con **Mauro Varotto** (docente di Geografia presso l'Università di Padova).

Come ormai tutti purtroppo sappiamo, l'impatto dell'uomo sul pianeta sta producendo effetti devastanti in tempi rapidi e su vasta scala. Non possiamo, quindi, fare a meno di chiederci come muterà l'aspetto del mondo nel futuro prossimo?

L'autore ti accompagnerà in un viaggio immaginario nell'Italia del 2786, attraverso una geografia visionaria del nostro futuro.

Nel mese di settembre e ottobre le scuole di Santorso e Marano Vicentino inizieranno le attività didattiche e le escursioni nell'ambito del Progetto LIFE Beware.

Image 2. Action C1.1 “The Shape of Water. Territories. Resilience. Community”

The initiatives carried out within the festival were:

1 Exhibition

- 21/09/2021 Inauguration Of The Festival And Photo Exhibition “**Ecographies of Contamination. The new landscapes of the Capitalocene**” By **Michele Lapini**. The theme investigated by the author is climate change, which is presented through photography. The images express the power of nature and its adverse events and the links that bind them to man, who is both the cause and the victim. The exhibition was so successful that after the festival it became permanent.

1 conference with a show:

- 24/09/2021 Conference-Show “**Aquadueo. A Very Liquid Planet**” With **Telmo Pievani** And **Banda Osiris**. Telmo Pievani is full Professor at the Department of Biology of the University of Padua, where he holds the first Italian chair of Philosophy of Biological Sciences. At the same Department he also teaches Bioethics and Naturalistic Divulgateion. For this performance he worked with Banda Osiris, which is considered the highest expression in Italy of comedy in musical theater, mixing music of all genres with irony.

2 big conferences with famous guests:

- 26/09/2021 “**Quando La Misura E' Colma: Resilienza Urbana E Cambiamento Climatico**” (“Urban resilience and climate change”) with **Mario Tozzi** - PhD in Earth Sciences, who is currently First Researcher at the National Research Council first and a

well-known science populariser at national level.

- 23/09/2021 “**Viaggio Nell’Italia Dell’antropocene. La Geografia Visionaria Del Nostro Futuro**” (“Antropocene. The visionary geography of our future”) with **Mauro Varotto**, professor of Geography at the University of Padua and populariser. The event, which presented to the public the professor’s new book, focused on the prediction of the probable effects of rising sea level on Italian coasts. In that context, Life Beware’s Purchasing group for sustainable urban drainage systems, among the first at national level, was launched.

2 Meetings with farmers:

- 20/09/2021 in Santorso and 22/09/2022 in Marano Vicentino “**Agricultural Problems And Proposals On Hydraulic Management Of The Territory**” with Marco Grendele (Veneto Agricoltura). The meetings consisted of the summary and discussion on the document produced by the LIFE BEWARE in the context of the Technical round table with farmers associations (Coldiretti, Cia e Confagricoltura) and other project partner (TESAF, Consorzio di Bonifica) (see action C5) . The discussion involved the farmers, in order to get their observations and opinions on the document.

2 events to promote the water retention group purchase program

- 23/09/2021 “**Presentation Of The Help Desk Service And The Purchasing Group Of Sustainable Urban Drainage Systems**”
- 26/09/2022 “**Presentation Of The Help Desk Service And The Purchasing Group Of Sustainable Urban Drainage Systems**” Stand in at Parco Rossi. In this context the project’s video and documentary were shown.

2 film screenings

- 21/09/2021 Showing of “**ANTROPOCENE – L’EPOCA UMANA**”, by J. Baichwal, E. Burtynsky, N. de Pencier (Documentary, 2018, Canada, 87’)
- 28/09/2021 Showing of “**ANTROPOCENE – L’EPOCA UMANA**”, by J. Baichwal, E. Burtynsky, N. de Pencier (Documentary, 2018, Canada, 87’)

2 tours to present the interventions in Santorso and Marano guided by local technicians together with comedians

- 25/09/2021 **Tour With Fratelli Dalla Via** - Walk through the municipal territory, guided by the Fratelli Dalla Via, a local theater performance duo composed by Marta and Diego Dalla Via, and Francesco Bettella (TESAF – University of Padua) to explore the themes of Life Beware and the works carried out in these years of Project.
- 26/09/2021 **Tour with Nicola Sordo and Inauguration of the Giavenale Basin** - Walk with Nicola Sordo (clown, actor, performer), Lucia Bortolini (TESAF – University of Padua) and Laura Di Prima (Consorzio di Bonifica Alta Pianura Veneta) to show the Life Beware themes and the works realized in these years of Project.



Image 3. Action C1.1 “The Shape of Water. Territories. Resilience. Community”

2 educational activities for kids were foreseen:

- 26/09/2021 h 11:00 **Science Workshop for Kids** with Biosphaera cooperative
- 26/09/2021 h 15:30 **Science Workshop for Kids** with Ecotopia cooperative

Unfortunately, due to the bad weather conditions, the educational activities had to terminate earlier and with less children than expected. Anyway, more than **600 participants** attended the festival. The following table shows documented numbers in detail.

Table 2. List of events of the Festival and n. of participants

Date	Title of the event	N. of participants
20th September 2021	“Agricultural Problems And Proposals On Hydraulic Management Of The Territory”	6
21 st September 2021	Inauguration Of The Festival And Photo Exhibition	21
21 st September 2021	Photo competition prize-giving “Enore Marini” and Showing of “ANTROPOCENE – L’EPOCA UMANA”	55
22 nd September 2021	“Agricultural Problems And Proposals On Hydraulic Management Of The Territory”	10
23 rd September 2021	Presentation Of The Help Desk Service And The Purchasing Group Of Sustainable Urban Drainage Systems and “Viaggio Nell’italia Dell’antropocene. La Geografia Visionaria Del Nostro Futuro”	38
24th September 2021	Banda Osiris and Telmo Pievani	135
25 th September 2021	Tour with “Fratelli Dalla Via”	52
26 th September 2021	Photographic exhibition	14
26 th September 2021	Tour with Nicola Sordo and Inauguration of the Giavenale Basin	46
26 th September 2021	Conference with Mario Tozzi	185
28 th September 2021	Showing of “ANTROPOCENE – L’EPOCA UMANA”	48

C1.1 Educational activities for pupils (milestone 06/2022)

The **educational activity for pupils** was inaugurated with the realization of the first online version of the “[BEWARE Kids University](#)” (May 2020) and the presentation of the [BEWARE Comic Book](#) (January 2021) involving the primary and secondary schools of Santorso and Marano Vicentino. The Comic Book was widely disseminated and read by both the teachers and students, receiving enthusiastic feedback. As a matter of fact, some of the students who joined the Comic Book presentation were given the homework to imagine either a follow up or an alternative ending to the Comic Book’s story.

From March 2021, a comprehensive educational process has started as the municipalities of Santorso and Marano Vicentino, in synergy with the consortium, designed and organized innovative proposals for the primary and secondary schools of the territories in order to raise awareness and generate further knowledge and sensitivity on climate change, its effects on the hydrological cycle and the main adaptation and mitigation measures. To this purpose, a series of initiatives aimed at primary schools (classes III, IV and V) and secondary schools were designed

thanks to the adoption of innovative digital tools through workshops, online laboratories, visits on the territory, guided tours and so on. A complete teaching project was developed and shared with the schools of the territories. This is further explained and reported in action E2.3.



Image 4. Online presentation of the BEWARE Comic Book, 26th of January 2021



Image 5. Examples of drawings realized by the students of the schools of Santorso and Marano Vicentino

C1 - Participatory tools for resilient communities

C1.2 Resilient-communities Help Desk (milestone 01/2020)

The Resilient Communities Help-desk was launched in February 2020 within the already existing Help Desk “Comuni per la Sostenibilità”. TESAF experts delivered a specific training session (21/02/2020) to people involved in the help desk activities. The lesson involved 12 people about the BEWARE project and its focus, the different water infiltration and storage technologies that can be adopted by citizens and their costs, and the methods to build some simple interventions for water retention autonomously. The Help Desk is active both in presence and online with the activation of a specific email address (beware.tesaf@unipd.it). To provide complete information to the interested citizens contacting the Help Desk, an information kit was realized and spread to the Altovicentino citizens who are interested in adopting Natural Water Retention Measures (NWRMs) in their private properties. The information kit contains the following information:

- General information about the NWRMs: i) a description of the main NWRMs which are most suitable for the private properties (i.e. single houses, private gardens.); ii) costs of the NWRMs and main benefits; iii) a list of possible actions to be realized to increase the territorial resilience to climate change.
- A specific focus on rain gardens: i) where to realize a rain garden; ii) how to realize a rain garden; iii) which are the benefits of a rain garden.

To date, **162 citizens** have consulted the Help Desk asking for further information about how to prevent the hydraulic risk in their properties, how to improve the energy efficiency in their house, general regulations and norms and so on.



Image 6. Pictures of some of the participatory actions developed within the Project

C1.3 The water retention group purchase program (milestone 01/2021)



Image 7. C1.3 Beware Purchasing Group

The process for the formation of the Purchasing Group was started in December 2021 (deadline 01/2021), as it was postponed several times due to continuous restrictions due to the Coronavirus pandemic. In the autumn of 2021 an information and citizen involvement campaign began, with the aim of gathering the first expressions of interest in the purchasing group. A form was disseminated through the partners' social channels and potential participants were asked to indicate which types of devices/interventions they were interested in, the transport/withdrawal method and some personal data. In addition to the social media campaign, the consortium activated all their channels with personalized messages and communications. It was also possible to reach citizens thanks to the Municipal Energy Help Desk, during the weekly help desk appointments.



In total, 38 people, coming from all over the Veneto Region, filled in the form. The majority of preferences were oriented towards the purchase of tanks for rainwater management: for this reason, together with the coordination team, it was decided to propose only this type of device to the purchasing group. On a technical level, the team has always remained available for any advice or consultancy regarding the other types of NBS (Nature Based Solutions), which require an ad hoc design based on the context in which they are inserted. On December 20, 2021, an online meeting was held to get to know the interested parties, to present the Life Beware project and the purchasing group. A market research was then carried out to identify the most suitable companies for the supply of the tanks. Citizens were sent the catalogs and price lists of three companies: Eureka s.r.l., PiElleBi s.r.l. and ELBI s.p.a..

Image 8. Picture of a member of the purchasing group

Following a formal confirmation from the interested parties, personalized estimates were requested, aware that in this way the purchasing group formula was no longer valid. The reason

for this choice falls on two components: on the one hand, the number of people actually interested in concluding the purchase decreased strongly when we sent the catalogs asking for a formal confirmation, reaching a total of 5 people (it was an insufficient number to access relevant discounts); on the other hand, some difficulties have been realized with respect to payments made by a group of individuals, not having available a body that is fiscally suitable for this type of purchase. Furthermore, the exponential increase in the cost of raw materials and transport should not be underestimated, which coincided exactly with the start-up period of the purchasing group and this did not encourage families. In any case, thanks to an agreement with the selected companies, it was possible to reach the compromise by which it was possible to keep the price list of the devices unchanged (despite the increases in raw materials) during the weeks necessary to complete the operations purchase.

The purchases concluded so far are 5, for a total of more than € 2000. The chosen tanks were installed independently with a direct connection to the downspout, and have the following capacities: 200l, 275l, 350l and 1300l.

C2 - Altovicentino Mayors Adapt Strategy and new building codes

Foreseen start date: September 2018 Actual start date: October 2018 Foreseen end date: June 2022 Actual (or anticipated) end date: June 2022

C2.1 Introduction in the local building codes of new rules for water retention

(Deliverable 06/2022)

Action C2 was aimed to improve the local building codes from the point of view of the water retention as a possible strategy for climate adaptation. To attain this objective, COMSAN and COMMAR, together with TESAF, started the participatory processes adopting different actions in order to involve the highest number of people and stakeholders, and to collect good quality information from the different actors.

These actions, further described in C2.3, led to the adoption of the Altovicentino Mayors Adapt Strategy contributed to the realization of a new proposal of regulation which has been adopted by both Municipalities by these formal resolutions:

- Resolution n. 15 of the 26/04/2022 of the Municipality of Santorso
- Resolution n. 13 of the 27/04/2022 of the Municipality of Marano Vicentino.

Annex 4 - Deliverable C2. COMMAR AND COMSAN new building codes

C2.3 Altovicentino Mayors Adapt Strategy

(Deliverable 06/2022)

The path that led to the development of the Altovicentino Mayors Adapt Strategy was made up of four main phases:

1. **Collection of information:** As a starting point, a connection with the Project action C1 has been created by collaborating in the co-design of the various events, evenings and workshops in order to outline a coherent educational and training path on hydraulic resilience. This served first of all to gather information on the main critical issues of the territory, to increase the awareness of citizens and to start networking with them and with experts.
2. **Creation of the Adaptation Team:** With the aim of involving local stakeholders and boosting the initiative, the Project has created a team of multisectoral experts (architects, engineers, educators, etc.) who analyzed the consequences of heavy rainfalls in the municipalities of Santorso and Marano Vicentino, carried out interviews with experts in the sector and carried out specific inspections.
3. **Participatory path:** The path began on the 30th of November 2020 and lasted for 5 months. All meetings were held online and were structured in two parts: in the first part, different experts provided a general overview of the main critical issues. In the second part, the “participatory” phase of the process was implemented. Using online facilitation tools participants were divided into small groups, with the method of the “World Café”, and called to openly share their knowledge and proposals with the final aim to propose as many viable ideas as possible that were subsequently collected and shared by the group of facilitators of the Project. The participatory path has seen great interest from the public and from the municipalities, with 120 registered members in total. During the evenings the number settled from 70 to 130 people.
4. **Elaboration of the actions:** With the help of SOGESCA srl (expert consultancy agency in the elaboration of the SECAPs), the ideas of the various working groups were collected and action proposals were produced that could best respond to the identified priorities. This phase began at the end of February 2021 and continued until mid-summer of 2021, with the organization of three meetings in which the drafts of the various actions were presented to the participants and feedback and observations were collected from them.
5. **Presentation of the final plan:** On December 14th 2021, an online event was held to present the plan and all the actions included in it. The document has been shared and everyone was invited to use it and adapt it to his or her own context as preferred. The recording of the event has been uploaded [on the youtube project's channel](#).
6. **The synergy with the covenant of mayors local plans:** A step of fundamental importance with regard to the development of action C2 concerns the synergy created with SOGESCA srl and with the signatory municipalities of the SECAP. Currently, 20 municipalities in the Altovicentino area are drawing up action plans for climate adaptation on which they will base their commitments between now and 2030. In order not to create confusion doubling the effort, with the aim of giving greater concreteness to the Mayors Adapt Strategy, it has been agreed with SOGESCA that the contents emerged from the participatory path and written in Altovicentino Mayors Adapt Strategy will be integrated into the common SECAP of the various municipalities. The plan with the Altovicentino Mayor Adapt Strategy (deliverable deadline 06/2022 - Annex 3 - Deliverable C2.2 Altovicentino Mayors Adapt Strategy) is published on-line on the project web-site: https://www.lifebeware.eu/wp-content/uploads/2022/01/PianoAzioneBeware_C2.2.pdf
7. **Looking together at the future:** On June 4th at the Casa del Custode in Santorso, during the project's last official event, participants had the chance to be involved in a full day of conversations and focus groups about what will come after project BEWARE itself. The day was organized as an Open Space Methodology, allowing people to autonomously choose their topics and self - organize in different group discussions. There were about 15 people, including local administrators, young professionals and local activists. Conversations ranged from “how to concretely disseminate good practices like the basin in Giavenale” and “how to create a citizen

self-help group on this practices” to more cultural challenges like “how to involve young students” or “how to educate and invest in ourselves”.



Image 9. Open Space Technology - final event

C3 - Natural Water Retention Measures (NWRM) for climate adaptation in plain agricultural areas

Foreseen start date: September 2018 Actual start date: June 2019

Foreseen end date: July 2019 Actual (or anticipated) end date: September 2019

The action C3 consists in the building of a basin for multiple use in the locality of Sant’Angelo in Giavenale, a fraction of the Municipality of Schio, and in the subsequent and necessary rehabilitation of the hydraulic network downstream, from the municipalities of Schio to Marano Vicentino, particularly in the Sant’Angelo trench. The intervention has the main function of flood mitigation, and other secondary functions such as irrigation and biodiversity preservation. The water retention basin was built in the period between June and September 2019 by the Consorzio di Bonifica Alta Pianura Veneta (CBAPV), coming into operation in March 2020 including testing and planting. The *executive design of the retention basin* (deliverable 02/2019) has been drafted by the engineer Alberto Marchetto, commissioned by the municipality of Marano Vicentino, with counseling from the Consortium of Alta Pianura Veneta. The basin is aimed at the accumulation of rainwater as well as water deriving from the excesses on the secondary network during major meteorological events, in such a way to enable the protection from the floods of urbanized areas downstream (municipality of Marano Vicentino). At the ceasing of rain events, an emptying of the basin is planned through the existing irrigation network and the private trench of Sant’Angelo, whereas the pond is expected to remain filled during the non-raining or non-emergency periods for irrigation purposes. During the summer period, the micro-basin will effectively act as an important reserve for the irrigation of adjoining agricultural lands. This will consequently lead to a more sustainable water use through the adoption of drip irrigation systems to be potentially built by private firms, hence also following objectives of water resource saving.



Image 10. Action C3. Water retention basin in Sant'Angelo in Giavenale, Schio municipality, Italy.

The bottom of the basin was covered with a geomembrane provided by the Municipality of Marano Vicentino. In the basin, along its entire perimeter, in an area specifically created by the CBAPV according to the indications of Veneto Agricoltura and not foreseen in the initial project, some vegetation was planted to encourage the development of Biodiversity (by VA). The creation of this planting area, as well as compliance with the distances from the boundaries identified by the surveyor in charge prior to the execution of the work, resulted in a slight decrease in the basin's initially planned reservoir capacity of 2,500 cubic meters. Work on the basin by the Consortium was completed in September 2019 allowing VA to proceed immediately with planting. Micro Basin functionality was enabled in March 2020 with the start of the irrigation season. To complete the work and improve the recreational and teaching purpose of the structure, a webcam (by VA), benches and tables (by the Municipality of Marano) were installed. Among the expected results of the intervention, it is important to point out an increase in biodiversity, documented by the monitoring activities of Action D2. In December 2020, the Consortium, considering the considerable value of the work carried out under the Project as a natural water retention measure, launched a study to identify suitable sites for the creation of micro reservoirs for multiple use in the Altovicentino area. The drafting of this Strategic Plan has been financed entirely with the Consortium's own funds. Municipal administrations have been met in order to know, also through the Municipal Water Plans, the flooding problems in the territory and to verify the possible solutions.

C4 - Sustainable Urban Drainage Systems (SuDS) for climate adaptation in urban areas

Foreseen start date: 09/2018 Actual start date: 09/2018

Foreseen end date: 09/2019 Actual end date: 9/2020

The action foresaw the realization of six interventions in order to create a province/regional focal point for the promotion and awareness of the benefits of SUDS against floods and other climate related risks, and to solve hydraulic problems really present in the territory. All the planned

interventions have been realized in the location identified in the BEWARE application form, achieving the aims set by the single interventions. Respecting the preliminary design reported in the application form, the executive designs present some modifications that became necessary in order to increase the hydrological effectiveness of the intervention or in order to adapt the solution to the conditions identified by preliminary topographical and geological surveys (additional information in section 2.2). TESAF realized the design of the interventions (deliverable 03/2019) 1, 2, 5, and 6 with the support of the technicians of the Municipalities of Santorso and Marano Vicentino. External experts with the support of TESAF staff and municipal technicians realized the design of interventions 3 and 4. The Milestones “Sent of the first project” (12/2018) and “End of the first intervention” (07/2019) has been respected. In addition, most of the projects of the interventions have been drafted in time with the planned deadline (03/2019). Nevertheless, some of them have been slightly delayed; this is because we needed more time to identify the best solution in the light of the preliminary findings described above. Some delays are reported also for the realization of some interventions (details in the section 2.2). These delays did not affect other project activities. Effectively, interventions should have provided concrete support to the educational and formative activities. These lasts were postponed due to the pandemic situation. As a consequence, all the planned teaching and training activities have been started after the realization of the interventions, benefiting their demonstrative function that has been explained also using multimedia material when the formative activity was realized on-line.



Image 11. Action C4. Pictures of the Natural Water Retention Measures in Santorso and Marano Vicentino

C5 - Farmers' involvement for a correct water management in agricultural areas

Foreseen start date: April 2019 Actual start date: March 2019

Foreseen end date: December 2021 Actual end date: December 2021

C5.1 Building a list of experts

Alongside the project implementation, a scientific committee has been created. It is composed by a group of experts with national and European scope on the topics of water management, sustainability and climate adaptation. Four experts have been identified for four areas of expertise: hydraulic engineering, environment/resilience, agronomic and forest management and funding. These experts have been identified in various ways: through participation in events and conferences of other European projects for hydraulic resilience, during the participatory path of the BEWARE project itself and, in general, by leveraging good networking between the network of partners and local stakeholders.

The function of the [Advisory Board](#) is to provide experience and know-how on urban, agricultural and forest water management issues, thanks to the contribution of multisectoral stakeholders.

C5.2 Facilitating the direct knowledge of the best water retention management realizations

The Veneto Region, as well as many other Italian regions, is not immune to phenomena of hydrogeological instability and extreme weather events. For several years, administrations, authorities and citizens have been taking action through the implementation of small and large-scale measures to reduce hydraulic risk. Veneto Agricoltura has produced a map identifying the most important natural water retention measures, co-financed by the European Union and the Veneto Region. Both the natural water retention works promoted by the BEWARE project and by some other recent LIFE projects (AQUOR, TRUST+, WSTORE2, etc.) and the large flood risk works, such as reservoirs and lamination basins with a flow rate higher than 800.000 m³, are reported. The lamination basins in particular, allow, through the creation of areas of controlled flooding, to give backspace to the rivers and increase the safety of large urban areas. The map shows the main interventions carried out in the areas affected by the recent floods, included with the highest priority in the "Plan of actions and interventions for the mitigation of hydraulic and geological risk" of the Veneto region.

During the workshops with farmers, and especially at the technical table with the Trade Associations, it was possible to make an analysis of the context of farms in the Altovicentino area, especially in the area covered by the LIFE BEWARE project. What emerged is the small farm size and land fragmentation of the area. In fact, farms have a large part of the land worked under lease from third parties, and these lands are scattered throughout the territory. These two factors (the presence of rented land and land fragmentation) do not allow entrepreneurs to be able to make large investments in infrastructure, especially irrigation. In fact, such works would remain for the benefit of the landowner in case of termination of the lease, and in any case fragmentation would not allow efficient use of such infrastructure.

For these reasons, during the meetings organized by the LIFE BEWARE project, the agricultural world was very supportive of the interventions illustrated and proposed, but at the same time it was highlighted that it is essential to have "top-down" interventions, especially on the economic side, that would overcome the inefficiencies described.

The work of the Strategic Plan carried out by the CB APV is therefore very appreciated by the agricultural entrepreneurs, who indeed gave their willingness to the realization of new basins, especially if multifunctional (irrigation, ecological, didactic-tourist), requesting, however,

financing by the CB APV, either through its own funds or by means of projects financed at the regional, national and/or European level. The financment of ANBI “Piano Laghetti” described in the After Life Plan (C3) is giving an answer to this request.

Instead of the Rural Development Plan, the National Strategic Plan called “Complemento per lo Sviluppo Rurale (CSR)” will be in place for the period 2023-2027: agricultural development policies are thus concerted at the national level, and are subsequently declined at the regional level.

Following the draft version, among the eligible investments there are also retention basins such as the one in Giavenale (Action C3); in particular in SRD02 - Agricultural productive investments for the environment, climate and animal welfare, Action B-Investments for the protection of natural resources R/CR08 - creation or enlargement of a basin. (*Annex 22 - Proposals For the National Strategic Plan for Rural Development*)

Finally, the presence in the territory of the Trade Associations and Veneto Agricoltura will make it possible to disseminate, as soon as possible, what will be included in the new National Strategic Plan and how to access the various calls: farmers are waiting for this information. This will allow entrepreneurs to have an easier and smoother access to indirect funds regarding agriculture.

C5.3 Direct training and information actions

The action aimed at involving the local farmers in the project and encouraging their active participation in the increase of water retention strategy even with the possibility of obtaining financial contribution under the Rural Development Programme of the Veneto Region 2014-2020. In the first two meetings (milestone 06/2019), held in March 2019 and in July 2019 the themes of water management and irrigation were explained. The discussion had a training mode: in the first part there was a classification and an overview of the theme; in the second part the call for funding was explained, giving all the information useful to have a successful call.

