RESILOC

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D5.5 – Field Trial Execution and Guidelines

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Abstract

Deliverable D5.5 “Field Trial Execution and Guidelines” presents the work of Task 5.3 “Field Trial Execution” of WP5 “Communities involvement and field trials”. It describes the execution of the four trials that took place in four sites, Catania, Gorizia, Tetovo and West Achaia. The trial execution was a challenging task, however all trials were successfully executed.

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II. Document History

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VI. List of Acronyms

Acronym	Meaning
DIP	Dimension Indicator Proxy
EASW	European Awareness Scenario Workshop
LRT	Local Resilience Team
NGO	Non-Government Organisation
PPP	Public-Private Partnerships
TMT	Trial Management Team
WP	Work Package
WS	Workshop

The terminology used within this report is defined within the Base and Project Glossaries[1]. The terms and phrases used within this document have the meanings described by the glossary unless explicitly described otherwise in the relevant text.

[1] https://www.resilocproject.eu/publication/

1 Executive Summary

Deliverable D5.5 “Field Trial Execution and Guidelines” presents the work of Task 5.3 “Field Trial Execution” of WP5 “Communities involvement and field trials”. It comprises all activities related to the RESILOC trials execution. Four trials have been executed in the four communities of Catania, Gorizia, Tetovo and West Achaia. The trials were executed with an interval between each other, to allow the validation of the trial and the collection of lessons and evidence that may suggest adjustments and improvements to the following trial. The deliverable presents the trial execution in each of the four communities. Each trial execution is analysed in three phases which are further analysed into stages. Trials faced a number of challenges which were addressed at local or consortium level. The execution of all trials was completed successfully.

2 Introduction

Deliverable D5.5 “Field Trial Execution and Guidelines” presents the work of Task 5.3 “Field Trial Execution” of WP5 “Communities involvement and field trials”. This task takes care of executing the field trials as designed in T5.2. Each field trial includes a desk-top exercise for the ex-ante assessment of the resilience indicators and a proper field trial. The dates of each field trial were agreed with the local communities, with a duration of 1-2 days per each trial.

The trials were executed with an interval between each other, to allow the validation of the trial and the collection of lessons and evidence that may suggest adjustments and improvements to the following trial.

The task was part of 2 “sprints”, contributing to the validation of RESILOC Inventory and Platform, as well as feeding WP3 with comments and inputs from the users. A set of guidelines are derived from the trial, including practicalities for adopting a common, Europe wide, approach to resilience improvement in local communities. All partners are involved in this task.

The deliverable presents the trial execution in each of the four communities, namely Catania, Gorizia, Tetovo and West Achaia. Each trial execution is analysed in three phases:

- Phase 0 – LRT Preparation
- Phase I – Capacity Building
- Phase II – Trial.

Additionally, Phase I is further analysed into three stages:

1. Dimensions and Proxies,

2. Data Collection, comprising training on RESILOC platform, data gathering, data systematisation, validation activities of WS4-6

3. Data quality check and analysis, comprising assessing feasibility and attributing a value to Indicators and Proxies, Pre-dry run on the system on the synthetic scenario, Assessment and validation of pitfalls #1, Dry run on the system on the two scenarios risks and Assessment and validation of pitfalls #2.

Phase II comprises stage 4. European Awareness Scenario, D-day and Trial, which includes Preliminary strategy developed by the technical LRTs, European Awareness Scenario, Validation done through the plenary session of EASW, Local Strategy and Validation on the emergency response.

The next sections describe the trials execution in Catania, Gorizia, Tetovo and West Achaia. A table consolidating the trials execution across the several phases and stages for all four communities is provided as the Appendix file (RESILOC communities Main Trial Activities Table).

3 Catania Field Trial

Description of the Catania field trial, including problems and how they were addressed.