During the first meeting, which took place in Marano Vicentino and involved 23 participants, Veneto Agricoltura and TESAF explained how to manage water in agriculture (both when it exceeds and when it lacks). The training part was about measuring 4.1.1 of RDP (irrigation plants and retention basins).

During the second meeting, which took place in Santorso and involved 67 participants, Veneto Agricoltura and TESAF explained how to manage trees in the fields. In this case, the aim was to illustrate how trees can help water management, both in rural rather than in urban contexts. The training part was about measuring 8.1.1 of RDP (tree plants). The 2 events involved more than 50 farmers foreseen by the project. After these two training, concerning water measures (*sensu latu*) inside RDP, the Management Authority didn't present new calls. So, although we reached the project goals for this action, we decided to continue this experience involving farmers in the new RDP programming, transforming the process from top-down to bottom-up. The objective was to include water issues in the next agricultural policies, considering the Alto Vicentino territorial specificities.

We instituted a Technical table with farmers associations (Coldiretti, Cia e Confagricoltura) and other project partner (TESAF, Consorzio di Bonifica), where we discussed 3 topics:

- Water management in Alto Vicentino area (20/04/2020)
- Irrigation systems (04/06/2020)
- Hydraulic risk (25/06/2020)

Due to the spread of the Covid-19 pandemic, we used the Skype platform. From these meetings we obtained a Technical document that we shared with local farmers to obtain their observations and opinions during 2 meetings inside «Festival dell'acqua» (20-22/09/2021).

After this sharing moment, we sent the document to farmers' associations: they could use it to communicate Alto Vicentino's needs regarding water management to Veneto Region.

In late 2021 the Management Authority scheduled new funds for water management systems. So, we organized a training action in Zoom (25/01/2022) for farmers and agronomists (73 participants).

The farmers met also during the Festival “La Forma dell’Acqua”, as mentioned in C1.

C6 - Replicability, transferability and training

Foreseen start date: December 2018 Actual start date: December 2018 Foreseen end date: June 2022 Actual (or anticipated) end date: June 2022

C6.1 Building an extended community of interest

Community of Interest: The constitution of the Community of Interest (CoI) (deliverable 09/2019) of the BEWARE project started during the project development phase with the collection of 45 letters of support coming from municipalities and other stakeholders from 12 different EU and non-EU Member States.

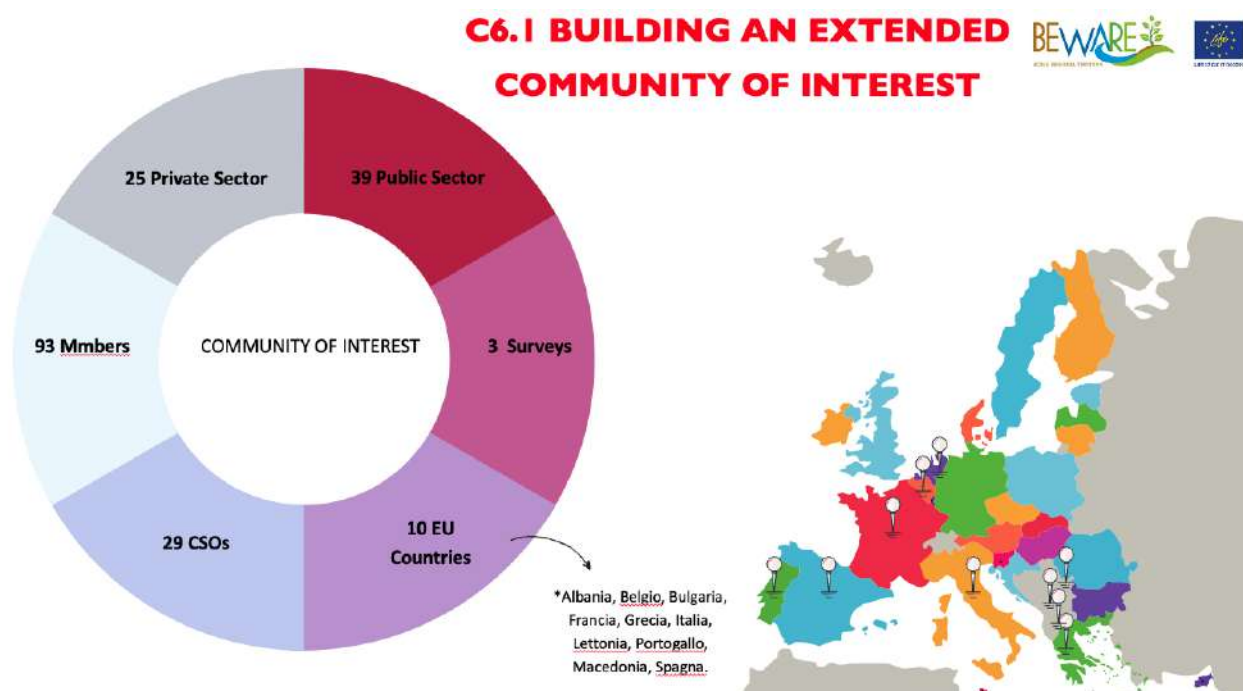


Image 12. Visual representation of the Community of Interest

Throughout the whole project implementation, the partners worked together to increase the number of members of the CoI that is currently formed by **93 active members** from the public sector (39 members), the civil society (29 members) and the private sector (25 members), coming from 10 European countries (Albania, Belgium, Bulgaria, France, Greece, Italy, Latvia, Portugal, Macedonia, Spain).

With the CoI, LIFE BEWARE is creating a wide network in the field of **hydraulic safety and resilience with the aim of fostering the involvement of the stakeholders in the project activities and to ensure the replicability of its results**. In compliance with the values, objectives and topics of the Project, the members are invited to discover and follow the activities of the project by subscribing to the newsletter, promoting the dissemination of the project results, contributing to the collection of information on the theme of hydraulic risk, joining debates and specific events about the related critical issues and priorities.

Besides being a great opportunity to create synergies between stakeholders from different sectors and several European countries, the CoI offers to its members the possibility to participate in some of the most interesting activities organized by the project partners. To join the BEWARE Community of Interest it is necessary to share the project aims by signing a **Memorandum of Understanding** (deliverable 09/2020), hence contributing to the dissemination and promotion of the project activities. In fact, as foreseen in the Memorandum of Understanding, the Community of interest was invited to participate, both as attendees and as speakers, during Webinars (*C6.2 Expert Webinars*), Conferences, Trainings (*C6.2 Training Module* , *E3.1 Training for professionals*), Workshops (*C6.2 Eu Workshops*) and the Master Module (*C6.2 Master Module*).

Table 3. Activities with active involvement of the CoI

Action	Involved CoI - Member	Activity
Action C1: Participatory Tools For Resilient Communities	Santorso in Transizione	Active part of the participatory process
Action C.2: Altovicentino Mayors Adapt Strategy And New Building Codes	Associazione Pubblici Giardini (Alessandro Bedin)	He was part of the Adaptation Team and was actively involved in the participatory process of the Project
Action C6: Replicability Transferability And Training	Biosphaera	Cooperation Agreement – Agreement on the implementation of school activities
Action C6: Replicability Transferability And Training	Landes Group	Cooperation Agreement - Agreement on the support of technical management
Action C6: Replicability Transferability And Training	Civiltà dell’Acqua	Cooperation Agreement – Agreement on implementation of the hydraulic restoration tour
Action C6: Replicability Transferability And Training	Prof. Gian Battista Bischetti	Involved as lecturer in the Master Module (C6.2)
Action E.4: Multi-Level Dissemination Of The Project Results	Arpav (Life Prepair)	Study visit and Exchange of Best Practices during the European Green Week 2021
Action E.4: Multi-Level Dissemination Of The Project Results	Project Soil4Life	Study visit and Exchange of Best Practices during the European Green Week 2021
Action E.4: Multi-Level Dissemination Of The Project Results	City of Padova	Study visit and Exchange of Best Practices during the TNOC Festival 2022, in which they were

		involved as speakers.
Action E.4: Multi-Level Dissemination Of The Project Results	City of Lousada	Bilateral Meeting and Exchange of Best Practices
Action E.4: Multi-Level Dissemination Of The Project Results	ANBI Veneto	Speaker during Life Beware’s Final Event
After Life	ANBI Veneto	The Life Beware water basin was included among the best practices in the Manual For Environmental Management Of Water Courses published by ANBI Veneto.
After Life	City of Lousada	Bilateral Meeting and Exchange of Best Practices
After Life	Municipality of Carrè, Municipality of Zugliano, Municipality of Breganze, Municipality of Sarcedo, Municipality of Chiuppano and Municipality of Lugo	Six Municipalities expressed their willingness to adopt the main points of the Climate Adaptation Action Plan into their SECAPs, through the signature of a letter of intent

Cooperation Agreements

During the course of the project’s implementation 6 Cooperation Agreements were formalized with different stakeholders in order to foster collaboration and create synergies with expert partners.

The cooperation agreements signed were:

- 09/2020 CA between the Consortium, the Municipality of Marano and the owners directly affected by the work (owner of the land on which the micro reservoir was built and farmers who use the water resource in the summer months) for the ordinary and extraordinary maintenance activities as well as the management of the reservoir in winter and summer periods. This Agreement is scheduled to expire on 30/06/2022 and it is expressly provided for its renewal, for at least 10 years, ensuring the maintenance of the intervention also after the end of the Project;
- 09/2021 CA between the municipality of Santorso and Marta Dalla Via for a performance during Festival Dell’Acqua;
- 11/2021 CA between the municipality of Santorso and Biosphaera Cooperative for the implementation of school activities;
- 11/2022 CA between the municipality of Santorso and Centro Internazionale Civiltà dell’Acqua ONLUS for the implementation of the hydraulic restoration tour;
- 06/2019 CA between Tesaf and Landes Group for technical coordination support;
- 08/2022 CA between the municipality of Santorso and Buona Pratica APS for the expenditure commitment for the continuation of the project “Comuni per la sostenibilità” for the year 2022-2023.

(Annex 5 – Deliverable: List of members of the CoI and signed Memorandum of Understanding (MoU) and Cooperation Agreement).

Surveys (milestone 09/2019)

Three different surveys were created. Each of them was addressed to specific stakeholders: i) local governments (Mayors, Municipal Councillors, etc.), ii) entities/associations and technicians who deal with water and land management, iii) researchers who deal with water and land management. The three surveys had the same structure and mostly the same questions but designed specifically for the sector of occupation. In the first section respondents were asked to express their opinion about the impact of climate change, their perceived utility of implementing NWRMs in agriculture and urban areas and if they know about existing SUDS in the region in which they work. The second section was dedicated to collect opinions on i) what is required to know about NWRMs and their implementation and the main reasons for not using NWRMs, ii) the perceived most useful solutions to improve the adoption of SUDS in order to reduce hydrogeological risk, iii) what knowledge and skills should professionals dealing with flood and drought risk prevention and mitigation need to have and iv) what respondents want to know about climate change, flood and drought risk and NWRMs. The data collected have been stored in a TESAF repository. For privacy reasons, TESAF is the only responsible for the data storage and no other partners have access to them, otherwise stated by single interviewees. At the bottom of the survey respondents were asked for a possible contact for future updates and activities about the BEWARE project. These contacts were separated from the responses and were shared only with COMSAN in order to trace the response rate of the Community of Interest. The results of this survey were then used to develop the training activities and were considered in the realization of the action C2 outputs. Moreover, an additional survey was carried out by interviewing citizens to explore their awareness on NWRM (see action D3 and D4).

C6.2 Empowering our Community of Interest

Expert Webinars (deliverable 06/2021):

The project foresees **two one-hour webinars**, with the aim to serve as practical guide for technical local stakeholders. The goal of the webinars was to share the knowledge and strategies developed within the project Life Beware, in order to guarantee the replicability of its results, even after the end of the project. They targeted a vast array of stakeholders: technicians working in LAs and Universities, CSOs and local experts, from the EU, with a particular attention to involving the Community of Interest of the project.

The **first webinar** was realized on the **11th of March 2021** in collaboration with the Italian Society of Agricultural Engineering. The Webinar was entitled: **“Green infrastructure for the management of runoff in urban and peri-urban areas”** and was realized within a series of events on the topics of Agricultural Water Management and Hydraulic Works, addressed to students and PhD students of the different Universities involved and to professionals working in the field of water resources management and agroforestry. During the Webinar, Prof. Vincenzo D'Agostino of TESAF discussed the issues of land consumption, hydraulic risk and strategies to ensure hydraulic and hydrological invariance, deepening the theme of green infrastructure for the management of rainfall runoff. The infrastructures realized within the LIFE BEWARE project have been presented as a virtuous example of runoff management, bringing to the attention of the participants the results obtained from the hydrological monitoring activities carried out within the LIFE BEWARE project.

There were **35 active participants** and the Webinar is available on the [Society's Youtube Channel](#) and on [LIFE BEWARE's](#) one.

The second webinar, entitled **“Resources Management and Pollution Reduction: Sharing best practices at the local, national and international level”** was realized within the **EU Green Week 2021** on the **4th of June 2021**. The webinar was built to share experiences about the

sustainable management of natural resources in order to reduce pollution and to increase territorial resilience to climate change. The topics covered by the webinar included best practices for preventing water, soil and air contamination such as Nature-Based Solutions, Water Safety Plans, policies for the conservation and restoration of soils and to reduce air pollution.

The session was enriched by a study visit with two European funded projects:

i) the **SOIL4LIFE Project** which focused on the soil as generator of ecosystem services and will face the importance of a European policy framework for the conservation and restoration of healthy soils; ii) the **LIFE Prepair Project** which presented the actions that are being implemented to reduce air pollution in the Po Valley. Furthermore, the Research Centre RIVE of Viacqua spa talked about the water contamination risk and the Water Safety Plans.

There were **20 registered participants** and the webinar is now available on [LIFE BEWARE YouTube Channel](#) in English.

Since the list of participants of the webinar "Green infrastructure for the management of runoff in urban and peri-urban areas" was not available, we decided to organize another webinar in December 2021 that aimed at sharing the result and the best practices regarding the Mayors Adapt Strategy and the Participatory Process that led to it.

On the **14th of December** the webinar "**The AltoVicentino Mayors Adapt Strategy**" was organized within the framework of the LIFE Beware project. The aim of the event was to present to both the AltoVicentino (the northern area of Vicenza) community and to various stakeholders the best practice of the process that led to the drafting of the action plan for adaptation to climate change for the AltoVicentino ("The AltoVicentino Mayors Adapt Strategy"). The latter actively involved citizens, professionals and local administrations in the construction of practical and effective actions for a more resilient territory.

There were **130 registered participants** and the webinar actively involved local members of the Community of Interest: AVVI studio associato, Consulta Qualità del Territorio, Association Amici dei fiumi del Veneto e dell'Europa-CITF, Carrè Municipality, Lugo di Vicenza Municipality, Creazzo Municipality, Terrazzano Municipality, Chiuppano Municipality, Breganze Municipality, Vicenza Municipality, Santorso in Transizione and Regione Veneto, unità organizzativa forestale).

The webinar is now available on [LIFE BEWARE YouTube Channel](#) in Italian, with English subtitles.

C6.2 Empowering our Community of Interest: EU Master Module

University Master Module: Three editions of the **University Master Module** have been held during the LIFE BEWARE project. The three editions of the Master Module involved 42 students and 17 experts (see Table below). Teaching visit to the BEWARE interventions was organized during each of the three editions: it was held on-line during the first edition due to the pandemic situation (virtual on-line visit supported by photos and videos), and in presence in Santorso and Marano Vicentino during the second and third editions. From this year, together with the Department of Political Science, Law and International Studies (SPGI) of the University of Padova, TESAF has officially become proponent of the [Master "Manager dello Sviluppo Locale Sostenibile"](#), which include the Module "Comunità Resilienti al Rischio Idrogeologico". This action guarantees the realization of the Master course in the next editions. Registrations for the 2022/2023 edition are currently [open](#).

Table 4. List of experts involved in the Master Module.

N.	Expert Name	Provenience	Contribution
1	Ing. Gasparetto Stori Giuseppe	External expert	Seminar title: "La bonifica idraulica: evoluzione storica e nuove sfide"
2	Dott. Manica Antonio	External expert	Seminar title: "Tecniche di sistemazione idraulico-forestale e conoscenze storiche per la difesa delle popolazioni di montagna"
3	Prof. Poli Roberto	External expert	Seminar title: "Percezione e comunicazione del rischio alluvionale. Il progetto europeo LIFE FRANCA"
4	Prof. Russo Michelangelo	External expert	Seminar title: "Progetti urbanistici per una comunità resiliente"
5	Prof. Bischetti Gianbattista	External expert	Seminar title: "Una visione sui fenomeni idraulici: conoscerli bene per poterli fronteggiare" and "L'impiego dei sistemi di drenaggio urbano sostenibile"
6	Prof. Comiti Francesco	External expert	Seminar title: "La qualità morfologica dei corsi d'acqua come approccio sostenibile per la resilienza idraulica"
7	Dott. Cislaghi Alessio	External expert	Seminar title: "Una visione sui fenomeni idraulici: conoscerli bene per poterli fronteggiare" and "L'impiego dei sistemi di drenaggio urbano sostenibile"
8	Dott. Pesenti Campagnoni Giulio	External expert	Seminar title: "Un processo partecipato per la resilienza idraulica dell'Altovicentino: il progetto LIFE BEWARE"
9	Dott. Ronco Paolo	External expert	Seminar title: "Gestione della risorsa idrica e degli acquiferi sotterranei" e "La gestione del Rischio nella gestione della risorsa idropotabile del Veneto Centrale"
10	Dott. Scolozzi Rocco	External expert	Seminar title: "Percezione e comunicazione del rischio alluvionale. Il progetto europeo LIFE FRANCA"
11	Dott. Pozza Enrico	External expert	Speaker during the technical visit
12	Prof. Malo Maurizio	Expert from the University of Padova	Seminar title: "Diritto dell'ambiente in Italia e nell'Unione Europea: la protezione del territorio dalle alluvioni"
13	Prof.ssa Domorenok Ekaterina	Expert from the University of Padova	Seminar title: "Politiche ambientali per una società resiliente ai fenomeni naturali"
14	Prof. Savino Michelangelo	Expert from the University of Padova	Seminar title: "Pianificare la resilienza con una visione integrale del territorio"
15	Prof. D'Agostino Vincenzo	TESAF Expert	Introduction to the course and speaker during the technical visit
16	Prof.ssa Bortolini Lucia	TESAF Expert	Speaker during the technical visit
17	Dott. Bettella Francesco	TESAF Expert	Speaker during the technical visit

C6.2 Empowering our Community of Interest: EU Training Module

Considering COVID-19 and the general epidemiologic and legislative situation in Europe and Italy during 2020 and 2021, it was evident that these activities could not be carried out in person. Therefore, as mentioned in the last Report the **EU Training module** and the **EU technical Workshops** were remodeled and held online.

The main goal of the EU training module is to promote the best practices analyzed within the project and boost their replicability. Moreover the knowledge spread thanks to these activities help with dissemination and replication.

In order to reach this goal, while dealing with the aforementioned pandemic situation, the consortium agreed on developing an On-Demand training session on NWRM for beginners. This way the training can be widely disseminated, and those who wish to learn more about the measures implemented can do so at their own pace.

Nine On-Demand Video Trainings in Italian and English, were developed by Veneto Agricoltura, they were shaped starting from the interim results of the project and on the needs emerged by the CoI and the Surveys. They give an overview of the measures implemented in Santorso and Marano. For the learners other materials are available: the Solution Manual of the project, the interventions projects, and the monitoring reports of the project. Moreover if they have further questions, an email address was provided for them to write to the experts of TESAF.

The video trainings are available [on the website](#) and on [LIFE BEWARE's YouTube channel](#). The video trainings were shared on the project social media, with the 56 registered participants of the Workshop, with the Community of Interest, with ALDA's Newsletter and during Energy Cities Forum.

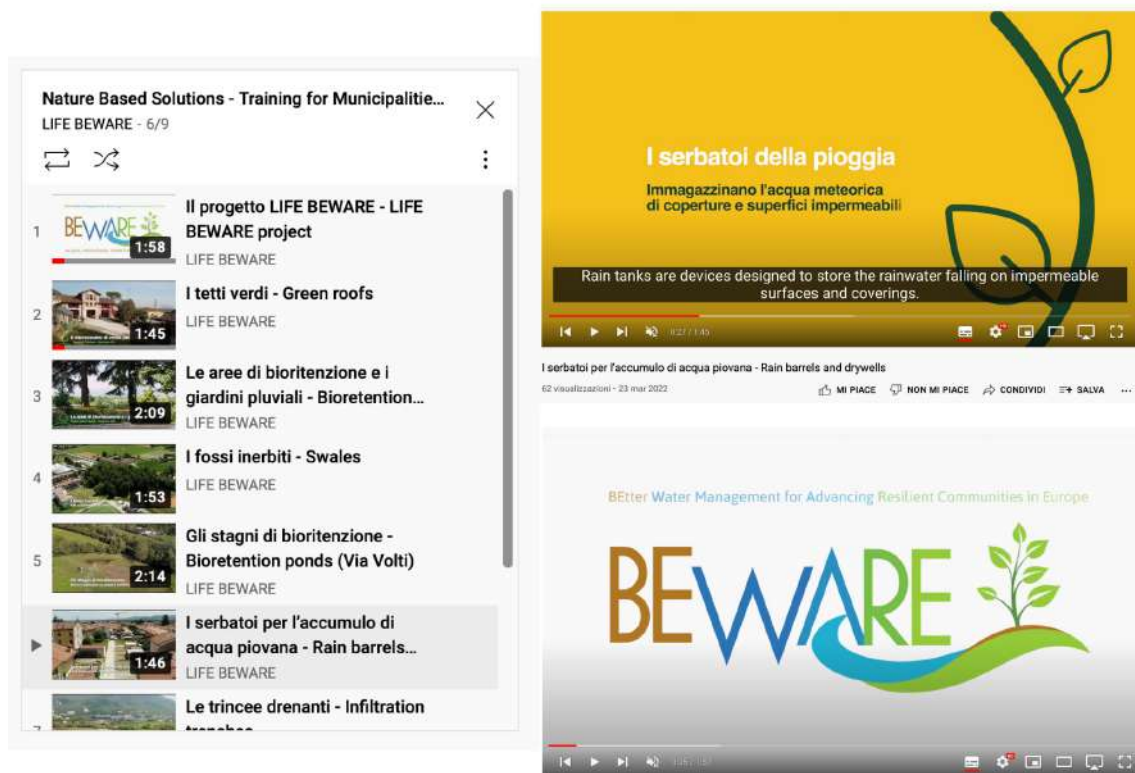


Image 13. Action C6.1, Online, on-demand training for municipalities

C6.2 Empowering our Community of Interest: EU Workshops

The project foresees local Workshop in other EU municipalities, aiming at further promoting and encouraging the replicability of the action at EU level. Due to COVID-19 situation and the impossibility to travel, the workshop was held online, inviting many EU municipalities and the Community of Interest to be part of it.

The goal of the WS was to foster the replicability of Nature Based Solutions and to teach local administrators how to better implement these measures on their territories. The workshop included a frontal lesson developed by TESAF and providing the main theoretical elements on the topic of Nature Based Solutions, and an online “field visit” to better understand the practical aspects related to the implementation of the action and the realization of the planned interventions. As a matter of fact, the on demand training for municipalities was shared beforehand with the participants so that they could have an idea on how the measures looked liked and worked.

There were **56 registered participants**.

The image displays a screenshot of an online workshop interface. At the top, a presentation slide is visible with the title "NATURE BASED SOLUTIONS FOR A MORE RESILIENT TERRITORY" and the subtitle "How can Municipalities better implement them?". The slide lists speakers: Lucia Bortolini, University of Padova; Francesco Bettella, University of Padova; and Francesco Pagliacci, University of Padova. Below the slide, a video feed shows a participant. The bottom part of the screenshot shows a slide titled "THE CONTEXT" with a sub-heading "URBANIZATION = IMPERMEABILIZATION" and two satellite images of urban areas. A caption below the images reads "Diffused city → huge amount of buildings, roads, handicrafts". On the right side, there is a registration banner for the "LIFE BEWARE FESTIVAL" with an agenda and registration information.

Image 14. Action C6.2. Online workshop

C6.3 Widening our Community of Interest

Boosting Visibility: TESAF has published a [first paper](#) in 2018 in the Journal of Agricultural Engineering. The title of the paper is “Drainage flux simulation of green roofs under wet conditions”. This paper refers to laboratory tests we planned within a previous version of the BEWARE project and then partially financed by the University of Padova because we did not include them in the last version of the project. The revision work of the paper has been realized after the start of the project BEWARE and TESAF decided to include the paper in the project outcomes because it focuses on the project themes and to exploit its potential in increasing the project dissemination at the academic level. At this moment, the paper has been viewed 941 times in the journal webpage and downloaded as PDF 590 times. TESAF researchers published a [second paper](#) in the journal *Water*. The title of the paper is “Mitigation of Urban Pluvial Flooding: What Drives Residents’ Willingness to Implement Green or Grey Stormwater Infrastructures on Their Property?” and it reports the results of the analysis of the data collected by the questionnaires administered to private citizens within action D4. Up to now, the full text of the paper has been viewed 1243 times from the journal web page.

A paper has been accepted for publication in the Journal of the International Society for Horticultural Science, ACTA Horticulturae. The Journal Issue reports the Proceedings of the VIII International Conference on Landscape and Urban Horticulture (LUH 2021) held in Catania (IT) on December 15-17, 2021. The title of the paper is “Adopting Nature-based solutions to cope with flooding phenomena: the participatory approach of the LIFE Beware project” and describes the multiple approach fielded by the project to raise the stakeholders’ awareness and knowledge and to improve the local governance of the Altovicentino area in order to create a favorable environment for NBS widespread implementation.

An additional paper describing the hydrologic performance of the structures monitored within the project (Action D1) has been submitted in the Journal of Agricultural Engineering and will be freely available on-line in the next few months. The title of the paper is “Hydrologic performance assessment of Nature-Based Solutions: a case study in Northeastern Italy” and reports the data and analysis carried out in the monitoring activity of Action D1.

In order to spread the project results at the national level to practitioners and interested citizens, two articles have been published in Italian journals: *i)* an interview with Prof. Vincenzo D’Agostino (TESAF) in the period “La nuova ecologia”, and *ii)* an interview with Dott. Francesco Bettella (TESAF) in the periodic of the Italian Institute for Environmental Protection and Research, ISPRA (Istituto Superiore per la Protezione e la Ricerca Ambientale) named “InnovAzioni per la sostenibilità locale”.

The solutions manual is explained in E4. The Project has been disseminated in 32 national and international dissemination events among symposium, master classes, conferences and seminars. These numerous events involved 4.000 people and represented a key opportunity to boost the visibility of the project and to establish synergies with national and international stakeholders. Furthermore, also building on the created synergies, the project has directly organized 29 dissemination events among conferences, round tables, webinars and workshops

(**Annex 12** - International and National Events Participation/organization).

D1 - Monitoring water flows and climate impacts

Foreseen start date: September 2018 Actual start date: January 2019

Foreseen end date: June 2022 Actual (or anticipated) end date: June 2022

Action D1 focuses on the monitoring of the water flows managed by some of the interventions realized in the context of the BEWARE project (Actions C3 and C4). The action includes two types of monitoring:

- **Quantitative monitoring** concerns measurements of inflows and outflows from the monitored interventions. The measurements will provide a precise estimation of the effectiveness of the interventions in accumulating and infiltrating water and, consequently, in flood mitigation.
- **Qualitative measurements** analyze the improvements in water-quality determined by the realization of the interventions.

The planned monitored interventions are the following:

- The water retention basin (Action C3) realized on a private agricultural land in Giavenale locality (Municipality of Schio, Vicenza Province).
- The Intervention 1 of Action C4 realized in Piazza della Libertà (Santorso Municipality) in order to manage the water runoff produced by the paving of the parking lot of the square.
- The Intervention 2 of Action C4 realized in the Grumo hill (Santorso Municipality) in order to mitigate the flood risk in a down-stream residential area.
- The Intervention 5 of Action C4 realized in the parking lot of the graveyard located in Via dei Prati (Santorso) in order to manage the water runoff coming from the paved and cultivated upstream areas.

As planned, all the monitoring devices have been purchased and installed by TESAF on the planned interventions in order to measure rainfalls, inlet runoff and outlet runoff. The first monitoring device, the rain gauge located on the roof of the secondary school of Santorso, was installed in October 2019 (only one month after the planned deadline, 9/2019). Monitoring reports have been realized as planned and report a detailed description of the methods adopted to monitor the water flows, and the results of the data collection. Results show that all the monitored interventions in urban areas (Action C4) were able to manage almost all the rainfall events that occurred from January 2020 to June 2022. The fraction of the rainfall runoff that reached the outflow was always less than 2%; in addition, for the intervention of the Grumo hill, outflow runoff has never been observed. Also the data collected in the water retention basin of Action C3 highlights that the intervention was able to manage all the flood events that occurred in the analyzed period.

The qualitative measurements, carried out in collaboration with VIACQUA S.p.a., recorded that the water samples entering in the urban interventions (Action C4) showed a good water quality. Exception is the survey of the 27th April for the Intervention 5, for which the values of the compounds resulted higher than the other dates. Looking at the outlet water, data shows a significant decrease of the pollutants with respect to the entering water, highlighting the positive effect of the intervention. Finally, the analysis of the water samples collected in the retention basin realized in the agricultural sector (Action C3) showed an overall good quality of the water retained in the basin. Most of the pollutant concentration values were below the threshold for being identifiable, especially looking at the halogenated volatile organic compounds, aromatic hydrocarbons and metal components. Looking at the values of enterococci, Escherichia coli and coliform bacteria it was possible to notice a trend that followed the temperature of the water.

D2 - Environmental monitoring (habitat and fauna)

Foreseen start date: October 2018 Actual start date: January 2019 Foreseen end date:

June 2022 Actual (or anticipated) end date: June 2022

The environmental monitoring activity (deliverable 12/2019 – 12/2020 – 06/2022) aims at assessing the impact of the project actions on the territory. The situation has been evaluated before the adoption of the interventions. During the project lifetime the previously collected information is being constantly compared with newly collected data, which show the work progression in order to estimate any possible environmental change objectively. The environmental monitoring concerns two of the seven project interventions: i) the water retention basin on a flat area on agricultural land in Schio (Action C3); ii) the detention basin with an internal bioretention pond in Santorso (Action C4 - Intervention 3). Prior to the construction of the two basins, surveys were carried out on both sites on both vegetation and fauna, and two professionals elaborated a report that accurately described the ex-ante situation. The survey activity continued in December 2019, when a second survey on the fauna was conducted to account for any modifications occurring in the two sites and then in 2020, with new surveys on both fauna and flora realized in June and October/November. With regards to the vegetation, the situation differs a lot between Santorso and Schio. This is due both to the different state of progress of the works of construction of the basin and post-operam restoration works, and to the green works design planned in the two basins.

In Santorso the planting of bank species is limited to a small area and the number of individuals is, for now, rather small. The rooting is good and most of the individuals have survived the summer season. The rest of the banks, however, are occupied by ruderal or typical species of the grassland. The data collected are preliminary and not very significant for Santorso, where the vegetation is still in a poorly defined state and rich in ruderals. It is suggested to provide some additional actions to improve the grass coverage in the banks and to reduce soil erosion.

The situation of the Schio basin is instead advanced and favorable. The works have been completed also in the part of greening and renaturation of the banks. The numerous species planted had a very high success and during 2020 they have settled down and considerably increased, containing the development of ruderal species to develop.

In 2021, data relating to the vegetation of the banks of the two basins were collected and the situation remains very different. In Santorso the very few planted species persist but the rest of the banks are characterized by natural dynamics; in Giavenale, on the other hand, the planted species have formed a compact and well-structured riparian belt. In the third year (two years after restoration), in addition to the 6 transects, some planted species were also monitored. In the case of Santorso, all species were taken into consideration, while in the case of Giavenale the individuals of *Jacobea paludosa* and *Lythrum salicaria* were counted. In 2022 (three years after the restoration), in the month of May, the latest data on the success of the vegetational restoration were collected, which consist not only of the transects and the counts of some planted species, but also the 2 phytosociological surveys of the shore vegetation. With the 2022 survey campaign, the vegetation monitoring ends, which began in the ante-construction phase in 2019 and saw the development of 3 post-construction campaigns (2020-2021 and 2022). The surveys include three different types of data, namely:

- 6 transects for each site (3 repetitions)
- 7 verification of the engraftment of 2 species for each site (2 repetitions)
- 2 conclusive phytosociological surveys (1 repetition)

The surveys were carried out in the spring of each year, with additions also in the autumn months to have a more complete picture of the development of plant species.

In the two basins the situation of the vegetation cover is very different, both for the various restorations carried out and for the development of the halophytic spondicular vegetation.

In the case of Santorso, the planting of shore species is limited to a small band and the numbers of individuals themselves are rather small and decreasing over the years due to the scarcity of water

(only *Carex pendula* and *Limniris pseudacorus* eventually show stable success). The rest of the banks, however, are occupied by ruderal or typical species of the rich lawn, with some almost bare and eroding surfaces. Some sowings of grassland species have been successful (for example clovers) but the presence of ruderal species is still significant. In fact, neither the bank vegetation nor the amphibious vegetation was formed, a fact which is certainly also linked to the little water present in the basins. Positive results are instead present in the raised areas with planting of ornamental species that have had a good success. A scarce improvement of the vegetation can be expected in the absence of further sowing or transplanting, also useful for covering the eroded areas.

The situation of the Giavenale basin is instead advanced and favorable and the natural phenomena of competition between species and their dissemination have already been triggered. The numerous planted species have had a very high success and have settled and considerably increased, also triggering the first competitive phenomena that have therefore contained the development of ruderal species. The band of helophytes is compact and expanding, so as to contain the development of the few ruderal species present. The two species monitored (*Jacobea paludosa* and *Lythrum salicaria*) show significant planting success and some new young individuals can be seen. At the same time aquatic vegetation has developed in the structuring phase with two species (*Ranunculus trichophyllus* and *Potamogeton crispus* in the expansion phase. The algal masses, although present, do not seem to induce particular criticalities.

In summary, for Santorso the data collected indicate an absence of structuring of riparian vegetation, also due to the reduced number of plantings. In Giavenale, on the other hand, the success of the restoration is complete and competitive phenomena have already been triggered between the species that will lead to a true ecological organization of this cenosis.

With regard to fauna, the ante operam survey has shown that there are no critical issues and, therefore, the intervention was potentially functional to enrich the degree of ecological diversity of the sites. In 2020, 11 surveys were carried out for each of the two sites (the results are illustrated in the IV report). The creation of wetlands is an important element of the increase in diversity, especially for amphibians. This was particularly evident in the area of Schio, where there has been the rapid colonization of *Bufo balearicus* and *Pelophylax synkl.* *Esculentus* and subsequently, for trophic or reproductive reasons, aquatic avifaunal species such as *Tringa ochropus* and *Gallinula chloropus* began to settle in the area. In Santorso, the basin was built but the species planted have not yet reached a point where they could change the environmental aspect of the area, although the presence of species in both survey years shows that there was an increase in numbers from 23 in 2019 to 32 in 2020. This increase can be observed especially in species related to forest environments. For this reason, the completion of the works of construction of the reservoirs in the period of July does not allow to highlight significant differences related to an effect of environmental diversification. More detailed information can be found in the fauna and flora reports carried out until November 2020.

During the years of investigation it is evident that for the Schio investigation, where the permanence of water is guaranteed all year round, an evolutionary process is underway to favor and increase the presence of ornithic and herpetological species. As regards the avifauna, the presence of the *Gallinella d'acqua* is evident and the trophic purposes of the aldehydes and in the course of 2022 the *Albanella reale* are evident during the phases of migration use. As regards the herpetofauna, there has been a rapid colonization of the Green Toad and the Green Frog, starting from 2020 and reconfirmed in the following years, and the Padana Tree Frog and the Common Toad in the course of 2021.

Starting from 2021, the colonization of humid environments was also evident in Santorso, where the emerald toad and common toad spawned. These presences were also reconfirmed in 2022. With reference to amphibian communities, criticalities are evident in both wetlands. At Schio the impact, probably caused by rats, on the adult individuals of Green Toad was evident, causing cases of mortality. This phenomenon had already been observed in 2020 albeit with few

individuals. During 2022, this impact was quite limited.

At Santorso the problem is the very limited temporariness of the water in the three reservoirs. This led to the sudden drying up in 2021 with the consequent loss of larvae and ovature. A similar situation was observed in 2022, in the face of a strong drought, however the presence of neometamorphosates of Common Toad highlights the completion of larval development. The realization of the reservoirs, as is evident from the trend of the indexes of the ornithic communities, did not modify the degree of diversity observed in the AO phase and therefore there was no loss of species. For these reasons, the maintenance of the current habitat of species or grasslands and rural hedges is essential for the functionality of the newly built wetlands.

(Annex 6 - Deliverable: First, Second and Final Annual Monitoring Report D2).

D3 - Application of Life project performance indicators

Foreseen start date: September 2018 Actual start date: September 2018

Foreseen end date: June 2022 Actual (or anticipated) end date: June 2022

Action D3 was foreseen to complete the LIFE dynamic indicators database and to update the project performance indicators thanks to the results of the monitoring activities, the data collection after each dissemination activity, questionnaires administration, and data analysis from social-media community and web site.

The LIFE dynamic indicators database has been completed and was updated concurrently each monitoring visit (2020, 2021, 2022).

Questionnaires have been administered in order to collect information about the life performance indicators and some other additional indicators such as the level knowledge on flood hazard, the perceived likelihood of occurrence of flood and drought hazards, the level of knowledge of NWRMs in the urban and agricultural sector, the costs and benefits perception on the adoption of NWRMs, and the willingness to invest on them. By monitoring the evolution of these performance indicators, the role played by the pilot interventions of the BEWARE Project and its information and demonstration activities is assessed.

Two surveys were realized along the project duration: at the beginning and at the end of the project, i.e. before and after the implementation of the pilot interventions the realization of the information and educational activities foreseen by the project, respectively. The results of the first survey have been reported in the Baseline report submitted as planned in February 2019. In order to extend the database necessary to carry out the preliminary analysis of socio-economic implications for the local communities and of the economic impacts of the interventions, some public events organized within the action C1.1 during the months of September and October 2019 were also used to administer additional questionnaires. This additional administration was realized having the foresight to interview only those citizens that were not aware of the project activities. This allowed us to include the last collected data within the previous database. As a consequence, an updated and final version of the Baseline report was submitted in October 2019.

The Final survey was carried out from July 2021 to December 2021, i.e. after the realization of the most information and educational activities foreseen by the project, but before the communication of the main NWRMs benefits and costs resulted from the Action D4 activities. Final survey results have been reported in the Final Report on socio-economic evaluation of

action D4. We decided to add this information within the Action D4 Final Report because no Final Report was foreseen by the project within Action D3 and because some pieces of information collected by the analysis of the questionnaires has been used to complement the benefit-cost analysis, foreseen within Action D4.

At the beginning of the project and during its final stages, 265 and 219 citizens were interviewed. Moreover, farmers were also interviewed through an ad-hoc questionnaire, administered through in-person interviews. The survey's results show that the flood risk evaluation is lower among citizens than among farmers and it is positively affected by past direct experience of flood damages in the individual's property. In general, perceived risk is higher when considering the overall local community than the interviewed person's own property. With regard to the respondents' willingness to adopt NWRMs as a mitigation measure against flood events, several factors can be considered as possible drivers. However, the most important one turned out to be the knowledge of the BEWARE Project, as a dissemination project. Actually, the overall knowledge of the BEWARE activities is rather large across the respondents in the final survey: actually, 63.3% of them are aware of it. Among those who know it, 47.8% personally took part in at least one of the project information activities, 28.3% know it by word-of-mouth or by consulting the Project website, or by seeing the NWRMs realized by the Project as a demonstration action. Data shows that the knowledge of the project is positively associated with a larger willingness to adopt NWRMs. These results confirm the effectiveness of the BEWARE project information and dissemination activities in enhancing more proactive behaviors of local citizens in facing the pluvial flood risk. These results show the success of the BEWARE Project and the information and demonstration activities implemented by it. This success is even larger if one considers that most of these activities have turned online, due to the continuation of the Covid-19 pandemics crisis.

D4 - Assessment of socio-economic impact accounting for the hydrologic effectiveness of the interventions

Foreseen start date: September 2018 Actual start date: December 2018 Foreseen end date: June 2022 Actual (or anticipated) end date: June 2022

Action D4 of the BEWARE project focuses on the estimation of the economic impacts of the seven pilot Natural Water Retention Measures (NWRMs) that have been implemented by the BEWARE project in the two partner municipalities (Santorso and Marano Vicentino) as well as on analysing the socio-economic impacts at local community level, when implementing similar actions under different scenarios. Actually, the proposed pilot NWRMs act as demonstrative interventions for the local communities in the two municipalities. In addition to their implementation, the BEWARE project has also promoted direct activities of information, communication and education for the citizens living in the local communities, in order to promote a participative approach to implement NWRMs and to demonstrate the importance of the diffusion of small NWRMs across the municipalities. To achieve this goal, the project has actively favoured the replicability of the NWRMs. As part of this broader strategy, Action D4 aims to carry out a financial benefit-cost analysis, in order to evaluate the effects of the pilot interventions implemented by the project, assuming that additional NWRMs are realised at local community level, both by private and public actors.

Within this action, the "Report about ex-ante data collection" has been initially drafted as foreseen, i.e. in May 2019. The report describes the methodological approach adopted to collect data about the damage, due to heavy rainfall events, in public and private assets of Santorso and Marano Vicentino municipalities. Moreover, the questionnaire-based ex-ante data collection

collected information on citizens' awareness of NWRM and their willingness to invest on them (see Action D3). As indicated in the project, the period under investigation is a time span that covers ten years, from 2010 to 2019. The carried-out survey provides the data allowing us to define the baseline scenario (i.e., the one not including any of the interventions of the Project), even though this may lead to an underestimation of total damage, due to underreporting. An updated version of this report was published in October 2019. This update has been required in the light of the additional questionnaire administration realized in September and October 2019 (see Action D3 for details), and considering the two heavy rainfall events occurred in July and August 2019, especially in the Santorso area. Both events were so severe that a public state of emergency (*richiesta di stato di emergenza*, according to the Italian regulation) was issued. As a consequence, the administrative databases reporting the overall local damage were updated in order to include the damage caused by these two additional events. In general terms, in the years 2010-2019, 18 and 6 flood related events were documented in the municipalities of Santorso and Marano Vicentino, respectively. Finally, this report includes the data analysis in order to evaluate the ex-ante flood related damage. Overall, the damage amounts to €1.3 million. The average unit damage to private assets is estimated as equal to € 4,274, when considering households and firms affected by the adverse events in the observed period. Moreover, the public costs (including defensive, restoration, and prevention costs) equals € 141 per each resident family in the two municipalities. In addition, it could be noticed that defensive and restoration costs show an upward trend over the ten-year timespan under consideration in this analysis.

In addition, the action foresaw the drafting of a handbook on the real costs to sustain in SUDS realization, based on the local experience from the BEWARE interventions in order to eliminate uncertainties and skepticisms on the expected costs. In this report, for each SUDS, four different sources of data were considered, in order to define a range of expected costs. These different data sources are: literature information, real cost incurred by the respondents of the questionnaire, real cost incurred in the realization of the interventions of action C4, and ad hoc bill of quantities. As foreseen by the project, the handbook has been published on the project website in June 2021. After this preliminary data collection, the financial benefit-cost analysis has been carried out and presented in the Final Report on socio-economic evaluation drafted at the end of the project. In order to assess the impact of these NWRMs on the effects of pluvial floods, the costs of the NWRMs (considering both their implementation costs and their maintenance and operational costs) has been compared with the expected benefits, considering different return periods (2-, 5-, and 30-years) and under two different scenarios: the current pluvial flood scenario and the one that takes into consideration the impact of climate change. As a reference period for the cost-benefit analysis, the overall expected life of the NWRMs (i.e., a timespan of 30 years) has been considered. Firstly, a hydrological-hydraulic simulation model has been run to simulate the impact of the NWRMs in terms of runoff water management. In addition to the seven pilot interventions, 23 additional NWRMs are also considered. The situation with no implemented NWRMs and the situation with implemented NWRMs have been compared. Starting from the results of these simulations, the costs of the needed NWRMs has been computed. Then, the expected benefits for the local communities have been estimated by considering three types of benefits: pluvial flood-related avoided costs; benefits to agricultural production in case of droughts; drinkable water saving, given the chance to use the collected rainwater for private non-drinkable uses (e.g., garden irrigation). The costs and benefits have been apportioned over the expected life of the NWRMs, and analysed using a set of indicators, commonly adopted in financial benefit-cost analysis: Net Present Value (NPV); Internal Rate of Return (IRR); Benefit-Cost Ratio (BCR). For the benefit-cost analysis on the 30-year timeframe, a 4% discount rate is adopted, in line with the EU suggestions. The NPV for the implementation of all these NWRMs is greater than € 3 million. This means that the NWRMs discounted benefits are much greater than the discounted implementation and M&O costs. Moreover, the assessed IRR (larger than 14%) points out that the implementation of the NWRMs is financially sustainable even under a higher-interest rate scenario, such as the one that is going to characterize the following years. In addition, the positive NPV of the NWRMs implementation is almost two times larger

under a climate-change scenario: actually, RPs of pluvial floods are projected to become shorter, hence magnifying the amount of the pluvial flood-related avoided costs every year.

In more general terms, the benefit-cost analysis implemented in Action D4 points out that adopting diffuse small-scale interventions implemented by private citizens and local administrations may have important spillover benefits to cope with the effects of pluvial floods. Taken individually, it may seem that each NWRM has little impact; however, taken together, they represent important tools to runoff water management at community level.

The social-economic impacts obtained by this analysis have been published on line in the project website in the Final Report on socio-economic evaluation and through a simplified simulation tool. The tool is an easy-to-use application that allows citizens and non-experts to have easy access to the main results of the analysis. For further details, the users of the online tool are invited to refer to the report available online. In addition, this tool is accompanied by two other applications for the dimensioning of the NWRMs. These two additional tools have been presented during the training activities and represent a valuable instrument to encourage the spread of these structures. (*Annex 13 - Reports and Projects*)

E.1 Communication to generic public and stakeholders

Foreseen start date: September 2018 Actual start date: September 2018

Foreseen end date: June 2022 Actual (or anticipated) end date: June 2022

E1.1 Press office and external relations:

The Project has developed a successful media strategy, disseminating its activities and achieving results through different communication channels. Specifically, the Project has been spread through newspaper articles, online editorials, web articles, newsletters, online editorials, TV news and radio programmes that notably increased the outreach capacity of the project both at the local and international level. Furthermore, the Project counts 18 publications among scientific papers, reports, case studies publication, Master's and Bachelor's thesis

(*Annex 5 – Media and publications*).

E1.2 Newsletters:

Sixteen newsletters were drafted and then broadly disseminated to a selected contact list and published on the project website, in a [dedicated session](#). A significant increase in the number of newsletter subscribers has been registered. Now, they amount to **804, 773** of them are subscribed to the Italian version and the remaining **31** to the English one. The newsletter structure has been defined by ALDA in collaboration with the project partners and it is composed by four different sections:

- **Introduction:** this section contains a brief explanation of the LIFE BEWARE project and its objective;
- **Coming soon:** this section illustrates the main activities foreseen by the project in the weeks following the newsletter delivery.
- **Project news:** this section collects the main project news, illustrating the key achieved results and the activities carried out by the project in the previous months.
- **BEWARE, BE INSPIRED:** this section is dedicated to interesting news and articles published by key stakeholders about thematics which are strictly related to the project focus;
- **Creating a network among projects:** this section is dedicated to other LIFE projects whose objective and thematic focus is related to the LIFE BEWARE and who belong to the project network.

Image 15. Newsletter

In October 2020, November 2020 and July 2022 three special editions of the LIFE BEWARE newsletter were issued:

- The one issued in October 2020 was dedicated to the dissemination of the LIFE BEWARE Comic Book “Drop by Drop”;
- The one issued in November 2020 was dedicated to the participatory process for the creation of the action plan for the climate in the Altovicentino region.
- There was a special newsletter in July 2022 that concluded the project and that gave an overview on it and on its project results.

The newsletters are edited in Italian and English and all the partners are constantly sharing them through their online communication channels and social media. Furthermore, the newsletter is constantly shared on the project’s Facebook and Twitter pages.

E1.3 Project corporate image

A project corporate image has been created in the first semester of the project, including a project logo, a layout for the outputs (documents, presentations, etc.) as well as branded items.