3.1 Phase 0

The community of Catania, including the LRT, participated in three workshops as well as other meetings, promoted as part of the preparation for the Trial which took place in Catania. As already stated, the initial planning was challenging to be followed, especially because of the 4th wave of COVID-19 that brought many cases (infected persons) among the community participants and other stakeholders. For that reason, all the physical joint activities were re-evaluated and decided to be executed remotely. The workshops' objectives were defined as dual, firstly to prepare and train the LRTs regarding the RESILOC platform use and secondly to provide feedback to the TMT to review as necessary the trials roadmap. Hence, the subjects of the three pre-trial workshops were:

- to provide the proper knowledge and background for the DIPs concept comprehension;
- to review and update the trial script;
- to expound the scenario roles and the validation activities needs;

The workshops listed above saw the participation of the Municipality representatives, the LRT coordinators, the local consortium partner, and members of organisations involved within the "extended" LRT, not employed by the Municipality of Catania.

3.2 Phase I: Capacity Building

3.2.1 Dimensions Indicators & Proxies

The DIP framework, as planned in the trial script, was the subject of the workshop #1.

The workshop explored the participants' view on the theoretical framework developed and in particular on the approach of using dimensions, indicators and proxies to capture the resilience of the Catania community.

The representatives of the Catania Municipality, representatives of Civil Protection Service of the Municipality and LRT coordinators have been invited to participate in this activity because of their role deemed relevant in the framework of the Community Trial. The purpose of the workshop was to share with the participants the RESILOC DIP framework, developed as result of the activities carried out in Task 3.1: "Definition of Resilience indicators and matrix". The goal of the activity was to reach/build a common understanding of the DIP framework; in particular what the dimensions, indicators, proxies are and the correlations between them. Participants were introduced to the approach and were invited to ask any clarifications or questions on the subject.

The workshop was a mixed meeting, with both in-person and remote participants, and was led by the Local Training Lead. The workshop was held via the Webex (IES Solutions account) platform, or face-to-face for those who were able to physically attend the workshop at the Catania Civil Protection Department headquarters. The workshop lasted no longer than 120 minutes in total and has been scheduled on a date and time set and communicated in advance.

The Local Training Lead introduced the participants to the theoretical framework developed; this activity was done via a PowerPoint presentation aimed at explaining the scientific/research framework of RESILOC, introducing the DIP database and the logic behind it. During the presentation, the Local Training Lead explored participants' views, in particular on the

approach of using dimensions, indicators and proxies to capture the resilience of a community; this has been done through dedicated Q&A sessions during specific moments of the workshop. The purpose was to make the representatives of the Municipality, the representatives of Municipality Civil Protection Service and the LRT members able to evaluate the applicability of the framework in terms of relevance, feasibility, and data availability for the community of Catania.

Participants had a positive opinion on the relevance of the RESILOC framework for community resilience assessment in Catania. Furthermore, they appreciated the proposed framework, stating that they saw it as opportunity to stimulate local authorities to produce and collect community data, potentially usable by local authorities not only for RESILOC project purposes.

Following the Catania trial script, the 2nd workshop was on scenarios role and definition.

The workshop explored the participants' view on the approach of using scenarios to capture the resilience of the communities from different perspectives as well as guiding them through the process of assigning/selecting indicators for a given scenario and supporting them in the decision-making process.

Representatives of the Catania Municipality, representatives of Civil Protection Service of the Municipality and LRT coordinators have been invited to participate in this research activity because of their role deemed relevant in the framework of the Community Trial. The purpose of the workshop was to share with the participants the role of Scenarios in RESILOC, presenting the ones identified for the community of Catania as result of the activities carried out in Task 2.4: Definition of Hazard Scenarios for Pilots. The goal of the activity was to provide an understanding on the role of the Scenarios in RESILOC and assign the right indicators to the scenarios identified for Catania. In particular, it was explained why they were introduced, how they were identified for the project communities, and how they relate to the indicators presented with the RESILOC matrix. Participants were invited to assign, in a participatory process, the indicators provided by the RESILOC matrix to the scenarios identified for Catania.

The workshop was a mixed meeting, with both in-person and remote participants, and led by the Local Training Lead. The workshop was held via the Webex (IES Solutions account) platform, or face-to-face for those who were able to physically attend the workshop at the Catania Civil Protection Department headquarters. The workshop lasted no longer than 180 minutes in total and has been scheduled on a date and time set and communicated in advance.