E1.4 Project Website:

The website has been developed and finalized in two languages (English and Italian) at the end of February 2019. More specifically, the following actions have been implemented to develop a complete website: i) technical construction and design of the website; ii) data entry; iii) URL creation; iv) content development and organization of the different website sections; v) gathering of the partners feedback on the website; vi) dissemination of the website through the project social media, the partners’ network and social media, under the guidance of ALDA. Special attention has been given to an eye-catching design, and to the creation of a user-friendly, easy-to-navigate structure. Indeed, the website presents highly specialized information being at the same time accessible to a wide public.

The website is constantly updated and fed with news and contents. Specifically, it is composed by 6 main macro-sections:

- **Project:** This section contains a general overview of the LIFE BEWARE project, its objectives, its partners, its main actions and a mini-glossary with an explanation of the technical terminology used within the project implementation.
- **Operation:** This section provides an overview of the NWRMs adopted within the project and an analysis of the benefits of the vegetation in urban environments.
- **Events and Initiatives:** This section provides a description of the main events and initiatives organized and promoted within the project.
- **News:** This section gathers all the news published on the project website, giving visibility to the main project activities and results. Up to the moment, 38 news articles were published on the project website and disseminated through the project and partners’ social media.
- **Agenda:** This section contains a timeline with the highlight of the Project.
- **Material:** This section gathers all the produced material (multimedia, photogallery, promotion and information material, material for training courses and the participatory process, reports of the adopted interventions, executive design of the interventions). The material is constantly updated and available to be downloaded.

The project website represents a powerful instrument to boost the visibility of the project

activities and results, to involve and engage the members of the BEWARE CoI and to create synergies with other LIFE projects whose thematic and focus are strictly related to BEWARE.

E1.5 Social Network

The project has a Facebook and Twitter account. With an average of three posts per week, the content published is scheduled in advance and it consists of:

- News from the project Life Beware
- Relevant news from the consortium
- News from CINEA and the LIFE Programme twitter/facebook account
- Relevant News from the EU
- Relevant News from the Community of Interest
- Relevant News on climate adaptation and water management

In order to duplicate the dissemination of the project's posts, there is an active collaboration among the communication departments of each partner, consisting of reposts, tags and, more generally, interaction.

Facebook

As of June 2022, the [project Facebook page](#) counts with **604 likes** and **671 followers**. The gender of the page's public is equally divided and as an age range the majority of followers are between 25 and 44 years old.

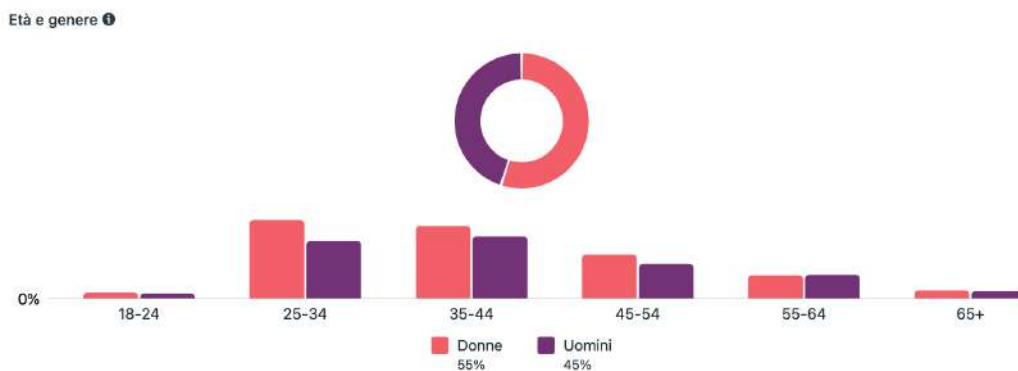


Image 16. Action E1. Overview of Facebook's followers

Twitter

As of June 2022, [the project Twitter page](#) counts **251 followers**. 8.7K impressions in the last 91 days (95 per day), 33 link clicks, 40 retweets, 135 likes in the last 91 days.

E1.6 Promotional video

Two promotional videos of the project were developed in order to disseminate it.

The promotional video lasts 2:26 minutes and is available on the projects' Website and [YouTube channel](#). It illustrates the main focus and objectives of the BEWARE project. It has been disseminated on the project and partners social media and broadcasted during international and national dissemination events. The video is available in Italian and with English subtitles.

The short documentary lasts 17:30 minutes and it is available on the website and on [Life Beware's Youtube Channel](#). It was disseminated on the project and partners social media and broadcasted during international and national dissemination events. The video is available in Italian and with English subtitles.

E1.7 Promotional Materials

A series of promotional materials have been produced to support the communication campaign aimed at involving the various project's target groups.

It includes: i) one brochure for local administrators, with the specific goal of facilitating the replicability of the project's actions among municipalities; ii) one brochure for professionals that describes the project from a technical point of view; iii) one flier for citizens that illustrates the project's goals, actions and participatory process; iv) several public events flyers and posters; v) one roll-up to be used in public spaces and public events; vi) one notebook to be distributed during public events and trainings; vii) two business cards.



E1.8 20 Signboards

The projects realized 24 signboards (100x140 cm):

- 14 external signboards were placed within each intervention developed by the project and within the SUDS of the Agripolis Campus in the TESAF Department. All the signboards are used to support teaching activities and to maintain active the hydraulic restoration tour also after the end of the project.

- 10 internal signboards about the benefits of the NWRMs. The panels are in Italian with a QR code to access the English version and to connect with other information regarding the project and the action implemented.

The aim of the signboards is to raise awareness about hydraulic prevention measures and information concerning the territory. Furthermore, they represent an important dissemination material to be used within the dissemination activities and teaching tours that are being offered to the Altovicentino schools and to the citizens.

Image 17. Action E1.8 Signboards

E1.10 National policy makers' involvement

Deliverable: Project's dissemination materials published on the institutional web-sites of the Italian Ministry of Environment and of the ANCI association. (*Annex 8 - Deliverable Project's dissemination materials published on the institutional web-sites of the Italian Ministry of Environment and of the ANCI association*)

Alongside the project implementation, the Consortium implemented a multi-level strategy, establishing synergies with the public sector at the local, regional, national and international level in order to position the project results and produced contents and to increase their impact. As regards the involvement of national policy makers, during the last trimester the synergies created during the project elaboration phase were strengthened more and more. The **Italian Ministry for**

the Environment (now “Ministry of Ecological Transition”) and the **Italian Institute for Environmental Protection and Research (ISPRA)**, which acts under its vigilance and policy guidance, were actively involved in several project activities and sharing of good practices:

- The **Ministry for the Environment, Land and Sea (MATTM)** (now Ministry of Ecological Transition) had charged ISPRA with the task of creating, in line with what is happening in all European countries, an Italian Platform on adaptation to climate change, with the aim of making available information, data and operational tools useful to raise awareness among citizens, to involve different stakeholders, to identify and plan measures by administrators and policy makers, to carry out scientific research based on reliable and shared sources. Within “*Gelso - GESTione Locale per la SOstenibilità*” Platform, a section dedicated to good practices implemented at local level in Italy for the areas of interest of the National Plan for Adaptation to Climate Change will be developed. The BEWARE Project was invited to include the generated good practices within this dedicated section and it [is now available here](#).
- The **Ministry of Ecological Transition** developed the “[Mettiamoci in Riga](#)” Project that intends to promote the dissemination of functional tools and methodologies to improve multi-level governance with a view to directing choices and facilitating decision-making processes. On the 22nd of September 2021 Life Beware took part in the Platform Meeting «**Il Clima che Cambia**», during which it presented its best practices and results.
- On the 20th of May 2022 the Life Beware project was involved in a study visit on the theme of water management, organized by the **Ministry of Ecological Transition** in the context of the *Mettiamoci in Riga* project. The target of the initiative were Regions and Autonomous Provinces that discussed two projects, Life Beware and Life Rii, that concern water resource protection and flood risk prevention.



Image 18. Action E1. Study Visit flyer

- During the final conference of the Life Beware Project, Martina Bussettini from the **Italian Institute for Environmental Protection and Research (ISPRA)** was invited as a speaker and she reflected with the other participants on the involvement of citizens in the projects related to environment and water management.
- The best practices of the project were also disseminated by Ispra - Istituto Superiore per la Protezione e la Ricerca Ambientale in the **GELSO online magazine** "[InnovAzioni per la sostenibilità ambientale](#)". The interview conducted with TESAF focused on the main features of the project, the planned objectives, the activities carried out and the achievements of the last few years in the fight against climate change.

- Dissemination of the Life Beware [Project Results on the Platform of Mettiamoci in Riga](#) Project of the Ministry of Ecological Transition

The project also managed to establish relevant synergies at regional level, in particular with **ANCI VENETO** and the Region **Friuli Venezia Giulia** and the Region **Abruzzo**:

- The project's results and outputs, alongside the Layman's Report, were distributed on the [website of the association ANCI Veneto](#).
- **Region Friuli Venezia Giulia** - The “Forum digitale su acquisti verdi, verde pubblico e adattamento ai cambiamenti climatici”, was organized by the Region Friuli Venezia Giulia on the 12th of May 2022. It was the first digital regional forum on green purchasing (GPP) and it was divided into three meetings focusing on public green CAM and adaptation to climate change in order to train technicians and local administrators. In this context TESAF and COMMSAN were invited to discuss the project results and the NWRM implemented by the project.
- **Region Abruzzo** - The project Life Beware was contacted at the end of June 2022 by the **Ministry of Ecological Transition** as best practice, in order to exchange information, best practices and results with the Region Abruzzo. COMSAN will present the Project in the context of the “INFODAY PROGRAMMA LIFE 2022” as part of their *Afterlife* activities.

E2 - Permanent Center for Resilient Communities

Foreseen start date: September 2018 Actual start date: November 2018

Foreseen end date: June 2022 Actual (or anticipated) end date: June 2022

E2.1 Activities for the professional communities and citizens

Hydraulic restoration tour (milestone 03/2020):

The hydraulic restoration tour consists in an itinerary open to single visitors, students, schools and citizens interested in discovering the different measures that can be implemented to mitigate the flood risk in urban and rural areas.

This activity is strictly connected with the activities organized for the educational community (action E2.3) since the design and implementation of the tour serves the scope of showing to the students of the Marano Vicentino and Santorso schools what has been realized in their territory to increase territorial resilience to climate change. The Covid-19 crisis has obliged the Consortium to start offering the tour in an online modality, producing videos and visual material to show the NWRMs implemented in the two municipalities and creating virtual and interactive field trips. The tour – curated by the Centro Internazionale Civiltà dell’Acqua Onlus and designed in collaboration with local partners – makes it possible to enhance the interventions related to the hydraulic risk carried out in the framework of the LIFE BEWARE Project, and already the subject of a specific study in the context of the Master in “Governance of local development networks” at the University of Padua, combining them with a visit to some of the most significant elements of the cultural heritage of the water civilisation.

Moreover the 23 points of interest are accompanied by vocal descriptions and written texts, photos and video interviews (including those with the two mayors Franco Balzi, of Santorso, and Marco Guzzonato, of Marano Vicentino), which will collect the anecdotes and curiosities linked to rivers and irrigation ditches, mills, fountains and hydraulic works to illustrate and represent, both for

tourism and for dissemination purposes, the historical and natural context of the entire local water heritage.

The itinerary therefore includes both surface flow management techniques developed in past eras and modern technologies, providing an overview of the history of water and new possible options for the care and protection of local landscapes and hydrographics. The itinerary, called “Acque comuni” (Common Waters), aims to spread new awareness and perceptions of the value of water through a governance model that can be applied throughout the Veneto region and beyond.

The platform used, [izi.Travel](#), allows the end-user, once they have framed the QR code with their smartphone or tablet, to activate geo-localisation with GPS to start the guided tour. Izi.Travel has more than 1 million downloads and includes thousands of itineraries for over 900 cities and territories across Europe. This platform allows you to enter points of interest and preview the planned routes on the map for each excursion, including text references, videos, photo galleries and multimedia files. With the Offline Maps mode, it is also possible to avoid consuming roaming internet traffic. The platform has the additional advantage of functioning as a promotional tool for the route created, capable of reaching new audiences.

The Info Point: Described in Action C1.

E2.3 Activities for the educational community (teachers, pupils, students, parents and families in general)



Image 19. Educational activities with students visiting the Life Beware interventions

The Municipalities of Santorso and Marano Vicentino with the collaboration of the project partners and with the support of two cooperatives have designed and organized innovative proposals for the primary and secondary schools of the territories in order to raise awareness and generate further knowledge and sensitivity on climate change, its effects on the hydrological cycle and the main adaptation and mitigation measures. To this purpose, a series of initiatives aimed at primary schools (classes III, IV and V) and secondary schools have been designed thanks to the adoption of innovative digital tools through workshops, online laboratories, visits on the territory, guided tours and so on. A complete teaching project has been developed and shared with the schools of the territories.

As regards the **municipality of Santorso**, the design and realization of the activities for the educational communities has been externalized to the [Ecotopia Cooperative](#), which since 1993

works in the field of Environmental Education and Animation. Ecotopia is formed by environmental guides, qualified personnel with specific knowledge and skills related to each activity collaborating with public bodies (schools, municipalities, mountain communities etc.) and with private entities with multi-year programs or individual activities.

On the other hand the **municipality of Marano Vicentino**, the management and carrying out of educational activities have been entrusted to the [Biosphaera Cooperative](#), a social cooperative active since 2006 in the tourism sector, scientific education, services for the territory and tourism. The staff is made up of environmental guides and educational operators, who deal with dissemination and education on environmental and cultural issues, planning and setting up exhibitions, itineraries, itineraries or didactic areas, accompanying direct knowledge of the territory, organization of tourist products, interventions in schools of all levels, implementation of information and awareness campaigns.

In addition to that, the Cooperatives, in November 2021, were involved in an afternoon of training, carried out by TESAF, on the Life Beware project and the interventions.

The budget foreseen by the project was sufficient to guarantee all classes interested in Life Beware the possibility of using all the activities for free. Each school was offered a package consisting of a **two-hour lesson in the classroom**, by environmental guides and educational operators, which was accompanied by an **outing in the area on foot or by bike**.

The teaching proposal included a series of environmental education initiatives, such as:

- **"Beyond the water cycle"**: laboratory on the integrated water cycle. With the help of Ozobot, an educational robot capable of moving and reacting on physical and digital surfaces, pupils will create a dynamic path to understand the importance of permeable soil;
- **"Changing water"**: laboratory for secondary school. Starting from a role-playing game, the students will deepen the concept of the Anthropocene and then think together about the climate emergency and the most effective ways of managing water, through a simulation of the sponge-city and the waterproof-city.
- **Sand Box and interactive exhibition**: these two tools, set up at school, will allow the creation of a unique environment in which involvement and learning will be the fundamental ingredients for investigating Beware's themes. The exhibition consists of a series of panels designed to be easily transferable to multiple locations, even in the post-project phase. The sand box allows an interactive and cutting-edge technological approach to understand the active processes in a territory.

The outings on the territory carried out with the Primary and Secondary schools of the Municipality of Marano Vicentino, have foreseen an initial moment at the schoolyard, affected by the intervention n.6 (SUDS treatment train), to then continue (on foot or by bike) towards the Giavenale basin, and back.

3029 students from 145 Classes (primary and secondary schools) were involved in the activities. The schools involved were 25 from 8 towns in the province of Vicenza (mainly the Altovicentino territory). Each activity lasted from 2 to 6 hours.

The activities were described in a [dedicated brochure](#) diffused among the schools of the territory.

The Project Comic Book “Drop by Drop” has been designed and developed with the collaboration of the whole Project consortium with the aim of explaining the concept of urban hydraulic resilience and flood risk mitigation to students of primary and secondary schools in the Altovicentino area (Vicenza province, Italy) and to all citizens. It is being spread well beyond the Altovicentino area, all over Italy and Europe to raise awareness about sustainable water management and soil preservation, achieving a high level of appreciation for the storyline and its graphics. *The Comic Book “Drop by Drop”* aims at raising awareness about the role of each of us in promoting a sustainable development model leading to territorial resilience to climate change and hydraulic safety. It contributes to generating knowledge about Natural Water Retention Measures as a means to improve hydraulic resilience and safeguard water resources. The 40-pages Comic Book has been produced both in [English](#) and [Italian](#), it is available on the project website and has been printed (1.000 copies). It tells the story of Thea Rossi, an introverted 15-year-old high school student, who suffers from antrophobia, the persistent fear of flooding.



Image 20. Comic Book “Drop by Drop”: cover page and draws

Thea, endowed with a remarkable talent for art and a marked environmental sensitivity, draws on her notebook some solutions to transform rainwater from a problem to a precious resource. The story, in which there are many references to the path undertaken by the Municipalities of Santorso and Marano Vicentino within the LIFE BEWARE project, ends up with Thea, becoming a talented architect who will realize innovative projects to be applied both by public entities and by citizens themselves. The final section of the Comic Book “*Backstage: Making & curiosities*” offers a graphic explanation of the main NWRMs adopted in Santorso and Marano Vicentino municipalities. The Comic Book is being used as teaching material within educational activities and during workshops and initiatives involving schools.



Image 21. Comic Book “Drop by Drop”: examples of strips

E2.3.6 Video Game

The proposed game developed is a collaborative game, a hybrid of online digital game, board game and role-playing game. All action takes place through a decision making process that can be made individually or in groups. The actions taken by the players are either choices or discussions.

The game is designed to have an educational function, with the purpose of raising awareness about anthropogenic interventions related to hydraulic risk and the water cycle, and educating the youth about the influence of choices and the consequences of individual and collective decisions on the environment.

Players, in fact, face a series of adverse events related to hydraulic risk, preparing themselves by making a series of choices that turn by turn will allow them to face the next emergency with as little damage as possible. The game is based on the Discrete Choice Model, whereby players will have to continuously make choices as individuals or groups, trying to optimize the relationship between self-interest and community interest.

In the initial phase, scientific and technical support was crucial in defining the relational database on which the game is based, identifying the interventions that are the subject of the players' choices and the disruptive elements (disasters), and assigning qualitative values to the game variables.

E2.3.4 Animated cartoon for kids

In developing the subject and writing the script, the important themes were adapted to a target audience of children between 3 and 7 years old, lasting a maximum of 3 minutes.

Therefore the cartoon did not require the use of dialogue, developing a strong visual impact and thematic relevance, that started from the premise that "water is a friend even when it comes to town in the form of sudden torrential rain". This way the cartoon is not something purely didactic but it is able to convey important information, through its narrative elements and visual elements.

The story inspired by the "**Drop by Drop**" comic book, was readapted in an initial draft of the script that was later further developed in synergy with the Project consortium, with team members, animators and the illustrator, to establish the format, target, references until the final animatic was created.

The initial character study, taken from the figure of Alma, the protagonist of the comic book

drafted years ago in connection with the same project, was declined for a smaller audience and according to the needs necessary for the subsequent animation. These preliminary sketches were transformed into an engaging animation.

The cartoon is also now available on the [Life Beware Youtube Channel](#).

E.3 Communication and Dissemination of results and best practices

Foreseen start date: July 2020 Actual start date: February 2021

Foreseen end date: June 2022 Actual (or anticipated) end date: June 2022 E3.1

Trainings (deliverable 05/2022)

Two training sessions in presence were organized in the last period of the project. The first one consisted of three days of frontal lessons, field activities and participatory opportunities held in Santorso, exploiting the “hydraulic restoration tour” (Action E2) and the didactic function of the structures realized in Actions C3 and C4. Frontal lessons were delivered also on-line through a webinar Zoom and live streaming on the Facebook channel of the project. This training session was combined with the Final event, and was divided into three formative days (24 hours of activities in total): 31st of May, 1st of June and 4th of June 2022. The full program is reported in the following figures.



Image 22. Action E3 - Trainings Brochures

Lessons were held mainly by TESAF Staff, but teaching activities also involved other partners such as VA and ALDA as well as external experts. Also the Final Conference of the project was

linked and included in the formative session.

An additional formative session was realized the 29th of June 2022 and was divided into two formative moments:

- the first one included frontal lessons and a visit to the experimental sites present on the Agripolis Campus of the University of Padova;
- the second, realized along the hydraulic restoration tour in Santorso through the support of the on-line material (video trainings are available [on the website](#) and on [LIFE BEWARE's YouTube channel](#)).

The realized training sessions were addressed to technical stakeholders: agronomists, hydraulic engineers, architects, geologists, and public administrators. Specific agreements have been signed with professional orders to provide formative credits to participants (see cooperation agreements of Action C6). 32 people attended the trainings organized in Santorso in June 2022 (this number does not consider the attendance of the final event analyzed in action E4.3), and 12 people attended the training session organized in July 2022.

E3.2 Webinars: Described in Action C6.

E.4 Multi-level dissemination of the main results

Foreseen start date: September 2018 Actual start date: November 2019

Foreseen end date: June 2022 Actual (or anticipated) end date: June 2022

E4.1 Solution Manual

The project foresees the realization and the dissemination Europe-wide of a practical handbook, illustrating the main water retention solutions exploiting the experiences of the interventions realized within the project and the monitoring results.

The solution manual is available in English and Italian [on the Life Beware website](#).

(Annex 10 - Deliverable C6.3 Solution Manual)

E4.2 Study visit and Exchange of Best Practices

In order to contribute to the replicability of the project, this action includes a study visit to another LIFE project on a similar topic. The project foresees a 2-day study visit in order to present the BEWARE results and materials and share best practices with locals.

Due to COVID-19 and the travel restrictions, the **study visit** was transformed into **online exchanges** involving a **high number of national and international stakeholders** and the LIFE Projects whose thematics are in line with the focus of BEWARE.

Five Life Projects (Life Prepair, Soil4Life, Life Metro Adapt, Life Veneto Adapt, Life Baetulo) were involved in **Study Visits**.

- 4th of June 2021 “**Resources Management and Pollution Reduction: Sharing best practices at the local, national and international level**” - within the EU Green Week 2021 - During the event, which counted 20 registered participants, a study visit was organized with the projects Life Prepair and Soil4Life.
- 29th of March 2022 “**Reshaping Cities: How Urban Areas can tackle climate change**” -

within the The Nature Of Cities festival 2022. During the event, which counted 44 registered participants, a study visit was organized with the projects Life Veneto Adapt, Life Metro Adapt and Life Baetulo.



Image 23. Action E4 “Resources Management and Pollution Reduction: Sharing best practices at the local, national and international level”

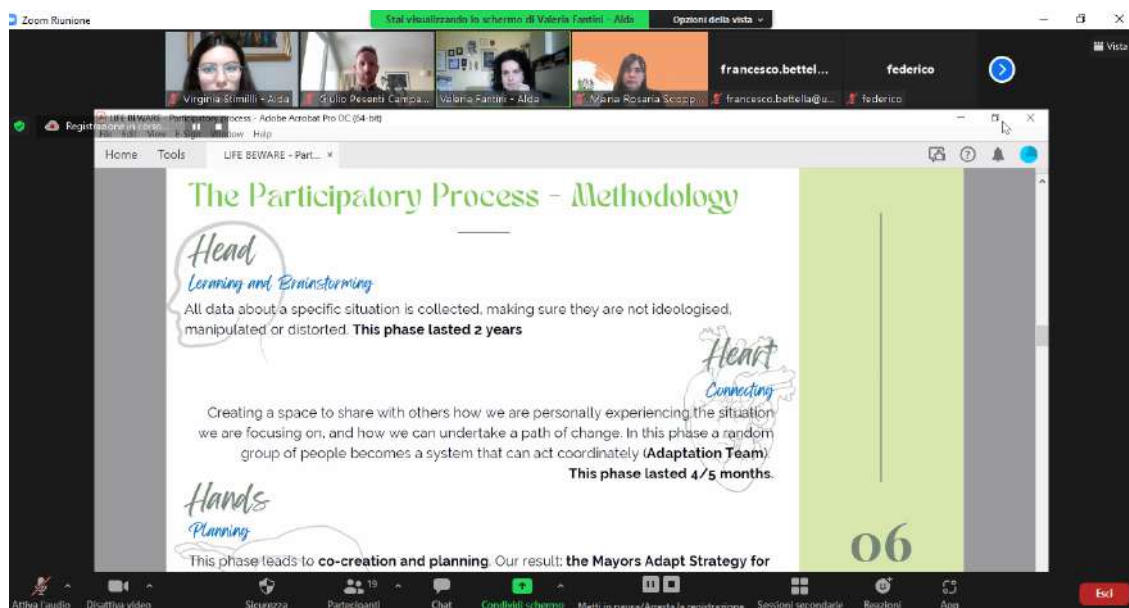


Image 24. Action E4 “Reshaping Cities: How Urban Areas can tackle climate change”

Twenty two Life Projects were contacted in order to **exchange best practices**.

The exchanges were developed in various ways:

- **Exchange of best practices - Participation in events** - At the Green Expo of the Mediterranean "Catania 2020. Environment and Environments" at the exhibition center "Le Ciminiere" in Catania, the project **LIFE Smitores** organized the conference

"multi-level techniques for the co-design of interventions to adapt to climate change in urban areas". During the conference, during the event the LIFE BEWARE project was invited to exchange best practices.

- **Exchange of best practices - Participation in events 28/10/2022** At the LIFE Platform Meeting - LIFE & Climate Pact: Awareness and Engagement for Lasting Climate Action, LIFE BEWARE presented the project to Session 2: "Engaging with citizens and stakeholders and facilitating participation and co-creation", alongside **Life Urban Adapt**, **C2CC Coast to Climate Challenge**, **Life Green-Go!** **Carpathians** and **Life Deliver**.
- **Exchange of best practices - Experts from the Projects** Rocco Scolozzi from the University of Trento was involved in the Master Module with a dedicated seminar: "Percezione e comunicazione del rischio alluvionale. Il progetto europeo LIFE FRANCA" (Flood risk perception and communication. The European **LIFE FRANCA** project)
- **Exchange of best practices - Participation in events - 14/10/2021 - Panel Meeting Veneto** ADAPT: LIFE BEWARE, H2020 RESCUE, LIFE REWAT, LIFE Metro ADAPT, RESPONSE (Interreg Italia-Croazia),
- **Exchange of best practices - Participation in events - 20/04/2021** In april 2021 the Third Adapt To Climate International Conference took place hosting the final event of **Life Urban Proof**, in this context ALDA presented the Life Beware Project.
- **Exchange of best practices - meetings - 14/04/2022** ALDA held an online meeting with the City of Reggio Emilia to exchange best practices, outputs and project tools between the projects **Life CITY ADAPT3** and Life BEWARE.
- **Exchange of best practices - meetings - 30/06/2022** ALDA went to Provincia Autonoma di Trento - Servizio Bacini Montani to exchange best practices, outputs and projects tools between the projects **Life Franca** and Life BEWARE
- **Exchange of best practices - meetings - 17/12/2022** ALDA held an online meeting with Aquatec to exchange best practices, outputs and projects tools between the projects **Life Baetulo** and Life BEWARE



Image 25. Exchange of Best practices - Life Beware & Life Franca

DAY 2: 28. October 2021		
Opening Session		
09:00 – 09:05	Welcome and Introduction	Diana Dancea, CINEA
09:05 – 09:15	Co-creation for climate commitment	Jan Mellebeek, Head of Civic Participation, City of Leuven
Session 2: Engaging with citizens and stakeholders and facilitating participation and co-creation		
09:15 – 09:30	Introduction and speed project presentation	Diana Dancea, CINEA
09:30 – 10:40	Panel discussion: Lessons and challenges from co-creation process	
	<p>2.1 Helmi Hansma, City of Rotterdam LIFE14 CCA/NL/000302 - LIFE URBAN-ADAPT Demonstrating urban climate adaptation and resilience in inner city Rotterdam</p> <p>2.2 Dorthe Selmer, Regional office of Climate, Resources and Green Transition, Central Denmark region LIFE15 IPC/DK/000006 - C2C CC - Coast to Coast Climate Challenge</p> <p>2.3 Giulio Pesenti Campagnoni, Facilitator of Participative Process LIFE17 GIC/IT/000091 - LIFE BEWARE BETter Water-management for Advancing Resilient-communities in Europe</p> <p>2.4 Zuzana Hudekova, Project Manager, Bratislava Municipality Karlova Ves LIFE17 CCA/SK/000126 - LIFE DELIVER Developing resilient, low-carbon and more livable urban residential area</p> <p>2.5 Piotr Mikolajczyk, UNEP/GRID-Warsaw Centre / National Foundation for Environmental Protection LIFE16 GIE/PL/000648 - LIFE GREEN-GOICARPATHIANS Local initiatives for deployment of green infrastructure within Natura 2000 sites in the Carpathians</p> <p>Integrated with questions from audience</p>	
10:40 – 10:45	Closing remarks	Diana Dancea, CINEA
10:45 – 11:00	Coffee break	

Image 26. Participation in Events - LIFE & Climate Pact

The material developed consequently to these exchanges is mentioned below:

- Mapping of the projects contacted (Deliverable 05/2022);
- [Dedicated space](#) on the Life Beware Website with the list of projects contacted during the networking;
- Dedicated space on the newsletter, that disseminated the best practices implemented in other projects financed by the Life Programme of the European Union;

Annex 11 Deliverable: List of Projects Contacted During the Networking

E4.3 Final Event in Santorso

This targeted relevant decision makers, technical actors from the neighboring territory, or local people. It will include a mix of conferences, round table, workshops and playful activities for families. It will indeed take place in Parco Rossi.

On the **4th of June 2022** in Santorso, the conclusion was drawn after 46 months of the LIFE BEWARE project. It was an opportunity to bring together experts, technicians, administrators and citizens in a well-paced day full of activities aimed at a wide audience.

During the morning workshop, “LIFE Beware, what next?” a group of citizens, technicians and administrators brainstormed together on the future of the project and the territory.

The participants, with the help of the project facilitator, Giulio Pesenti, engaged in imagining together and in a participatory way the next steps to be taken to carry forward the good practices initiated in the context of the project and to address climate change. The workshop was held using the Open Space Technology methodology, which is an innovative way of organizing workshops and laboratories that nurtures participants’ passion and interest by allowing them to choose the ways of working that they find most useful and productive.



Image 27. Final Event - Participatory Workshop

Open Space is in fact a highly engaging social participation methodology, which is based on the self-organization of participants, who, guided by the facilitator, create the program and content of the event themselves. At the end, a kind of “final report” of the ideas that emerged through this dynamic process of discussion and cooperation was drawn up, which was then presented in the afternoon roundtable discussion.

The workshop counted 13 active participants.

After lunch, from 15:30 to 18:00, the **Final Conference** was held both in presence in **Villa Rossi** and **lives on Facebook**, in the form of a Round Table. It was animated and moderated by Diego Dalla Via, of the theater duo “I Fratelli Dalla Via”.

The first part of the conference focused on the feedback and reflections of all 6 project partners on the activities and results that made Beware so innovative. The partners presented their results, reflecting on environmental resilience in the Altovicentino and the added value that, from their perspective, the Life Beware Project has brought to the area.

During the second part, community involvement on water-related issues was discussed with interventions by [Ispra – Istituto Superiore per la Protezione e la Ricerca Ambientale](#) , ViAcqua, [Anbi Veneto](#) e [Centro Internazionale Civiltà dell’Acqua ONLUS](#). They focused on involvement on various scales: local, national and international. The interventions were perfectly contextualized in the innovative spirit of the project that led to the parallel development of NBS and citizen participation activities.

The event counted 33 active participants.



LIFE BEWARE, E POI? TEMI, INTERPRETAZIONI E CRITICHE

14/06/2022 ore 18:30 (orario invernale)
 Casa del Comune di Santorso
 Via Santa Maria, Santorso

Una tavola rotonda a partire dai risultati del progetto BEWARE, in un'ottica di confronto tra i diversi attori del territorio, con un focus particolare sui temi della resilienza, della sostenibilità e della partecipazione. Il dibattito sarà moderato da un esperto del settore e sarà aperto a tutti i cittadini interessati.

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14/06/2022 ore 18:30 (orario invernale)
 Casa del Comune di Santorso
 Via Santa Maria, Santorso

ACQUA, RESILIENZA E TERRITORIO. ATTIVITÀ E RISULTATI DEL PROGETTO LIFE BEWARE

14/06/2022 ore 18:30
 Villa Arco (Cascina di Franco Sardo) - Santorso

Il progetto LIFE BEWARE ha portato a termine un ciclo di attività che ha coinvolto i cittadini del territorio di Santorso, in un'ottica di partecipazione e di resilienza. In questa tavola rotonda, i risultati del progetto saranno presentati e discussi con i cittadini.

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14/06/2022 ore 18:30
 Villa Arco (Cascina di Franco Sardo) - Santorso



Image 28. Final Event - Afternoon conference and Round Table

E4.4 Final International Event in Bruxelles

Due to the COVID 19 emergency, many difficulties emerged when organizing the international event initially planned in Brussels in person. In addition to the uncertainty that characterized these unprecedented times, it was clear to the consortium that organizing the international event in person would not have been advisable as due to travel restrictions and social distancing it would not have been possible to host a high number of people, and thus to present and disseminate the project results to a wide public, as foreseen in the Application.

For this reason the consortium decided to plan the "international event" online, through the active participation of the Life BEWARE project in [The Nature of Cities Festival](#), which took place from **the 29th to the 31st of March 2022** and run 24/7, in order to involve the largest number of participants from all over the world. The Festival is an annual participative initiative whose goal is to radically imagine the cities of the future. It spans 3 full days with programming across all regional time zones and is available in multiple languages. It is organized by Nature of Cities, and among the various international partners involved in the implementation of the Festival there are many European institutions, networks and projects including ICLEI, NATURA, Connecting Nature, the Agence Française pour biodiversité, among others.

The organization of the Life Beware Project in this context ensured a high level of visibility for the project, while maintaining its international character and adapting to the current circumstances that make it difficult to meet in person.



Image 29. International Event in Brussel - The Nature Of Cities Festival

In this context, Life BEWARE would have at its disposal an "exhibitor booth" that would allow the project to have a dedicated page on which to upload project material and organise: i) a 90-minute Seed Session, involving international stakeholders and other life projects and including a conference and a workshop part; ii) virtual field trips on the Santorso and Marano interventions; iii) projection of the project mini-documentary; iv) short speeches by project experts.

In the context of The Nature Of Cities Festival an **exhibitor booth** was dedicated to the Life Beware Project, in which relevant materials of the Project (e.g. The Altovicentino Mayors Adapt Strategy, the on-demand training on NBS) were displayed to the participants of the TNOC.

Life beware organized two workshops :

- **“Reshaping Cities: How Urban Areas Can Tackle Climate Change”** - 29/03/2022 16:00-17:30 CEST - The seed session focused on the topic of Cities' resilience to Climate Change and, thanks to the contribution of four Life projects, it highlighted various ways and best practices in which urban areas can successfully address this issue, in an innovative

way. Starting from the experience of Life Beware and following with the contribution of three other Life Projects, the participants were able to know the best practices developed within these projects and how they successfully impacted the territory. The whole session was held by a facilitator guaranteeing a participative approach to the initiative. The involvement and collaboration of four Life Projects is particularly relevant considering that 2022 is the 30th year anniversary of the Life Programme.

The target of the initiatives were EU Municipalities and the general public and there were **44 registered participants**.

- **“Nature Based Solutions For A More Resilient Territory – How Can Municipalities Better Implement Them?”** 30/03/2022 16:00 -17:30 CEST - The main objective of this workshop was to promote and encourage the replicability of Nature Based Solutions. The workshop was held by the Technicians and Professors of the Department of Territory and Agro-Forestal Systems (TESAF) of the University of Padua and it was targeted to EU Municipalities. The goal of the workshop was to teach local administrators how to better implement these measures on their territories, starting from the experience and the best practices of the Life Beware Project. There were **56 registered participants**.



Image 30. International Event in Brussel - The Nature Of Cities Festival - Flyers

Moreover the TNOC platform hosted a 4-minutes long Microtalk on **Natural Water Retention Measures** held by TESAF.

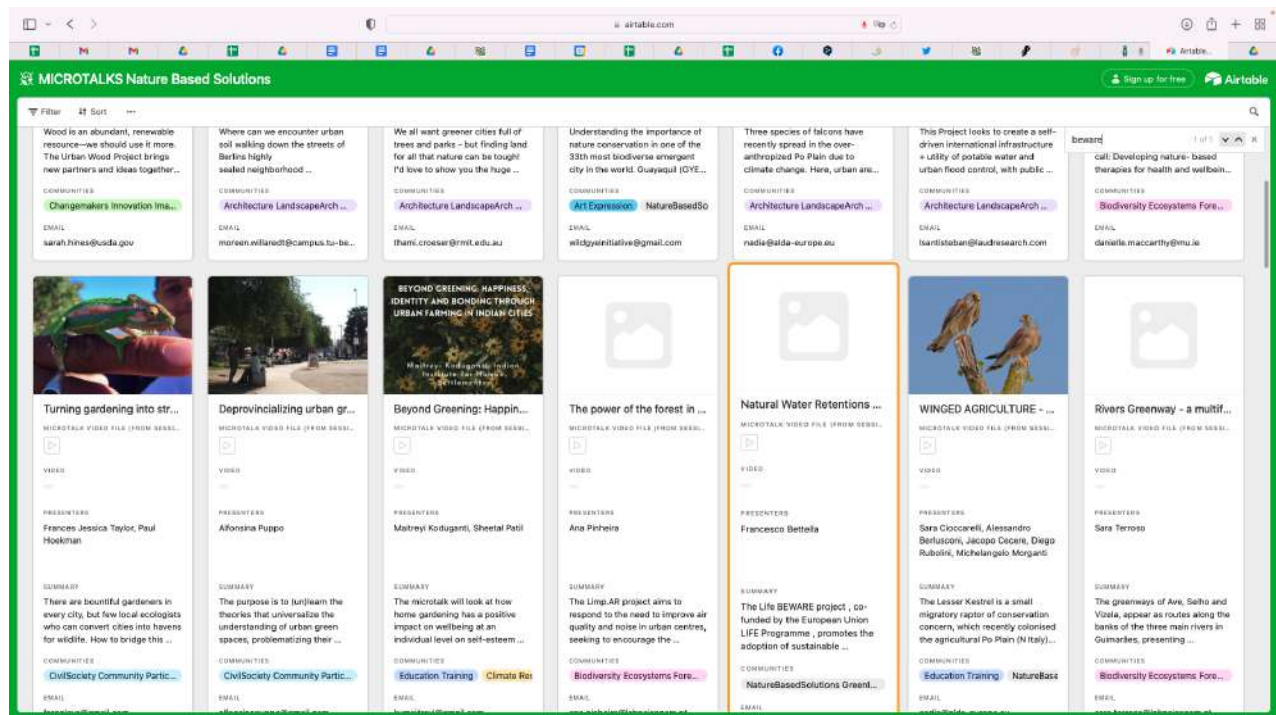


Image 31. International Event in Brussel - The Nature Of Cities Festival - Micro Talk

E4.5 Participation in a TED Talk

Due the outburst of COVID-19 Emergency it was not possible to take part in a TED Event in Vicenza due to the impossibility to organize it. Since the *ratio* of this activity was to spread the outputs of the project to a wider audience, both local and international, we delivered this objective through the organization and participation to festivals, initiatives and events with a significant impact both on the territory and globally.

E4.6 Database of the European Climate Adaptation Platform (Climate-ADAPT)

The project successfully submitted the BEWARE information portal within the Climate-ADAPT platform and the first case study within the Climate-ADAPT platform. The links are [here](#) and [here](#).

F.1 project management by Santorso Municipality

Foreseen start date: September 2018 Actual start date: September 2018
 Foreseen end date: June 2022 Actual (or anticipated) end date: June 2022

From September 2018, i.e., at the beginning of the project, till January 2021, the project manager and contact person for EC was an additional staff member with specific competence in management of EU funded projects, supporting the beneficiary at the methodological and

coordinating level. Currently, the contact person and project manager is the head of the General Affairs Unit responsible for the ordinary management, continuing in accomplishing the institutional assigned tasks for COMSAN, at the same time. The project manager is now supported by external assistance with Studio Progetto Soc. Coop. Soc. The kick off meeting took place as the formal start-up of the activities and facilitated the implementation of the first activities to be undertaken. The project objectives were clarified, the concrete procedure in the project was presented defining time and tasks, and the motivation to act together was strengthened through the presentation of the partner agreements drafts. Subsequently, all associated beneficiaries (AB) signed a partnership agreement that guaranteed the coherence among the objectives and the task foreseen by Grant Agreement and set the relationship among the beneficiaries. A Management Board (MB) was established and each beneficiary designated an administrative manager, who keeps in contact with the project management staff through a check that takes place every 3 months, sharing financial documents and reports.

The CB produces the technical reports in accordance with the deadlines established by the project and collects from other BA all needed elements.

6.2 Main deviations, problems and corrective actions implemented

Starting from February 2020, due to the spread of the Covid-19 pandemic and the related health restrictions, the project registered some delays which mainly affected those activities foreseeing events in presence and those activities depending on specific bureaucratic procedures. In some cases, the project partners were obliged to adapt some of the project actions to a new online and interactive format with the aim of not affecting the final results, hence achieving the project objectives. As a matter of fact, the results registered are in line with the project objectives, which are being regularly achieved without the need for the requirement of an extension of the project duration. The main activities which have been modified and/or postponed because of the spread of the Covid-19 pandemic are summarized in the following table:

Table 5. Activities deviations due to the spread of Covid-19 pandemic

Action	Activities	Foreseen deadline	Status
C1	School of Common Goods	09/2020 (deliverable)	It has been postponed to the second half of October 2020 taking place from the 16 th to the 24 th of October 2020 in a hybrid format (both online and in-presence). Despite the pandemic in progress, it registered a successful participation and raised the interest of several people.
C1/E2	Educational activities for pupils / Activities for the educational community	06/2022 (milestone)	They have been partially transformed into online activities, starting the process by holding online classes to the primary and secondary schools of Santorso and Marano Vicentino. To this end, an innovative format has been introduced: The BEWARE Kids University which

			has been inaugurated online during the lockdown.
C1	Resilient Communities Help Desk	01/2020 (milestone)	During the first semester of 2020 it was not possible to organize any activity in presence (besides the training session held by TESAF in January 2020).
C1	Water Retention Purchase Group Programme	01/2021 (milestone)	The lockdown has generated a general slowdown of the information requests related to the adoption of NWRMs thus causing a delay in the setting up of the Water Retention Group Purchase Program. It was postponed to the second semester of 2021 when it was widely disseminated both through media and the help desk. Despite having gathered expressions of interest from 38 people, the ones that were eventually actually interested to follow through the purchase, after we sent the catalogs asking for a formal confirmation, were 5. Moreover there were issues as the companies wanted just one payment in order to offer more discounts and this was not possible due to the high cost of the measures. In addition to this the exponential increase of the cost of raw materials and transport, due both the aftermath of the restrictive measures of the pandemic and the start of the war in Ukraine, was discouraging for families. Despite that, thanks to an agreement with the selected companies, it was possible to reach the compromise by which it was possible to keep the price list of the devices unchanged (despite the increases in raw materials) during the weeks necessary to complete the purchase.
C2	Altovicentino Mayors Adapt Strategy	06/2022 (milestone)	It has been transformed into an online activity, counting on remarkable experts and a consistent participation (120 registered participants), hence achieving relevant results.
C4	Sustainable Urban Drainage Systems (SuDS) for climate adaptation in urban areas	09/2019 (milestone)	The six interventions were completed although their implementation has registered a delay due to the closure of the construction sites in the first lockdown (March 2020), as they fell within non-essential activities. In addition to that, the project consortium decided not to use the work of the municipal workers in order not to expose them to the risk of contagion. Regarding Intervention 3 (Detention Basin in Via Volti), the finalization of the purchase of the final pump was delayed was further delayed due to the difficulty of purchasing a specific pump that could be in line with the characteristics foreseen by the project and, at the same time, stay within the budget foreseen by the Action,

			as its cost was underestimated. In addition to this, the electric connection in the site of the intervention was not adequate for the functioning of the pump and the agency supplier of electricity was unresponsive until recently.
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C5	Direct training and information action directed to farmers	06/2021 (deliverable)	The last three meetings of the activities have been realized online. Furthermore, this action foresaw the involvement of farmers in the possible grant opportunities foreseen within the Veneto Rural Development Plan 2014-2020. An analysis noted the absence of further useful funding: it was therefore considered appropriate to involve the farmers through an activity of data collection and information on sustainable water management in agriculture.
C6	EU Training Module and EU workshops	06/2022	The EU Training module was realized online, through the development of 9 on-demand training videos, that are always available on the Life BEWARE Website and on the Youtube platform. The EU Workshop was organized in the context of the Nature Of Cities Festival.
C6	University Master Module	06/2022	In 2020, the field trip to the BEWARE interventions was realized in a virtual mode, as a consequence we had no expenses for bus and coffee break. Also the brochures were not printed, preferring the on-line dissemination.
E2	Hydraulic restoration tour	03/2020 (milestone)	Due to the pandemic situation the hydraulic restoration tour has started online, visiting the project interventions through virtual field trips thanks to the project visual and multimedia contents. Field visits started in March 2021 together with other didactical labs.
E4	Study visit and Exchange of Best Practices	07/2021(milestone)	Due to the travel restrictions, the study visits were transformed into online exchanges involving a high number of national and international stakeholders and the LIFE Projects whose themes are in line with the focus of BEWARE.
E4	Final event in Santorso and Final International Event in Brussels	06/2022	Due to the travel restrictions, and generally to the COVID-19 regulations, the International Event in Brussels was held online, through the active participation to The Nature Of Cities Festival. The final event in Santorso was organized in person, as per what was foreseen by the project proposal.

In January 2021, the Project Manager of Santorso Municipality, leading beneficiary of the project, resigned. To mitigate the risk of finding a suitable project manager in the short run, Santorso

Municipality, in agreement with the project consortium, opted to appoint a sub-contractor to support the project management activities starting in March 2021 until June 2022. Through a regular public procedure via the Santorso Municipality MEPA portal, Studio Progetto Società Cooperativa Sociale was appointed as Project Management Support and Mrs. Lara Lupato is the person in charge of it. The Municipality of Santorso will keep both the technical and financial coordination of the project and the contact person is now Mrs Elisa Sperotto. In the next paragraphs, the most relevant changes, deviations and corrective actions will be described.

In the following paragraphs, further major deviations affecting the implementation of the project activities are specified.

C1. The Altovicentino land of water and resilient-community Festival (milestone 09/2021 - ongoing). As reported in the first project progress report submitted on September 2019, the project partners identified an ambiguity in the proposal with respect to the date of the Festival (C1.1): the descriptive section states that the event would take place during the summer of 2019 while the project milestones' table establishes that the end date for the Festival to be held is 09/2021. After an internal consultation, the partners have considered it more appropriate for the Festival to take place at a later stage, as a natural conclusion of the awareness-raising campaign foreseen by the action. For this reason the festival was successfully organized from **Monday 20th of September until Tuesday 28th of September 2021**.

C4. Sustainable Urban Drainage Systems (SuDS) for climate adaptation in urban areas (milestone 09/2019). Respecting the planned output, the intervention has been slightly modified in order to increase the hydrological effectiveness of the proposals, and to adapt the interventions to the site conditions identified from the preliminary topographical and geological surveys. In the modification planning, the realization of the complete panel of types of solutions has been guaranteed in order to completely avoid a reduction in the effectiveness of the dissemination effect of the teaching itinerary. The following table resumes the modifications adopted in the realization of the six interventions.

Table 6. Deviations in the realization of the six adopted interventions

ID	Location	Proposal submitted	Executive design	Motivation of the variation
1	Piazza della Libertà (Santorso)	Underdrained bioretention	Rain garden plus underdrained bioretention	Infiltration allowed; Increase of the hydrological effectiveness
2	Grumo hill (Santorso)	Series of infiltration trenches	Grass swale and bioretention area	Infiltration not allowed due to subsoil characteristics and archaeological findings
3	Via Volti (Santorso)	Detention basin with an internal bioretention pond	Detention basin with an internal bioretention pond	No variation

4	Corte Acquisaliente (Santorso)	Rainwater harvesting plus drywells	Rainwater harvesting plus drywells	No variation
5	Via dei Prati (Santorso)	Rain gardens plus grass swales	Rain garden, infiltration trench, pervious pavement	Increase the hydrological effectiveness
6	Primary school (Marano Vicentino)	SUDS treatment train (strip of tree lined porous paving, realized in sequence with a bioretention)	SUDS treatment train (strip of tree-lined swale in sequence with porous paving, rain garden and bioretention area)	Increase the hydrological effectiveness

As regards the **Intervention 6** (Treatment Train in the Primary School) specifically, it is worth mentioning that the start of work has been postponed by 12 months with respect to the dates foreseen in the milestones. The causes of this delay are attributed to:

- The initiation of the roof reconstruction of the Primary School in Marano Vicentino, which made it impossible to work on part of the external area, including the area assigned to the Project.
- A sudden deterioration of the weather conditions.
- The health COVID-19 emergency.