The Local Training Lead introduced the participants to the role of scenarios in RESILOC and indicators assignment process; this activity has been done via a PowerPoint presentation aimed at: explain the scientific/research behind the RESILOC Scenarios, introduce the process of identifying/assigning the RESILOC indicators to the scenarios designated for the Catania community and the logic behind it. During the presentation, the Local Training Lead explored participants' views, in particular on the choice/selection of certain indicators for a given scenario; this has been done through dedicated sessions during specific moments of the workshop. The purpose was to make the representatives of the Municipality and the technical core of LRT members able to evaluate the indicators provided by the RESILOC matrix and make a reasoned assignment to one, both or neither of the scenarios provided for the Catania community.

Participants stated that it would be useful for the task, to capture information on how the various agencies have handled events in the past and how they have coordinated with each other (being able to analyse past experiences). They also highlighted the usefulness of incorporating additional indicators/proxies that can capture information on preparedness and prevention measures (risk culture) implemented by the community. Some LRT members suggested to

integrate additional indicators/proxies in order to capture not only the number of certain resources in possession/available to the community, but also their heterogeneity (e.g., not only knowing the number of NGOs in a community, but also their specialisation).

3.2.2 Data Collection

The 3rd workshop of the Catania trial focused on Data collection introduction.

The workshop kicked off the data collection activities in the RESILOC Trial in Catania and provided guidance on the format in which the data should be entered on the RESILOC platform, introducing some useful considerations on possible gaps in data completeness.

The technical core of LRT members has been invited to participate in this research activity because of their role deemed relevant in the framework of the Community Trial. The purpose of the workshop was to provide suggestions on how to conduct data collection activities; giving the start to the data gathering phase. The goal was to prepare the participants to carry out the data collection autonomously and to face any challenges related to it. Participants were called to receive and assimilate the information provided, and invited to ask any clarifications or questions on the subject.

The workshop was a mixed meeting, with both in-person and remote participants, and led by the Local Training Lead. The workshop was held via the Webex (IES Solutions account) platform, or face-to-face for those who were able to physically attend the workshop at the Catania Civil Protection Department headquarters. The workshop lasted no longer than 60 minutes in total and has been scheduled on a date and time set and communicated in advance.

The Local Training Lead introduced the participants on how to proceed with data collection. This has been done via a PowerPoint presentation aimed at explaining the format in which the data, once collected, should be entered on the RESILOC platform; providing suggestions on how to adapt the data collected to the required formats. Any gaps in the completeness of the data from the scenario definition have been addressed, meanwhile some useful considerations for the collection process have been presented. Guidance on ethical and security issues regarding the data collection process was also provided. During the presentation, the Local Training Lead captured participants' views, this has been done through dedicated Q&A sessions during specific moments of the workshop. The purpose of the workshop was to make the technical core of LRT members able to evaluate the applicability of some suggested proxies for the selected indicators, in terms of their feasibility and availability, for the community of Catania.

The members of the LRT technical core noticed that some proxies could be formulated differently; they might be rephrased a bit to make them more clear, simplifying the data collection process.

Participants pointed out that some proxies cannot be taken directly from existing data but have to be derived from other existing or available data, and this requires more effort on the users' side.

Moreover, they thought it would be useful to have a box for entering notes about the value of a proxy, e.g., references, comments, etc.

At the end of the workshop, participants agreed to have a weekly reporting time slot during which they could meet and share the experience on data collection process, exchanging sources and useful contacts to facilitate the data collection for all LRT members; the aim is also to share previous experiences not related to the RESILOC project that can facilitate the data collection process to all users involved.

3.2.2.1 Training on RESILOC platform

The second stage of the phase I started with the user training on the RESILOC Platform (workshop #4).

The workshop explored the participants' views on the RESILOC Platform developed and in particular on the usability and user experience.

The technical core of LRT members has been invited to participate in this research activity because of their role in the framework of the Community Trial. The workshop was also an opportunity to share the RESILOC Platform User Manual, developed as part of the activities carried out by WP4: Implementation of RESILOC platform.