In addition, upon completion of the works and coinciding with the start of the school year, the bushes which were planted in the project area, were then uprooted by children. This problem will be solved by replacing the damaged shrubs in autumn this year.

Regarding **Intervention 3** (Detention Basin in Via Volti), the finalization of the purchase of the final pump was delayed due to the difficulty of purchasing a specific pump that could be in line with the characteristics foreseen by the project and, at the same time, stay within the budget foreseen by the Action, as its cost was underestimated. In addition to this, the electric connection in the site of the intervention was not adequate for the functioning of the pump and the agency supplier of electricity was unresponsive. Despite this, the intervention was built within the deadline foreseen by the project and before the final purchase of the pump, it was thoroughly tested.

C5. Farmers' involvement for a correct water management in agricultural areas.

This action foresaw the involvement of farmers in the possible grant opportunities foreseen within the Veneto Rural Development Plan 2014-2020. An analysis noted the absence of further useful funding: it was therefore considered appropriate to involve the farmers through an activity of data collection and information on sustainable water management in agriculture. In this way, the following regional programming phase will have the possibility to promote financial instruments tailored to the needs expressed by the beneficiaries.

C6. University Master module.

The project application form presents a mistake because in the text is declared 60 hour/year of teaching activities and in the budget only 32 hours/year. As a consequence, the Consortium decided to optimize the budget by organizing a Module of 6 university educational credits (CFU), where 1 CFU corresponds to 25 hours of work, including lessons, exercises, etc., as well as home

study. As a consequence, 42 hours/year of frontal lessons have been delivered.

D1. Monitoring water flows and climate impacts.

The foreseen quantitative monitoring was realized as planned and no delays were reported. The qualitative monitoring actions have been 1 year delayed. Effectively, no budget was allocated for the qualitative monitoring, because the analysis was guaranteed to be realized by the Centro Idrico di Novoledo (support letter in the application form). In 2019, this agency ceased all its operations through the sale of the "Laboratory branch" and subsequently through the liquidation of the company. As a consequence, the Project identified a new company willing to carry out the planned qualitative analysis free of charge. At the beginning of 2021 a new agreement was signed between COMSAN and the RIVE Research Centre of VIACQUA S.p.a., the company that manages the water services in the northern Vicenza Province. This allowed the qualitative analysis to be completed before the end of the project and to be included in the second and final reports of action D1.

D3. Application of Life project performance indicators (deliverable 06/2022)

Taking into account the planned activities, only two rounds of questionnaire administration were performed, one at the beginning of the project and one during its final stages. After the administration of the first round of questionnaires, we decided to remove the administration in the middle of the project to avoid excessive pressures on the interviewed people. The main risk of conducting such a third administration was to contact people before they had a real opportunity to get in touch with the project activities. As a consequence, we decided to maintain only the final administration round.

In the application form, it was foreseen to also include technicians/practitioners in the collection, monitoring, and analysis of main indicators. However, in the early phases of the BEWARE Project, it was particularly difficult to approach practitioners. Their involvement was recovered only in the later stages of the project, and as a result of further information and awareness-raising activities. This element seems to confirm the lack of initial knowledge of these issues even among practitioners.

D4. Assessment of socio-economic impact accounting for the hydrologic effectiveness of the interventions.

The "Report about ex-ante data collection" was initially drafted as foreseen in the application form, i.e. in May 2019. However, an updated version of this report was eventually delivered in October 2019. This update was requested due to the additional questionnaire administration realized in September and October 2019 (see Action D3 for details), and in order to include two heavy rainfall events occurred in July and August 2019, especially in the area of Santorso area, which were so severe that a public state of emergency was issued. Thus, it seemed important to update the administrative databases to include the large damage caused by these two additional events.

In order to assess the benefit-cost analysis and the simulation tool, the application form reported the realization of "hydrological simulation physically simplified (final 'static' maps) oriented to assess the variables driving the urban and rural planning when flooding mitigation is in play." In order to ground the benefit-cost analysis on flooding maps made specifically for the selected rainfall events, the modeling has been improved through the use of a bidimensional,

physically-based numerical model. In addition, the application form reported the realization of “hazard-map that considers the following scenarios: a) floods with a low probability; b) floods with a medium probability (return period ≥ 100 years); c) floods with a high probability (e.g. 30-year return period), by adding the effects of rainstorms intensification due to the climate change.” A modification of the considered Return Periods (RPs) became necessary after the collection and the analysis of the administrative databases reporting the flooding events that had caused damage in Santorso and Marano Vicentino in the years 2010-2019 (database description in the “Report about ex-ante flood-related damage evaluation”). As a consequence, we decided to focus our analysis on RPs lying in that range (namely, 2-, 5-, and 30-year RPs), hence not considering those events with an RP larger than 30 years. This choice is confirmed also by the following reasons:

- Depth-damage functions (i.e. vulnerability curves) show a high slope in the first water depths (e.g., 0.5-1 m) and then a flatter trend for higher depths². This means that once the depth of about 1 m is exceeded, the damage does not increase that much. As a consequence, it seems that frequency of flooding can have a higher economic impact than flooding intensity.
- Small scale NWRMs are generally effective for high frequency rainfall events and also the NWRMs realized by the project (Action C4) are dimensioned for events up to 30 years of RP; therefore, when focusing the analysis on those events with higher RPs would have led us to underestimate the benefits of these structures.
- As previously reported, documented flooding events in the two municipalities are associated with RPs ranging from 1.5 to 32.2 years. As a consequence, the validation of the hydrologic-hydraulic model was only possible in that range.

E2.3. Activities for the educational community.

The activities for the educational community have been hardly hit by the Covid-19 crisis due to lockdowns and schools' closure. The project partners worked to find alternative solutions to maintain the same objectives avoiding to interrupt or excessively delay the activities. For this reason, in agreement with the project adviser, the project reallocated part of the budget initially assigned to the budget line: “E1 pullman rent for classrooms” (21.000 € out of the 30.000 €) to cover the extra costs of the environmental guides in Marano Vicentino, thus subcontracting the Biosphaera cooperative. Santorso municipality subcontracted the cooperative Ecotopia for the same budget amount (budget line: E2 Environmental guides). Such a solution is allowing the project to increase the number of delivered laboratories - and as a consequence the number of reached students - guaranteeing both the theoretical and practical parts as originally foreseen. The remaining budget (9.000 €) will be temporarily saved in case it is possible to organize live tours in the upcoming months. The COVID-19 pandemic caused a block of initiatives in school and municipal structures and the timetable was therefore extended, postponing the publication of the call for proposals in April 2021 to find external assistance for the organization and realization of educational activities, and consequently the start of excursions with schools.

E2.3.4 Animated cartoon for kids and E2.3.6 Video Game were completed with delay. This delay was also consequent to the delay of the E2.3 Educational Activities. Moreover it was quite difficult for our relatively small Municipalities to attract potential suppliers and to manage a unique and big call to include all the materials foreseen in by E2.3, also because they needed to have experience in realizing cartoons and video games. For this reason, it was decided to split the call and start with the comic, in order to have a first test about the character and the story that could be interesting for the students audience. The comic was well received, so the idea was to continue with the same character at least in the cartoon, to give continuity to the story. In any case the

² Huizinga, J., Moel, H. de, Szewczyk, W. (2017). Global flood depth-damage functions. Methodology and the database with guidelines. EUR 28552 EN. doi: 10.2760/16510

Schools managed to get in touch with these multimedia materials and they will be actively used in the schools activities foreseen by the afterlife.

E2.3.5. Comic for Students (deliverable 02/2020). The **Comic Book** realization has been subject to changes. In the Project application form, an ambiguity has been detected as the Comic Book is indicated as a deliverable twice (Action E1 and Action E2). The project partners have decided to realize one comic book with a higher number of pages (+8) and 24 additional strips. Furthermore, the number of printed copies has decreased from 11.000 to 1.000. Given the target, the main distribution channels will be virtual. Furthermore, for environmental reasons and consistency with the project values, it is preferable to increase the digital distribution. Finally, a budget remodulation regarding the comics realization has been proposed: Veneto Agricoltura transferred the budget amount of 5.000 euros to ALDA. The total amount spent for the realization of the comic book exceeds the foreseen budget but was covered by the savings of the Action E2.

6.3 Evaluation of Project Implementation

Methodology applied

The project methodology is composed of a multiple approach to the faced problem, whose strength is to mix the realization of concrete interventions to educational activities and a diffused participation process that involves different target groups (stakeholders, citizens, technicians, etc.) and influences policy making processes. Interventions have a strong demonstrative character both to private and public owners. This resulted in a win-win approach: the interventions and actions carried out till now brought all parties to gain awareness and “win” (i.e. landowners/farmers/citizens), thus feeling committed to the process. Moreover, it is possible to evaluate the success of the methodology applied, because the Project is registering higher results than expected (see the updated KPI table and section 7), especially in terms of citizens’ involvement.

In the table 4 below, a comparison between the expected results and objectives and the achieved results is provided. The results underlined in blue colour are the ones that have been immediately visible, the remaining results became (or will become) apparent after a certain time period:

Table 7. Comparison between the achieved results, the objectives and expected results

Action	Foreseen in the revised proposal	Achieved	Evaluation
C1	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> - Starting engagement activities with citizens that lead to sharing scope and objective with the aim of defining some best practices for the project area. - Actively involving the citizens thanks to cultural events, workshops and seminars. <p><u>Expected results:</u> Involving at least 1000 citizens in the C.1 action (according to the updated KPI).</p>	Yes	<p>The foreseen activities have been realized. Thanks to flexibility and competences of the staff involved, but also to a real interest among citizens, the process could continue also during the Covid-19 lockdown</p> <p>The result has been achieved and overcome (217 participants <i>on site</i> in the School of common goods; 123 people consulted the Help desk, 953 participants in the cycle of conferences). Considering the number of visualizations of the School of Common Goods videos,</p>

			the number of participants rises up to 3500.
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C2	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> - Settling both a legal and voluntary basis to ensure project actions sustainability and replicability in the long term. New version of the Municipality's building code (deal with NWRM) and voluntary Mayors' agreement in line with the Mayors' Adapt. <p><u>Expected results:</u></p> <ul style="list-style-type: none"> - Two updated building codes (COMSAN, COMMAR) that include a new strategy for water retention and climate adaptation to floods - Subscription by at least 5 municipalities of one agreement for a common strategy for climate adaptation with the specific objective of floods adaptation in Northern Vicenza province (in the after-life period). 	Yes	<p>The updated building codes for COMMAR and COMSAN were successfully adopted.</p> <p>The strategy to create synergies with existing networks was successful and brought to wider perspectives and results. Six Municipalities expressed their willingness to adopt the main points of the Climate Adaptation Action Plan into their SECAPs, through the signature of a letter of intent. (Municipality of Carrè, Municipality of Zugliano, Municipality of Breganze, Municipality of Sarcedo, Municipality of Chiuppano and Municipality of Lugo).</p>
C5	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> - Involving at least 50 farmers in meetings to propose good farm management practices for climate adaptation. 	Yes	<p>More than 50 farmers were involved in the organized meetings (179 participants in total, details in the description of action C5.3).</p>
ALL ACTIO NS	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> - Disseminating the EU policies by the information's activities. <p><u>Expected results:</u></p> <ul style="list-style-type: none"> - Involve at least 18000 citizens in the dissemination activities 	Yes	<p>All information and communication activities regarding project's actions increase awareness about EU policies, communicating info about them through a continuous mentioning as foreseen by the program, but also deepening on this theme always foreseen</p>

C3, C4	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> - Implementing concrete actions for water retention in different contexts (urban and rural areas) to store/capture water, especially when precipitations are more abundant, and release it slowly into the hydrographic network. <p><u>Results:</u></p> <ul style="list-style-type: none"> - Preparing a 2500 cubic meter retention basin in a farming area, to store water during floods and release it for irrigation purposes during drought. The small lake will have a strong environmental character. - Realizing six public and private sites provided with Sustainable Urban Drainage Systems (e.g bioretention, rain garden, etc.) and using intensively these sites at the best as supporting educative tools for the communication. 	Yes	<p>All the interventions were realized performing their intended functions (flooding risk mitigation, communicative function, and irrigation function for C3). The basin storage capacity is slightly lower than planned (2200 cubic meters rather than 2500) because in the final design of the intervention we respected the minimum distances from the borders and because we created a suitable area for planting around the waterline that reduced the space for the water. This reduction of volume does not affect the effectiveness of the basin.</p>
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D1, D2, D3, D4	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> - Monitoring the impact of concrete actions on the hydraulic system, environment, and socioeconomic context. <p><u>Results:</u></p> <ul style="list-style-type: none"> - Defining in the different sectors to monitor the baseline values for the project area. - Measuring the variations during the project (4 yearly monitoring reports and 1 hydrologic simulation). 	Yes	<p>Monitoring activities are regularly carried on. The different sectors to monitor the baseline values were defined and the variations during the project are regularly measured as foreseen.</p>
E1	<p><u>Objective:</u></p> <ul style="list-style-type: none"> - Disseminate project results with wide communication actions for citizens and schools. <p><u>Results:</u></p> <ul style="list-style-type: none"> - Training environmental guides on project topics including linked economic issues (e.g., specific costs in the area context) and promoting guided tours for schools. - Two project videos (also for Youtube and social) according to the updated KPIs. - One final conference (Santorso). 	Yes	<p>The objective was achieved through different communication and educational activities. Guided tours already took place and are planned to take place with schools in the following months (from April 2021 on). Teaching workshops at the permanent center for resilient communities were substituted by educational activities with schools, which were postponed due to the Covid-19 pandemic. One project video was already realized, the other will be ready in the last part of the project lifecycle, spreading information about NRWMs through the intervention and activities realized. A training session was held by TESAF staff to the environmental guides of Ecotopia the 16 of February 2021. The session was held online (Zoom meeting) and it lasted 2 hours.</p>

E3, C6	<p><u>Objective:</u></p> <ul style="list-style-type: none"> - Disseminate project results with wide communication actions for technicians, practitioners and land planners/managers (E3, C6) with seminars for specific targets. <p><u>Results:</u></p> <ul style="list-style-type: none"> - Organize one training session for 3 days, 5 technical workshops in EU territory, 9 technical workshops in Italy, 2 webinars in order to transfer project actions and results. - Publication of one digital technical manual and two scientific papers. - Presentation of project results in two scientific national/international conferences. 	Yes	<p>The project was presented during several events (see Annex 12) including:</p> <ul style="list-style-type: none"> - several scientific national/international conferences. - a specific module of the University Master “Manager of sustainable local development” at the University of Padova. <p>- publications: 3 scientific papers on international journals, 2 divulgative articles on national magazines, and the Solution Manual.</p> <p>Expert webinars were organized and now they are available on the project’s Youtube channel and website.</p> <p>Due to Covid pandemic, the organization of some of the foreseen activities was remodeled online. As for the EU Workshops the consortium decided to organise a workshop in the context of The Narure of Cities Festival, an annual international festival that is held online and that attracts around 2000 participants per year.</p>
C5, C6, ALL ACTIO NS	<p><u>Objective:</u></p> <ul style="list-style-type: none"> - Developing wide communication and replicability initiatives on water retention to illustrate the ‘innovative’ techniques in the geographical Veneto Region context (as well as comparable EU contexts) to technical stakeholders in: meetings with citizens, guided tours for schools, meetings with farmers and industrial firms, technicians and public administrations. <p><u>Results:</u></p> <ul style="list-style-type: none"> - Workshops organization recruiting all those stakeholders which can benefit more from the project's experience: governance actors (municipalities, province, regions), association of practitioners, private companies involved in the research/development/ building of sustainable water retention measures. 	Yes	<p>The achievements are already described above on the previous objectives.</p>

F1	<p><u>Objective:</u></p> <ul style="list-style-type: none"> - Starting a networking activity aiming at exchanging knowledge with similar EU projects and using knowledge contents in projects activities: formal requests will be sent at the BEWARE start to other project coordinators. - Strengthen existing relations among the project partners to settle a real team to refer to at regional and national level concerning the topics of sustainable water retention policy/practice. <p><u>Results:</u></p> <ul style="list-style-type: none"> - Creating a network among other Life projects. 	Yes	<p>23 LIFE projects were contacted or involved in online activities (See Annex 11). A specific session of the newsletter is dedicated to the dissemination of 11 LIFE projects related to the themes of the BEWARE Project. Project partner cooperation is very efficient and trustable. The staff already presented a project application to pursue the continuity and development of Life Beware objectives in cooperation with other bodies of the area and that CB APV developed a strategic plan for the identification of suitable sites for the realisation of reservoirs in the area of the Altovicentino, in cooperation with the municipalities of the area.</p>
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Results of the replication efforts

Throughout the implementation of the Project, the Consortium has been making a considerable effort to increase the impact of the actions and to favor their replicability in other geographic areas and territorial contexts both in Italy and in Europe. Specifically, the project replicability efforts concern three main dimensions:

- The public policy area, by mainstreaming flood risk mitigation strategies within the local public policies.
- The citizens' engagement and the involvement of national and international key stakeholders, by the implementation of an innovative participatory process directed at three main target groups: i) municipalities in the Altovicentino area (administrators, technicians and practitioners); ii) citizens and schools; iii) farmers and agricultural organizations.
- The promotion of NWRMs as an effective strategy to increase territorial resilience to climate change and to mitigate the flood risk.

Important results have been achieved in each of the above-mentioned dimensions. As regards the local public policy area, it is relevant to mention the upcoming adoption of an updated building code including a new elaborated strategy for water retention and adaptation to floods in the municipalities of Santorso and Marano Vicentino. Furthermore, the process involved 18 municipalities in the analysis of the status of the current building codes, the identification of the needs of the administrators and managed territories, and the identification of shared solutions to the problem of urban and rural flooding. More municipalities joined the process at a later stage, thanks to the work carried out with the participatory activities. This process will lead to the adoption of updated building regulations code by other municipalities of the area, leading to a significant impact in terms of sustainable water management and flood risk reduction.

On the other hand, the participatory process itself and the raising awareness and training activities involving the farmers, the community in the Altovicentino and the schools, contribute to fostering the potential replicability of the project good practices. The innovative methodology adopted to increase the participation of the community and the creative tools developed by the project to engage a high number of stakeholders in the project activities have been widely recognized and used as an example in several contexts both at the national and international level. As a matter of fact, the participatory process for the creation of the action plan for the climate in the Altovicentino has been included as good practice to be widely replicated within the publication

“Localizing the SDGs: Good practices from Europe and the Neighborhood areas” published by ALDA.

Effectiveness of the dissemination activities.

Throughout the whole project implementation, dissemination activities have played a fundamental role to generate and spread knowledge thus increasing and maximizing the impact of the project actions and, at the same time, boosting its visibility. The main project dissemination activities can be divided into four main groups:

Web-based communication:

The project website and social media (Facebook and Twitter) and the project newsletters are fundamental tools to disseminate the project activities increasing its visibility and strengthening the synergies created with external stakeholders. As a matter of fact, besides being an important channel to convey relevant information about the project objective and results, the web-based communication represents an excellent space to foster the exchange of knowledge and good practices among key international and national stakeholders. The high number of visualizations and interactions with the news and posts related to the project activities underlines the effectiveness and importance of these channels. Furthermore, the dissemination efforts are further strengthened by the contribution of the project partners and the members of the CoI who contribute to give visibility to the project main actions and results through their own web communication channels.

Participation in national and international events:

An important part of the dissemination activities is the participation of the Project to international and national events which represent an exceptional space of visibility and an excellent opportunity to exchange lessons learned and strengthen the project network. As of June, the project has been presented and disseminated in 32 national and international events involving more than 4.000 people.

Organization of training and dissemination events:

Despite the difficulties caused by the spread of the COVID-19, the project consortium managed to bring forward several training and dissemination events achieving important results in terms of knowledge transfer, awareness raising and environmental education. In particular, it is worth mentioning the success of:

- The Kids University, involving schools of Santorso and Marano Vicentino in master’s classes about the thematic of the BEWARE project;
- The cycle of conference and excursions involving 953 people in the discovery of the Altovicentino territory and its challenges related to the fight against climate change;
- The multimedia and visual material as is the case of the Project Comic Book and the dissemination videos.
- The experts webinars
- The Nature of Cities Festival
- Training and Final Event

During the next months of the project implementation, further activities will be organized and developed by the BEWARE project thus contributing to increase more and more the project dissemination process (e.g., educational activities for primary and secondary schools, the Festival of the Altovicentino, the Final conference etc.)

Networking:

In order to contribute to the replicability of the project, the project carried out many networking activities, representing an important opportunity of dissemination at local, national and international level. Besides the project **CoI**, which currently counts **93 active members** from the public sector (39 members), the civil society (29 members) and the private sector (25 members), coming from 10 European countries, the project is strengthening linkages with key stakeholders at the international level. Specifically, a mapping of more than **140 stakeholders** for the dissemination of project activities was realized and kept updated by the whole consortium under the guidance of ALDA. Moreover the partners have established concrete synergies with 24 international public entities coming from 10 European countries and 23 LIFE Projects whose thematic and focus are closely related to the project (*Annex 20 – Networking and replicability*).



Four relevant European networks were to disseminate the project's initiatives: ICLEI, ENERGY CITIES, EURO CITIES, ORGANIC CITIES. Following this a bilateral meeting with Organic Cities was organized to disseminate the outputs of the life beware project and ALDA took part in the Energy Cities Forum that was held in Brussels on 20/22 April 2022, in order to disseminate the project's result and activities in the Festival.

Image 32. Energy Cities Forum in Brussel

In addition to that the project built relevant synergies with the EU initiative of the **Covenant of Mayors**, as not only the inclusion of the Altovacentino Mayors Adapt Strategy within the SECAPs of a group of municipalities of the Altovacentino is foreseen, but the Covenant Of Mayors will include Life Beware as a Best Practice. Also [dissemination wise](#), the Covenant Of Mayors has supported the project.

The project was also widely disseminated in the networks of the Consortium, ALDA in particular sent ad hoc communications and invitations to its Members that are 275 among Municipalities, CSOs, NGOs, Local Authorities and Public Bodies.

Policy impact

The Project is playing an important role in contributing to exert influence in public policies boosting a shift towards more effective and efficient flood risk mitigation and climate resilient strategies. Specifically, the Project has been seeking a concrete policy impact at three main levels (local, national and international) initiating an important process that will be further strengthened over the next months and will ensure sustainability and continuation to some of the project actions. Among some of the main achieved results it is worth mentioning the following:

1. At the **local level**, the Project has promoted a comprehensive participatory strategy involving a group of municipalities of the Altovicentino and citizens belonging to different sectors. The process led to important results in terms of public policy, mainly resulting in: i) the modification of the local building codes of the Municipalities of Santorso and Marano Vicentino, including concrete strategies for the mitigation of flood risk and sustainable water management; ii) the co-design of the Altovicentino Climate Adaptation Action Plan, involving the community of the Altovicentino in identifying the main challenges, setting common priorities and proposing concrete solutions; iii) the signature of a letter of intent by six Municipalities (Municipality of Carrè, Municipality of Zugliano, Municipality of Breganze, Municipality of Sarcedo, Municipality of Chiuppano and Municipality of Lugo) (Annex 16 - Municipalities Declaration of Intent), that expressed their intention of adopting the main points of the Climate Adaptation Action Plan into their SECAPs; iv) The Municipality of Santorso developed an Area programming Agreement (IPA) of the Altovicentino with Fondazione Festari, that is an entity recognized by Veneto Region for territorial development functions - the institutions that are part of this entity are 21 municipalities of the area, Unione Montana Pasubio Piccole Dolomiti, Category Associations, Coldiretti Vicenza, CNA Veneto Ovest - Confartigianato Vicenza- Ascom Confcommercio Vicenza - Confindustria Alto e Ovest Vicentino - Confesercenti Vicenza - ConfProfessioni Veneto - CISL Vicenza - Agritour - Associazione)

2. At the **national level**, the project has worked to strengthen the linkages with the **Italian Ministry of the Environment**, the **Italian Ministry for Ecological Transition** and **ISPRA** in order to give visibility to the achieved results and share the innovative methodology implemented by the project. The Ministry of Ecological Transition actively involved Life Beware in the “Mettiamoci in Riga” project, ISPRA not only disseminated the project’s best practices through its Gelso online magazine but actively participated to the activities, with the involvement of Martina Bussetini during the final event. This highlights how the project focus is perfectly aligned with the national priorities in terms of climate change adaptation strategies, giving a contribution in the field of water management and flood risk mitigation.

In addition to that the project created synergies with two Regions: Regione Friuli Venezia Giulia and Regione Abruzzo, and with Anci Veneto that supported the project’s application and disseminated its results.

3. At the **international level**, the project is building a strong network with municipalities, provinces and regions in Europe. Furthermore, it is contributing to the EU initiative of the **Covenant of Mayors**, the movement for local climate and energy actions by coordinating the process of elaboration of the SECAPs in the Altovicentino which will increase the impact of the project at the local level, being in line with the priorities set by the European Union in the implementation of the EU implementing EU climate and energy objectives.

6.4 Analysis of benefits

Environmental benefits

The interventions realized and promoted by the Project are NWRMs described in section 2.1 and deliverables. It is recognized that NWRMs are multi-functional measures that aim to protect and manage water resources and address water-related challenges by restoring or maintaining ecosystems as well as natural features using natural means and processes. As a consequence, they primarily focus on enhancing and preserving the water retention capacity of aquifers, soil, and ecosystems, but they also have the potential to provide multiple other benefits. These include the

water quality improvement and the improvement of habitats. As a consequence, also the BEWARE interventions are realized in order to provide this kind of benefits. Quantification of these known environmental benefits, for the BEWARE interventions, is carried out within the monitoring Actions D1 and D2 (details in section 2.1).

About the hydrologic-hydraulic function, the interventions realized during the project reduced the hydraulic risk on 28.85 ha within the municipalities of Santorso and Marano Vicentino (on average 2.885 ha per intervention).

The contribution of each intervention is detailed and compared with the expected values supposed at the beginning of the project and reported in the application form.

In the final stage of the project we observe a higher value of the surface flooding mitigation than those expected at the beginning of the project. This is due to the realisation of interventions that was not planned at the beginning of the project, and to the verification, through numerical modelling, that some of the interventions can extend their effect on a wider area than those preliminarily estimated.

Intervention	Expected surface water flooding mitigation (value supposed at the beginning of the project)	Estimated surface water flooding mitigation (value calculated at the end of the project based on the effectively realized interventions and with the support of the hydraulic simulations carried out within action D4.
	[ha]	[ha]
C3-1. Water basin at Giavenale locality	11.4	16.4
C4-1. Piazza della Libertà	2.00	2.00
C4-2. Collina del Grumo	0.12	0.8
C4-3: Via Volti	1.00	1.1

C4-4: Acquasaliente	0.45	0.5
C4-5: Via dei Prati	0.80	3.5
C4-6: scuola di Marano	0.7	0.7
1. Via Impastato	Intervention not planned at the beginning of the project	3.3
2. Via Giarette	Intervention not planned at the beginning of the project	0.5
3. Casa Custode	Intervention not planned at the beginning of the project	0.05
Total	16.5	28.85

Economic benefits

Among the benefits of NWRMs, also their positive economic impact is widely recognized. A quantification of the economic benefit of the solution promoted by the project is given in the Final report of Action D4. The analysis described in this report (details in section 2.1) points out that adopting diffuse small-scale interventions implemented by private citizens and local administrations may have important spillover benefits to cope with the effects of pluvial floods. Taken individually, it may seem that each NWRM has little impact; however, taken together, they represent important tools to runoff water management. Thus, expanding their implementations across the local population represents a crucial issue. The project's strategy will continue to have an impact thanks to the activities fielded in Action C2, which will also ensure that NWRM will be widely adopted in the Altovicentino region providing good economic impact on this geographic area.

Social benefits

From the social perspective, the Project is generating significant benefits in terms of knowledge generation and education targeting different groups of stakeholders:

- **Students and teachers** of the primary and secondary schools of Santorso, Marano Vicentino and other municipalities of the Altovicentino (e.g., Schio), by promoting

educational activities aiming at increasing the level of knowledge and awareness about climate change and flood risk mitigation (e.g., the BEWARE Kids University, educational activities for pupils, the dissemination of the BEWARE comic book, training offered to the teachers etc.).

- **Farmers, technicians and professionals** by the promotion of trainings and through a participatory process with the Italian Agricultural Associations aiming at reflecting about sustainable farm management practices and good water management in agriculture.
- **University Students**, by the realization of the course “Resilient communities to hydrogeological risk” within the Master “Manager of Sustainable Local Development” of the University of Padua which, starting from the good practices generated by the project, offers the opportunity to learn more about climate change, soil consumption and the effects on hydrogeological risk, but also, and above all, to discover the solutions that can be adopted to increase territorial resilience through an innovative eco-systemic approach.
- **Citizens**, by the promotion of a cycle of conferences with national and international experts addressing issues related to climate change effects, hydraulic risk prevention and the different Natural Water Retention Measures (NWRM) that can be implemented to best protect water resources; the organization of the School of Common Goods and several dissemination activities aimed at involving the local community in the process boosted by the Project; the development of a participatory process for the elaboration of the Altovicentino Climate Adaptation Plan.

The social benefits of the Project are reflected also in the positive effects on employment, having generated job opportunities as it is reported in the KPI analysis.

One of the main aims of the project is to develop wide dissemination activities in order to boost replicability initiatives on natural water retention, improve the knowledge of stakeholders about the adopted solutions, and act in the attitude of stakeholders. As described in section 2.1, with Actions D3 and D4 the knowledge, the awareness and the willingness to adopt NWRMs of stakeholders has been monitored through a questionnaire. At the end of the project, the share of respondents who do not know the NWRMs under consideration is generally low. Respondents consider most of the types of NWRMs effective in mitigating the effects of floods; in particular, for pervious pavements, bioretention systems, infiltration basins, and ponds and wetlands. In addition, 28.3% of respondents have already implemented some protective measures in the past. As expected, the number of respondents that have implemented those measures in the past increases largely when considering those directly affected by floods. With regard to the respondents’ willingness to adopt the NWRMs promoted by the BEWARE Project, as a mitigation measure against flood events, several factors can be considered as possible drivers. However, the most important one turned out to be knowledge of the BEWARE Project.

The willingness to adopt NWRMs in the future shows different patterns when comparing those who are familiar with the BEWARE Project and those who are not. Data shows that the knowledge of the project is positively associated with a larger willingness to adopt NWRMs. These results show the effectiveness of the BEWARE project information and dissemination activities in enhancing more proactive behaviours of local citizens in facing the pluvial flood risk. These results confirm the crucial role played by the information and demonstration activities in stimulating diffused and small-scale interventions to prevent pluvial flood damage.

The carried out analysis, described in the Final report of Action D4, stressed the key role played by information and dissemination activities in increasing the willingness of local citizens to adopt NWRMs, confirming the idea that the main barrier that hinders NWRMs implementation is not financial but rather linked to knowledge issues. More in general, acknowledging the existence of such a knowledge barrier points out the importance of the activities promoted by public institutions in order to increase people’s awareness. To this regard, public information provision should target not only private citizens, but also practitioners.

Replicability, transferability, cooperation

As explained in the description of the results of the replication efforts (in the above section), the replicability potential of the good practices generated by the Project is strong, especially as concerns the adoption of NWRMs in other geographic and territorial context, the implementation of effective public policies to adopt concrete strategies to increase territorial resilience to climate change, the activation of an inclusive participatory process involving different members of the local community and the production of catchy and creative dissemination material to be spread nationally and internationally.

Furthermore, the Consortium is working to ensure continuity to the process initiated by the Project and to boost its replicability and its multiplier effect.

The Strategic Plan that CB APV realized had the purpose of multiplying the intervention in Altovicentino area following the best practice of Life Beware water retention basin.

This intervention was included among the best practices in the [Manual For Environmental Management Of Water Courses](#) published by ANBI Veneto, which announced in July 2022 a new big investment to realize 223 retention basin with an increase of almost 435,000 hectares in irrigable areas throughout Italy, as written in the After Life Plan.

Moreover, [IPA Altovicentino](#) established a working group about “climate change and water infrastructures”, involving a broader public/private partnership, recognising that there is an urgent need for action, with an environmentally, economically and socially sustainable approach, to mitigate the effects of excessive weather phenomena related to the water cycle, and at the same time to ensure the availability of water which is necessary to guarantee essential productive and civil activities even during periods of reduced precipitations.

The Area Programming Agreements (IPA) are bodies recognised by the Veneto Region for territorial development functions. IPA Altovicentino is formed by 32 Municipalities of the territory and other 14 important institutional and private actors (i.e. trade associations).

In the final document of the above mentioned working group (Annex 15 - IPA Agreement), issued in May 2022, Life Beware was recognized, together with Life+Aquor, as best practice to be replicated in all IPA Area.

In details, we can read at point 6.5, related to sustainable rainwater management, that it speaks about the “extension of the positive results of the Life Beware project, implemented in the Municipalities of Santorso and Marano Vicentino, for the sustainable management of rainwater in new supra-municipal areas of the IPA area”. The approved document foresees the promotion of natural water retention measures and aid to public and private subjects for the collection and use of rainwater for non-drinking purposes (irrigation and domestic), but also trainings for professionals and the adoption of building regulations and territorial action plans by the Municipalities in order to support citizens who undertake works/constructions in the building sector aimed at collecting rainwater and reusing it and gradually releasing it into the ground.

Innovation and demonstration value

Although the adoption of NWRMs is widely implemented in several European countries, in Italy their role as relevant measures for climate change adaptation is still in a developing phase. The project innovation and demonstration value is mainly given by the promotion of the NWRMs for flood risk mitigation through the implementation of a participatory approach which is leading to the involvement of a wide variety of stakeholders, including the members of the local community of the Altovicentino. The success of the participatory strategy - which is demonstrated by the high level of citizens’ participation and by the interest shown by the local and international community – increases the innovative character of the project, boosting its potential replicability in other territories and countries. As a matter of facts, IPA Altovicentino recognizes Life Beware as best practice to be replicated in all IPA Altovicentino Area not only for its interventions, but also for the

importance of the participative processes in the interventions to be realized, promoting the involvement of citizens to the greatest possible extent.

International and national stakeholders have involved the BEWARE project in dissemination events with the specific objective of presenting the applied participatory methodology (e.g., EuroCultura, ACR+, LIFE UrbanProof project, REF - Euromed France Network etc.).

As regards the policy impact, the implementation of the participatory process is contributing to increase the level of concreteness of the Mayors Adapt Strategy, by including in the SECAPs of the Altovicentino municipalities the new norms of building codes regarding the water retention measures. These results are particularly significant and important for the project, since they contributed to translate into concrete actions the general approach and focus of the project. The project results demonstrated that participation is the key element to develop an effective and long-term process, able to show effective results, thus having a concrete impact on the involved territories.

7. Key Project-level Indicators

The inclusion of data into the KPI database webtool has been finalized and it is composed of 38 key indicators. The indicator values have been updated concurrently each monitoring visit (2020 and 2021) and at the final stage of the project. The values expected at the end of the project for those indicators grouped within the Compound context “Surface water flooding mitigation” and related with the realization of the interventions (Actions C3 and C4) has been achieved (Indicator codes 1.5, 1.6, 2.1, 9.2, 9.3, and 14.1), and in some cases exceeded (three unforeseen NWRM have been built during the project) as the direct consequence of the realization of all the planned interventions. The slight reduction in the capacity of the water retention basin (Action C3, detailed description in the Section 2.1) had no consequences in the values achieved by the indicators about the “Surface water flooding mitigation”. In fact, the basin is able to provide, anyhow, an effective action of flood mitigation as monitoring Actions proved (Action D1 – for details see the deliverable “Final monitoring report”). Within the Compound context “Surface water flooding mitigation”, the indicator 14.1 “Running cost/operating costs during the project” represents the total budget of the project including the expenditure not eligible for LIFE funding. The indicator 14.2.1 “Capital expenditure expected in case of continuation/replication/transfer after the project period” has been updated considering the new expected values at the indicator 9.3, and represents the capital expenditure expected both by the citizens involved in the group purchase program, and Municipalities which will realize interventions thanks to the Altovicentino Major Adapt strategy. Also indicator 14.3 has been updated considering the new expected numbers in 9.3 and a more accurate data about the cost for the interventions maintenance. Effectively it considers the after life planned operating costs that are: i) operating expenses for the maintenance of the realized public interventions after the end of the project and for the realization of the dissemination activities planned in the After Life Plan, and ii) operating expenses for the maintenance of the realized private interventions after the end of the project.

Below, values achieved by indicators within the Compound context “Local awareness rising” are singularly commented.

- *Persons concerned by the project independent of the project area* (1.6) refers to the number of individuals belonging to agencies signing the Memorandum of Understanding. The value foresaw at the end of the project (6300) was estimated based on the number of agencies involved in the project (sum of Private for profit, Public bodies and Other civil society organizations - indicators 10.2) and in the mean number of people belonging to an

- estimated from those agencies supporting the project from the beginning (45 support letters). Since the total number of agencies that signed the Memorandum of Understanding is actually greater than expected (93 than 90 expected), the number of individuals is consequently greater than 6300 expected and is equal to 6450.
- With regard to the *number of visitors to the project area* (1.6), the expected value at the end of the project (2500) has been exceeded (3398). Given the success of the educational activities and thanks to the activities foreseen in the After Life Plan, we expect to involve a similar number of students in the next few years.
 - *The number of residents in the project area* attending the general cultural panel of activities (1.6) has been achieved and exceeded (1853 rather than 1000 expected). Effectively, the participation to the conferences has been more than expected probably due to two reasons: i) at the beginning of the project, we underestimated the interest of citizens regarding the proposed themes; ii) the organization of the events has been excellent and the team has always worked with the goal to maximize the participation.
 - *The number of Municipalities* that will improve their local building codes was set equal to 2 at the end of the project considering the action of the Municipalities of Santorso and Marano Vicentino. The two Municipalities approved the regulations before the end of the project as expected. In addition the actions carried out in the final stage of the project ensure their approval in the territory of the Altovicentino.
 - As mentioned before, with regard to the three indicators 10.2, *the total number of agencies involved in the Community of Interest* (sum of the three indicators value) has been achieved (93 instead of 90 agencies). Nevertheless, their distribution among Private for profit, Public bodies and Other civil society organizations is not as expected. Effectively, we registered a wide participation from Public bodies and Other civil society organizations, while less subscriptions among private for profit. This is probably due to the fact that training and workshops in presence for practitioners have been realized only in the final stage of the project due to Covid-19.
 - All the indicators measuring *the website effectiveness* (11.1) reached and exceeded the expected values at the end of the project.
 - The number of *cultural activities* promoted by the project (11.2) expected at the end of the project has been achieved.
 - About the *Print media* (11.2), the number of prints foresaw at the end of the project (29000) has not been achieved (20250). Because of the pandemic situation, we decided to reduce the number of prints according to the reduction of the live events, and to boost the on-line dissemination of the material.
 - *The number of people contacting the Help Desk* (11.2) has already exceeded the expected result (177 people rather than the 30 expected at the end of the project). Probably in the project elaboration phase both the interest of people about the proposed interventions and the effectiveness of the dissemination actions has been underestimated.
 - *The number of publications/reports* (11.2) has been exceeded. Before the end of the project we published 3 scientific papers on international journals, 2 divulgative articles on national magazines, and the Solution Manual. After the end of the project we expect to publish at least 2 other scientific papers: one about the data analysis of the data obtained by the hydrological monitoring action, and one about the benefit and cost analysis of NWRM.
 - With regard to the *Displayed information* (11.2), the number of signboards has been achieved. 2 additional signboards has been realized rather than the number hypothesized at the beginning of the project.
 - The number of *promotional videos* (11.2) realized before the end of the project was set equal to 2 because we expected to realize one promotional video and one documentary video describing the actions carried out by the BEWARE project. The promotional video has been realized at the beginning of the project, while the documentary video has been realized in the last phases of the project. Rather than expected, additional videos have been realized (12 videos in total) due to the fact that some of the didactical and formative events have been moved on-line due to the Covid-19 situation.

- Indicator 11.3 measures the *number of Municipalities of the Altovicentino area* in which questionnaires about knowledge and awareness of the administrators will be collected. It was set equal to the 30 % of the administrations of the Altovicentino (10 Municipalities). We reached the value of 11 administrations.
- The *number of technicians involved in the EU workshops and EU training module* has been exceeded (226 rather than 40). The final value include 44 registered participants of the Skill Session organized in the Context of the TNOC (The Nature of Cities Festival), 138 views of the Nature Based Solutions Training published on the Youtube channel of the project, 32 people attending the trainings organized in Santorso in June 2022, and 12 people attending the training organized in July 2022 at the University of Padova (Agrispolis Campus).
- The *number of subscribers to the BEWARE newsletter* (12.1) exceeds the expected value at the end of the project (804 rather than 500) thanks to excellent networking activities fielded primarily by ALDA but also by other partners.
- The *number of individuals involved in the conferences' cycle* of Action C.1 (12.2) is almost doubled. The reasons have been analyzed in the previous indicator 1.6.
- A description of the indicator 12.2 about the *number of pupils attending the specific educational activities* is resumed in the explanation of the previous indicator 1.6.
- The *number of professionals* involved in training action (Action E.3) has been exceeded (582 rather than 100). They include 185 participants to webinars, 353 views of the webinar recordings, 44 participants to the trainings held in presence in Santorso and Agrispolis Campus. Due to Covid-19, we worked more than expected on on-line formative activities which allowed us to reach a wider audience.

8. Comments on the financial report

8.1 Summary of Costs Incurred

Table 8. Project Costs Incurred

PROJECT COSTS INCURRED			
Cost category	Budget according to the grant agreement in € *	Costs incurred within the reporting period in €	%**
1. Personnel	1.248.908,00	1.178.367,46	94.35%
2. Travel and subsistence	28.406,00	8.340,76	29.36%
3. External assistance	214.016,00	285.359,24	133.34%
4. Durables goods: total <u>non-depreciated</u> cost			
- <i>Infrastructure sub tot.</i>	148.851,00	31.079,34	20.88%
- <i>Equipment sub-tot.</i>	24.100,00	11.637,94	48.29%
- <i>Prototype sub-tot.</i>	N/A	N/A	N/A
5. Consumables	85.436,00	80.937,68	94.73%
6. Other costs	224.700,00	223.799,63	99.60%
7. Overheads	129.547,00	127.365,78	98.32%
TOTAL	2.103.964,00	1.946.887,83	92.53%

*) If the Agency has officially approved a budget modification through an amendment, indicate the breakdown of the revised budget. Otherwise this should be the budget in the original grant agreement.

***) Calculate the percentages by budget lines: e.g., the % of the budgeted personnel costs that were actually incurred

Notes about discrepancies prepared by the partners:

SANTORSO MUNICIPALITY

Budget item correction

The budget erroneously provides for personnel costs in C3 (where Santorso is not working), which are to be understood as C4, action in which these costs are reported.

Shift from “direct personnel costs - additional personnel” to “external assistance”, Action F1 (€ 13140), E1 and C6 (€ 10950)

The use of additional personnel was envisaged during the project design and submission phase, but the difficulties encountered in using contractual forms that would allow this convinced the organization to declare these expenses under “external assistance”. However, the budget (euro 10950) is used to carry out the same activities for which it was initially foreseen, only the item of expenditure under which it is reported changes.

Shift from “direct personnel costs” to “external assistance”, action F1, and to “other direct costs”
The additional persons hired as project manager worked till January 2021 and Santorso decided to move the remaining budget (59800 euros) to an external agency that has the expertise in the project management and in the financial management. This decision ensures the smooth and efficient management of the BEWARE project.

Moreover, a small increase of the other direct costs budget is possible because of some leftover from the travel costs and again from the personnel costs.

Expenditure not budgeted for due to the unforeseen need for archaeological assistance of 1.122,40 euros in “external assistance”, action C4

The archaeological assistance has been requested by the Soprintendenza Archeologia, Belle Arti e Paesaggio for the provinces of Verona, Rovigo and Vicenza with opinion prot. 13911 of 6/6/2019 for the excavations to be carried out in the framework of the works for the implementation of intervention no. 2 (Series of infiltration trenches) of action C4. The amount of € 1122.40 has been reported in the cost category “external assistance”.

Unbudgeted expenditure “external assistance”, action C1

The project budget did not foresee resources to cover the expenses for the organization of some fundamental activities foreseen by action C1, such as the conference cycle, the *School of common goods* and the *Altovicentino land of water and resilient-community* festival activity, therefore no resources have been foreseen to cover the transport, board and lodging expenses of the speakers and for the payment of the speeches of some of them. The difference was covered by CAMSAN using 10.000,00 euros (other costs) saved from the COMSAN budget line "10 audio-video tracks for bluetooth beacons", Action E1. This change was communicated and approved by CINEA project advisor.

ALDA

Increment of the “other direct costs”

For what regards the “other direct costs”, for the *Action E2.3.5 Comic for Students* a budget remodulation regarding the comics realization has been proposed. In the Project budget, the partners in charge of the comics book realization are ALDA and Veneto Agricoltura. ALDA has been assigned with 2000 euros and Veneto Agricoltura with 5000 euros. The project itself presents a certain ambiguity with regard to the need to produce 1 or 2 comics. Since the target audience also seems to be the same ("comics for school" and "comics for students"), the partnership opted for the solution of producing a single comic of greater length (cumulatively that of 2 comics) and of higher quality than the level of quality that would have resulted from the production of 2 comics.

To optimize resources and to ensure consistency in the final product realization, the action has been realized by ALDA, given its higher experience in the field of dissemination and communication materials. Therefore, the partners considered it useful to transfer the Veneto Agricoltura budget (5000 euros) to ALDA, who oversaw the whole activity, disposing of the full budget for its realization. The possibility has been discussed during a session of the project steering committee and both partners agreed, therefore the activity was carried out as per the project, only by a single

entity instead of divided in two parts. The overall budget and the total contribution requested would be unchanged, but having a different distribution of costs between partners, there would be a change in the share of EU contribution for ALDA and VA, and in the respective shares of co-financing.

At the end, ALDA spent a total sum of 9928,36 euros for the realization and the printing of the comic, since there was a need for modification that incremented the initial proposal. The additional expenditures have been covered by some leftovers from the travel costs.

Higher costs International Event

Due to the COVID-19 emergency, ALDA encountered difficulties in organizing the international event initially planned in Brussels in presence. Thus the initiative was held online through the active participation of the Life BEWARE project in "The Nature of Cities Festival" (<https://tnoc-festival.com/wp/>). Due to the high dissemination power of the Festival - it counts around 2000 participants per year, ALDA decided to increase the budget line of the event, from 1500 Eur to 8000, taking this resource from savings in "E3-other costs". This way ALDA could actively participate with two workshops, a translation service, an exhibitor booth and a microtalk.

Personnel costs

It was reported a higher personnel costs for the project coordinator, namely Marco Boaria, during the first year of the project. The reason for the higher amount of the project coordinator is due to the fact that another person was initially expected to cover this role, but he ceased working with ALDA in October 2017, and Mr. Boaria took over that role, but he has indeed a higher cost.

In 2022 the activities of the project required a higher staff commitment than expected, due to the organization of the final event and the training that were held in presence. Thus there was a budget shift of 16.156,06 from Travels, External Assistance, and Other Direct Costs.

CONSORZIO DI BONIFICA ALTA PIANURA VENETA

As declared in the mid-term report, at 31/12/2020 the total budget budgeted by the Consortium for the Project has been reached with its own Assembly resolution no. 17 of 29/10/2018; as a result of this and in light of the Convention signed between the Consortium, the Municipality of Marano and the owners, all activities carried out by the Consortium Staff within the BEWARE Project (in particular in the figure of the technical and financial referent Eng. Laura Di Prima) in the year 2021 and subsequent year have been carried out free of charge without charging expenses to the Project.

Shift from "external assistance" (action C3) to "direct personnel costs"

Regarding the works related to action C3, there have been some deviations for "personnel costs" and "external assistance" compared to the budgeted amounts, however there has not been an overrun of the total budget provided for the APV Consortium (€ 116,417): the costs sustained for personnel expenses amount to € 73,433.09 against the € 44,160.00 initially budgeted. This increase is due to the employment of another team of workers (head workers with the task of expert excavator + 3 qualified workers, as reported in the communication to the Coordinator Municipality of Santorso prot. no. 9128 of 29/08/2019) for the execution of the works initially charged in external assistance under the item "landfill allowance" (€ 26,645.00) and other works to complete the action.

The environmental investigations carried out during the design phase on the soil to be moved (compulsory under current legislation) showed that it could be reused on site. Consequently, it was not necessary to resort to an external company for the transport and landfill transfer of the excavated soil (which would have entailed much higher costs than those budgeted given all the new

legislation on the subject of "Excavated Earth and Rocks" in Presidential Decree 120 of June 13, 2017). The money saved from the external assistance item was therefore spent by proceeding directly with qualified workers internally employed in order to assign them to the movement of soil for the agricultural and hydraulic arrangement of the area closely related to the work carried out. The use of an external company for this activity would have involved, in addition to higher costs, also problems related to site safety with the consequent need to employ additional technical figures.

Personnel costs

For some persons the hourly costs, and consequently the daily costs, of personnel are higher than those indicated in the project financial form:

- Rossi Ivano (team leader n. 1), daily cost € 254.79 instead of € 240.00 (+ 6.16%) · Stefano Saugo, daily cost € 229.77 instead of € 200 (+ 14.89%)
- Gobbo Giorgio, daily cost € 214.38 instead of € 200 (+ 7.19%)
- Romeo Dall'Igna (team leader n. 2), daily cost € 263.35 instead of € 240 (+ 9.73%)
- Laura Di Prima - starting from 2020 - daily cost € 279.22 instead of € 240 (+ 16.25%). The increase in hourly staffing costs is due to natural annual salary increases and seniority steps that have occurred from the date of Project submission (2017) to the current year but it is still below 20%.

Budget item correction

Among the costs of external assistance, a budget item initially not foreseen has been included, namely the topographer who did the processing and field tracing of the basin perimeter, which is an essential service to know where to dig. It could not be done by the partner because in Thiene working area it does not have the necessary instruments (fixed and mobile GPS station) and the colleagues of the other locations were already engaged in other site activities, although having the appropriate instrumentation. The topographer is the same one appointed by the Municipality of Marano Vicentino that was responsible for the marking of the borders of the intervention area, surveyed during the design phase, and therefore could perfectly link the perimeter to be drawn in the field with the survey already done for Marano.

COMMAR - MARANO VICENTINO MUNICIPALITY

Transfers from "personnel" and other items to "external assistance" amounting to 28600 euros.

From 2020 and for the final part of the project, the Municipality of Marano Vicentino decided to rely on external assistance, in particular for the implementation of C1 and F1 activities.

As a matter of fact, it was assessed that the internal resources of the municipal structure alone would not have been sufficient to implement the activities effectively, especially due to the general reorganization for the adaptation to the national regulations against the spread of Covid-19 and, consequently, to the need for more professionalism. In the phase of elaboration and submission of the project it was hypothesized to use additional personnel, but the difficulties encountered in using contractual forms that would allow it, brought to the use of "external assistance".

The cost of these external services, which was not originally foreseen, was covered by lower personnel costs in the same action, and by some economies recorded in the additional items: personnel in the amount of more than €21,600 (as this value is intended to cover professionals), travel and subsistence in the amount of €3,700 (economies due to the impossibility of spending this budget due to the Covid-19 pandemic), infrastructure in the amount of €2050, consumables in the amount of €1,700 and €7,700 in Other Costs, mainly, but not exclusively, from actions C2, C3 and C6.

Shift of 2000 euros from the "consumables" category to the "infrastructure costs" This shift is justified by the needs related to the realization of the intervention C4.6, where, differently from what was initially imagined, there will be no need for expenses for "fuel for machineries (bulldozers, trucks), which instead will be moved to "infrastructure" for higher costs of

implementation of the work.

The following are other variations, which did not entail a substantial change to the project activities and products, but only changes within the cost structure:

- Action C1: in this action, as mentioned above, more than €17,000 has been allocated for external assistance expenses for the coordination of project activities. In addition, there is an increase in Other Costs (in addition to those previously mentioned for professionals) due to the organization of the Festival 'The shape of water. Territories, Resilience, Communities'. No project budget was allocated to the Festival, included among the milestones as 'Altovicentino land of water and resilient-community Festival'. The Municipality of Marano Vicentino incurred an expense of €10,383 for the realization of the event: this expense was entirely covered by some shifts between actions, recovering budget surpluses from activities already carried out and completed in previous years.

- Actions C4 and F1: Not foreseen external staff were activated to support the municipality's staff with regard to the coordination of the municipality's financial activities (F1) and work coordination (C4). There was also an increase in personnel costs due to the need to follow up additional actions as follows;

- Action C4: there is an increase in Other Costs, which were not originally included. During 2021, the intervention at the Marano Vicentino Primary School was heavily damaged with the uprooting of the shrubs located in the two courtyard flowerbeds. Given the lack of resources within the municipal structure, and with the aim of restoring the area as best as possible, it was decided to entrust 'Vivai Fr.lli Zanella srl', based in Malo (VI), with both the supply of plants and material, and the execution of the work. The expenditure incurred totalled €4,026;

- Actions E1 and E3: there was greater use of External, but less personnel (as for action C1). This increase in expenditure is due to specialized support provided to the municipality of Marano with regard to the coordination of communication activities. It was necessary to increase the budget for expenses related to educational activities by providing a transport service to some classes from the Province of Vicenza. This amounted to €4,725, taken from the item "Accommodation and board for other people for replicability activities in Santorso": this shift was also possible thanks to a reshaping of the training proposal for professionals, in light of the pandemic situation.

Lastly, we consider it relevant to point out that in the partnership, in view of the need to meet certain expenses deemed extremely necessary (such as covering the costs of external assistance, re-establishing the intervention at the Marano Vicentino Primary School, and allowing school students to take advantage of a more appropriate educational activity given the pandemic situation), the following was decided

- Action C6: the Municipality of Marano Vicentino, which would be responsible for the printing costs of the Solution Manual (€10,000) in paper format, considered it as a cost saving, since the Solution Manual was produced, published and disseminated in digital format only;
- Action E3: accommodation and board costs related to trainings for professionals (€4,800) were remodeled according to actual needs and the pandemic situation.

Notes about the employee Meri Ballico:

COMMAR signed with the Municipality of Cogollo del Cengio an agreement for the part-time employment (11 hours per week) of the employee Meri Ballico, as from 02.10.2017. COMMAR monthly paid the entire remuneration to the employee and periodically requested the due reimbursement to the Municipality of Cogollo del Cengio. The Agreement ended on 30.06.2019.

TESAF – UNIPD

Displacement of euro 1000 from the category “other direct costs” to “consumables” This move is necessary to meet some expenses incurred in 2019 (about 500 euros for materials such as pipes, sockets, etc.). The purchases concern consumables necessary for the installation of the monitoring

equipment and the carrying out of the calibration tests of the instruments (description in the First annual monitoring report - Action D1). This expense was not foreseen in the budget, but it is essential for the proper functioning of the equipment and a proper installation and maintenance.

Movements for the realization of the information kit (action E1) and "Information panels and notice boards to create an educational path through the SUDS structures already present in the Agripolis Campus"

The budget didn't foresee resources for the realization of the information kit to support the help desk foreseen by the action E1. Given the centrality of this action for the achievement of project objectives, it was decided to produce technical brochures anyway. For reasons of greater competence, the content and graphics was handled by the partner TESAF, which has spent € 2,000.00, while the printing was borne by COMSAN, which included the service within a tender that already provides for the printing of various promotional material.

The expenditure of € 2,000.00 is reported by TESAF in the action concerned (E1) and was covered with the resources allocated from the budget of TESAF in action E3, Other Costs category - cost item "Information panels and notice boards to create an educational path through the SUDS structures already present in the Agripolis Campus". The panel/notice boards couldn't be realized in Agripolis - Padova because during these years it was decided by TESAF to renovate the interventions. For this reason, if realized, the panel would have soon become unusable and would be removed from the place it was thought to locate them.

The above steps didn't involve either a shift between cost categories or a transfer of resources between partners.

The above steps will not involve either a shift between cost categories or a transfer of resources between partners

Unbudgeted travel expenses - Action F1

In the project budget there are no resources to cover travel for action F1 (kick off meeting, monitoring visits, coordination meeting). The total expense is 284,72 and was covered using some savings.

Personnel

Please note, that the total 1720 annual hours of for Prof. D'Agostino in 2019 are real, not a standard number. That year he took more vacation or absences than later years.

Moreover, Francesco Betella was hired for the project on a fixed-term research contract so that the costs are similar for 2020 and 2021 and 2022. For 2022 the 2021 costs were used as the year was not completed, as done for all other employees.

VENETO AGRICOLTURA

Higher cost in "equipment" category: euros 4,076.02 vs. euros 1,500.00

The actual cost of the webcams required for the C3 activity was almost triple that assumed in the budget phase.

The cost originally foreseen referred only to the purchase of the webcams, for which we thought of a connection system, both for the power supply and for the data transmission, via cable, at the nearby private houses; however, such a solution would have involved an agreement with the respective owners regulated by a contract and relative fee, as well as the difficulty to separate the expenses due to the use of webcams from the other costs of domestic use. So we opted for the installation of totally autonomous webcams, that are equipped with a photovoltaic panel and an accumulator of the current produced, so as to allow the power supply of the webcams even with a succession of cloudy days and during the night. Finally, for the transmission of data we thought of a mobile phone system with the use of special SIM cards.

Decrease of the other direct costs

For what regards the other direct costs, for the actions *E2 Comic for Students* and *E1 Comic for School* a budget remodulation regarding the comics realization has been proposed. In the Project budget, the partners in charge of the comics book realization are ALDA and Veneto Agricoltura. ALDA has been assigned with 2000 euros and Veneto Agricoltura with 5.000 euros. The partnership opted for the solution of producing a single comic of greater length (cumulatively that of 2 comics) and of higher quality than the level of quality that would have resulted from the production of 2 comics.

To optimize resources and to ensure consistency in the final product realization, the action has been realized by ALDA only, given its higher experience in the field of production of communication materials. Therefore, the partners considered it useful to transfer the Veneto Agricoltura budget (5000 euros) to ALDA, who oversaw the whole activity, disposing of the full budget for its realization. Both partners agreed during a session of the project steering committee.

Different personnel costs for the actions C3 and C4

Activity C3 required a significantly higher staff commitment than expected (euros 12,982.14 instead of the initially estimated 3,484.00). Conversely, the C4 action required less staff costs - euros 4010.24 instead of euros 16359.00 - with the two items overall offsetting each other. Below is a detailed explanation for the different costs incurred:

- *Action C3*: at the Giavenale reservoir, in the municipality of Schio, more plants were planted than envisaged in the project, since at the time of construction, with the reservoir already built, it was considered appropriate to cover more surface area than had been planned in advance; in addition, the relevant planting was carried out by Veneto Agricoltura workers;

- *Action C4*: In the municipality of Santorso, the number of plants produced by VA for the Via Volti basin and two other sites is less than that foreseen in the project. This is due to choices made by the planner who considered it appropriate to use, at the Via Volti reservoir, many different species than those produced by VA, both for aesthetic and functional reasons, and chose to plant plants already of a certain size, i.e., able to produce a ready effect, while VA produces only seedlings in a 1-2 year old pot of soil, which would therefore take a few years to reach the same size, during which time they would suffer the competition of herbaceous vegetation. At this site, planting was done with labor not from Veneto Agricoltura.

Increased personnel costs in Action E1

These costs are due to the fact that VA gave support to promotion activities of project communication products (i.e. the comic book) and cooperation and consultation tables with farmers associations (C5).

Personnel

Please note that regarding Francesco Correale, 8 hours are indicated each day of attendance, it is a coincidence that the 2019 total of 1744 coincides with the 2021 total.

8.2 Accounting system

Include among other aspects:

- Brief presentation of the accounting system(s) employed and the code(s) identifying the project costs in the analytical accounting system
- Brief presentation of the procedure of approving costs
- Type of time recording system used, i.e. electronic or manually completed timesheets
- Brief presentation of the registration, submission and approval procedure/routines of the time registration system
- Brief explanation on how it is ensured that invoices contain a clear reference to the LIFE project showing how invoices are marked in order to show the link to the LIFE project

SANTORSO MUNICIPALITY

Accounting system

With respect to the LIFE Beware project, the Municipality had defined a specific code, in order to easily identify the expenses related to the project as well as the foreseen expenditures. The administrative and accounting transaction is identified through the name of the project, the CUP code (Unique Project Code) E26F18000040002, specifically provided for the project, the related budget line.

Procedure for approving costs and procurement selection

Registration and approval routines of the registration system

Costs are included in the budget chapters that are approved by the Municipality, which has designed a plan about the different budget line costs and the times when the payment is due. Travel and subsistence costs are normally reimbursed on an analytical basis, following the authorization by the legal representative (the mayor or the director of the General Affairs Office), following the regulations implemented within the Municipality.

Being a public body, Santorso has to provide the public evidence procedure when an external supplier is needed: it is asked to use the MEPA system in case of relevant expenses, for lower costs it can also ask for multiple bids and then proceed with the approval of the best proposal in term of costs-benefits or in some specific cases it can decide to directly select a supplier (this is done for equipment, infrastructures, consumables, external assistance and other direct costs).

Time registration system

The timesheets are completed by the staff on a daily basis and checked monthly by the responsible of the General Affairs Office.

The working hours are recorded through the use of a personal badge that each employee uses when entering and leaving the office.

Reference to the project on invoices

Each electronic invoice is clearly marked with the project name and number: Project LIFE17 GIC/IT/000091 - BEWARE.

ALDA

Accounting system

We use a programme called File maker for the financial management of projects and for accountancy. We have a code for each project. Each cost is recorded one single time on the corresponding project code, namely for the LIFE BEWARE project the assigned code is 643.

Procedure for approving costs and procurement selection

Registration and approval routines of the registration system

Expenses are foreseen in each project's budget and supervised by the Project Manager. For expenses over € 2500 we ask for 3 quotations. Proposed quotations are annexed to the invoice. In case of travel and subsistence costs, there are two different procedures: when the person anticipates the payment, a reimbursement request is filled with the details of the payments, suppliers, place and dates, references to the project and its activities, then the administration office checks the request and proceeds with the reimbursement to the person. As a second option, for travel and accommodation costs, the ALDA logistics officer firstly analyzed the options and then, after the Secretary General approval, he/she pays and collects the invoices/tickets to register them as project expenses. All the expenses are registered based on the number of the specific project already assigned within the accounting system.

Invoices are checked by PM Valeria Fantini (Previously the project manager was Marta Arosio,

until 09/2021) and Head of Finances Elisabetta Pinamonti (previously the financial responsible was Barbara Elia), who ensure that the expenditures are relevant to the project.

Secretary General – Antonella Valmorbida - authorizes any payment order.

Time registration system

ALDA personnel is used to complete manually timesheets within the File maker system, timesheets are completed by the staff on a daily basis and checked monthly by the SG Antonella Valmorbida. Later, the timesheets are scanned and saved both in the hard copies archive in the financial office of ALDA and in the online archive.

Reference to the project on invoices

The expenses are registered based on the number of the specific project already assigned, in particular for LIFE projects; any related invoice, when the supplier does not indicate the complete reference number, is marked by a stamp with name and number of the project, especially created for this purpose.

CONSORZIO DI BONIFICA ALTA PIANURA VENETA

Accounting system

The accounting system used by the Accounting Office for expenditure flows is called ONO. All costs and expenses related to the BEWARE Project are charged to two distinct chapters and relative allocations:

- Cap. 245 Allocation 4767 for the 60% share,
- Cap. 250 Allocation 4768 for the 40% share.

Therefore, for an expenditure of 100: 60 is charged to assignment 4767 and 40 to assignment 4768.

Procedure for approving costs and procurement selection

In the acquisition of materials for the Project (consumables), and services (external assistance) the contractors are identified through the acquisition procedures provided for in the Contracts Code (Legislative Decree 50/2016 and subsequent amendments and additions) with the methods indicated in the financial reporting. By means of a Managerial Determination the final awarding is carried out and the expenditure is charged to the above-mentioned allocations, then it is followed by a contract with a commercial letter of assignment. Following the supply of the material (certified by the Transport Document) and the service provided and consequent transmission of the relative invoice by the contractor, the payment of the amount due is carried out through the ONO system. Payment is made by the RUP. Once the liquidation has been carried out, the Accounting Office proceeds with the issue of the mandate for payment and transmission to the bank for payment by bank transfer with the issue of the relative receipt.

Registration and approval routines of the registration system

Recording of time worked, overtime, leave and vacation is done electronically through the official management system - *Ufficio Web* portal.

Time registration system

The timesheets are manually completed and then signed by both the person and the Area Manager:

- For blue-collar personnel, the hours charged to the Project are accounted for on the basis of daily reports of activities carried out completed by the same personnel and provided to the Maintenance Office, which verifies their regularity;
- For office workers, the hours allocated to the Project are identified directly by the person who signs the timesheets.

- For office workers, the hours attributed to the Project are identified directly by the person who signs the timesheets, and then scanned in PDF format with subsequent filling in both paper and digital format.

It should be noted that labour personnel worked on the Project in the 2019 year only from June through September. In the months in which such personnel did not perform any activity in the Project, signed timesheets are provided with the caption "Zero hours worked in the LIFE BEWARE Project".

Reference to the project on invoices

Each electronic invoice is clearly marked with the project name, number and eventually the concerning activity: Project LIFE17 GIC/IT/000091 - BEWARE. ACTION C3.

MARANO VICENTINO MUNICIPALITY

Accounting system

A "Centro di Costo nr. 19" defined "Life Beware" has been created. It identifies all the chapters (items of minimum detail) both of income and of expense in order to be able to extract and monitor them all at the same time with a "statistic" from mechanographic system.

Procedure for approving costs and procurement selection

Registration and approval routines of the registration system

Costs are included in the budget chapters that, in its entirety, are approved by the Municipality Council (as was the whole agreement and the project) and detailed in the PEG (Piano esecutivo di gestione/Executive management plan, approved by the Municipality Giunta, which defines budgets and objectives of each sector of the institution). Then the expenses are realized from the person responsible of the service that with own acts (determines) establishes like to carry out the expense inside of the actions of the plan or, if necessary, after an "act of direction" of the Giunta if there are margins of discretion.

Time registration system

The timetable made by each employee is recorded through the stamping of the card in the program "portale del personale/staff portal" which records every variation and the reasons for overtime, absences etc. The software (from the company Halley that also provides the accounting application) implies the on-line request and the on-line authorization of any change to the schedule.

Reference to the project on invoices

Normally it is reported the wording "Life beware" on the spending commitment that the invoices recall in order to commit the liquidation, or the same description of the supplied good clarifies it; if absent it is placed a stamp on the invoice.

TESAF – UNIVERSITY OF PADUA

Accounting system

Since 2015, UNIPD accountancy has been running through U-GOV, an integrated information system designed uniquely for Higher Education Institutions, which allows specific traceability of every registered project thanks to a univocal code.

With respect to the LIFE Beware project, any administrative and/or accounting transaction is identified through two codes: D_AG_UERI18_01 given by the accounting system and the CUP code (Codice Unico di Progetto – Unique Project Code) E26F18000040002, specifically provided for the project.

Procedure for approving costs and procurement selection

Travel and subsistence costs are normally reimbursed on analytical basis, prior to the authorization

by the legal representative (i.e. the director of the department) upon presentation of the "Foglio/Modulo missione", according to the specific Unipd regulation "Regolamento Missioni" (Rectoral Decree n° 213/2018 – Prot. N° 1699/2018).

Being a public law body, UNIPD has to comply to the public evidence procedure (see "Disposizioni operative per affidamenti di beni e servizi" for reference), followed by the validation of the Director and the Administrative officer of the Department of Land, Environment, Agriculture and Forestry (TESAF).

It is mandatory to use the MEPA system (Electronic Market for the Public Administration) in case of a purchase higher than 5K.

References: National Decree Law DL 18/04/2016 nr. 50 – Unipd internal regulations prot. 277319 - 28//07/2017

Registration and approval routines of the registration system

Unipd IT Service developed an internal online registration system (Apex –protected by login and password) in order to register hours especially dedicated to National and EU projects. This allowed both Academic and Administrative Staff involved in various projects to electronically register effective worked hours. Every month, timesheets are printed, signed and stamped by the staff member and the supervisor.

Unipd timesheet's templates have been considered in line with the LIFE requirement by EASME.

Time registration system

At University level, Academic Staff and Researchers do not register any presence in compliance with their national job contracts. They do not have any constraint in relation to the numbers of working hours due per year, except for the obligation dealing with the teaching activities (350 hours per year, at least).

Reference to the project on invoices

Every document related to the project (estimate, order, invoice, payment etc.) reports the LIFE project number, CUP and CIG codes.

In case they are not indicated, an official stamp is used.

AGENZIA VENETA PER L'INNOVAZIONE DEL SETTORE PRIMARIO (VENETO AGRICOLTURA)

Accounting system

Veneto Agricoltura has set up the following administrative-accounting management system. Expenditure allocations for the implementation of a specific project are coded in the Veneto Agricoltura budget with a "Work Code" for the unambiguous identification of the project, and a Cost Centre for the identification of the structures in charge of carrying out the activities and assigned of the related financial resources, according to the current organization of the Agency. Within the "Work Code", revenues and expenses are divided by chapter.

In the specific case, expenses and revenues for the Life BEWARE project are identified with the "Work Code 4254".

Procedure for approving costs and procurement selection

Registration and approval routines of the registration system

The Veneto Agency for Innovation in the Primary Sector - Veneto Agricoltura, by Order of the Extraordinary Commissioner (DCS) no. 129 of 30.06.2020, has adopted Regulations for the acquisition of works, services and supplies below the EU threshold. These Regulations constitute the internal discipline of reference whose prescriptions are to be coordinated with the "Simplification Decree" (Circular Sec. Amm 22575 of 14/10/2020).

According to the provisions of the Regulations, the steps for the identification of a subcontractor can be summarized as follows:

1. The procedure is initiated by an act of the Director of this Agency which identifies: the Single Manager of the Procedure and authorizes the one to contract. For contracts of less than € 40000, the authorization to contract can be issued with the act of approval of the Executive Management Plan (PEG);
2. Subsequently, one or more companies, depending on the value of the contract, are asked to submit an estimate. The choice of the economic operators to whom to ask to submit an offer is made on the basis of information taken from the market, internet search engines, publication of notices on the website of this Agency;
3. The awarding of the contract to the highest bidder and the commitment of expenses takes place by means of a Determination of award and commitment for assignments of less than € 40000. For assignments equal to or greater than € 40000, the commitment of expenditure is formalized by Disposition of the Legal Representative or, if delegated by the latter, by Decree of the Director of Section.
4. Following approval of the deed of commitment of expenditure, the contract is stipulated.

Time registration system

Timesheets are manually processed by the employee, signed by the employee and manager, scanned and filled in the project computer file.

The hours of Veneto Agricoltura employees are recorded by means of a personal badge that each employee uses when entering and leaving one of the Veneto Agricoltura offices or, in the case of an employee authorized to work in Smart Working mode, by automatic recording of working hours.

Reference to the project on invoices

Any signed contract for the procurement of services, supplies or works to be carried out under the project LIFE BEWARE contains clear indications to which the contractor must comply for the invoicing. Specifically, the following wording is included in the contract: "... the electronic invoice must contain the following references 'LIFE BEWARE - Cod LIFE17 GIC/IT/000091'".

8.3 Partnership arrangements

Santorso Municipality, as lead partner, transferred to the beneficiaries the financial funding in September 2018 and November 2021, as soon as it received the first and second installment from the EU. The Partnership Agreement, signed on 7th June 2018, contains all the instructions for project management and reporting.

Financial and administrative reporting, in compliance with the guidelines, is shared between the coordinating partner and beneficiaries on a three months basis. The partners committed to keep the hard copy of the reporting and accounting documentation in their archive and also to have a scanned copy sent through mails and discuss during online calls and face-to-face meetings with the coordinating partner and its Project Manager. Since the beginning of the project in September 2018 all administrative and financial documents are uploaded on the shared drive made available by Santorso Municipality. The partners implement their own financial reports and then the lead partner prepares the consolidated financial statement collecting the information about the expenses of each partner and sharing with them the final version of the document to have a double check.

8.4 Certificate on the financial statement

Not applicable.

8.5 Estimation of person-days used per action

Table 9. Estimation of person-days used per action

Action type	Budgeted person days	Estimated % of person-days spent
All projects when applicable Action A: Preparatory actions		
NAT and CLIMA projects Action B: Purchase/lease of land and/or compensation payment for payment rights		
ENV projects Action B: Implementation actions		
GIE projects Action B: Core actions		
NAT projects Action C – Concrete conservation actions		
CLIMA projects Action C: Implementation actions	4.612,95	108,21%
ENV and GIE projects Action C: Monitoring of the impact of the project action		
NAT and CLIMA projects Action D: Monitoring and impact assessment	1.808,44	130,48%
ENV and GIE projects Action D: Public awareness/Communication and dissemination of results		
NAT and CLIMA projects Action E: Communication and Dissemination of results	2.188,82	125,87%
ENV and GIE projects Action E: Project management		
NAT and CLIMA projects Action F: Project management (and progress)	1.303,10	79,51%
TOTAL	9.913,31	109,82%