The goal of the research activity with participants was to reach/build a deep understanding of the RESILOC Platform functionalities and usage; in particular how to sign up and sign in, how to configure the environment to perform an assessment, how to execute a resilience assessment and visualise the results. Participants were called to receive and assimilate the information provided, and invited to ask any clarifications or questions on the subject. The RESILOC research team used the answers provided to improve the development of the RESILOC platform. The purpose of the workshop was to make the representatives of the Municipality and the LRT members able to use all the functionalities offered by the RESILOC Platform, understanding how to apply them to carry out a resilience assessment for their community. The workshop was also an opportunity to gather feedback and immediate suggestions on usability and user experience.

The workshop was a mixed meeting, with both in-person and remote participants, and led by the Local Training Lead. The workshop was held via Zoom platform, or face-to-face for those who were able to physically attend the workshop at the Catania Civil Protection Department headquarters. The workshop lasted no longer than 240 minutes in total and has been scheduled on a date and time set and communicated in advance.

The Local Training Lead introduced the participants to the RESILOC Platform User Manual developed; this activity has been done via a short presentation aimed at explaining how to use the training material provided, introducing the logic behind the way it was written. During the workshop, the Local Training Lead guided the participants in the usage of the functionalities provided by the RESILOC Platform, training them on how to manage the different elements adopted in RESILOC to capture the resilience of a community (i.e., proxies, indicators, scenarios). This has been done through a dedicated training session, which started immediately after the presentation of the user manual.

Participants expressed a positive opinion on the usability of the RESILOC platform, in particular it is reported that the platform has an intuitive and clear user interface. They also liked the adoption of similar interfaces for the different sections of the platform; indeed, facilitating the learning process. Some of them proposed different arrangements of the drop-down menu in the configuration section.

The full understanding of how to use the platform required a learning period; according to the philosophy of learning by doing, users honed their understanding of the platform by facing the normal challenges and complexities that can arise in real, unguided use of the platform. This required occasional support from Local Training Lead during the workshop and the subsequent weeks.

3.2.2.2 Data gathering

The 5th workshop of the Catania trial provided a self-report on the data gathering status for the community of Catania made by the technical core of LRT members.

The technical core of LRT members was involved in this activity because of their role in the framework of the Community Trial. The purpose was to obtain a self-report on the data gathering status for the community of Catania as result of the activities carried out during the days after the workshop #3, which gave the start to the data collection process.

The goal of this activity with the participants was to capture the state of play of the data collection process; in particular which data has been acquired and which still needs to be obtained, reporting on progress on the basis of pre-established metrics (KPIs), how the data have been acquired and how ethical and legal issues have been addressed. Participants were therefore invited to provide and report the information required, and also to ask any clarifications or questions on how to solve any challenges encountered. The purpose of the workshop was to make the representatives of the Municipality and the members of the LRT able to assess the progress of the data collection activity assigned to them, analysing together how to drive the process forward for their community according to the experience gained. The workshop was also an opportunity to gather feedback on any obstacles in the availability/retrievability of certain data.

The workshop was a mixed meeting, with both in-person and remote participants, and led by the Local Training Lead. The workshop was held via Webex (IES Solutions account) platform, or face-to-face for those who were able to physically attend the workshop at the Catania Civil Protection Department headquarters. The workshop lasted no longer than 60 minutes in total and has been scheduled on a date and time set and communicated in advance.

The Local Training Lead invited the participants to provide a first report on the progress of the data collection activity; this has been done through an open conversation led by the Local Training Lead aimed at collecting useful information for the preparation of a first general report. This may be used as a reference for the planning/refinement of the activities related to the data collection process. During the workshop, the Local Training Lead guided the participants in the reporting of the total amount of data collected, the way in which they were collected and the measures adopted in terms of ethics and legal issues. In the same discussion participants were asked to outline any difficulties they had experienced in retrieving the data, and how they overcame them.

LRT members remarked the possibility of introducing new KPI's, highlighting the usefulness of implementing new ones according to future needs. They also proposed to carry on with organisation of regular meetings in order to carry out periodic analysis and evaluation of the data collection process.

3.2.2.3 Data systematisation

The workshop #6 focused on the data systematisation activity. This consisted in validating the proxies and indicators chosen for each dimension a second time, and introducing the data entry phase through the active use of the RESILOC Platform.

The technical core of LRT members has been invited to participate in this activity; the purpose was to initialise the data entry phase into the RESILOC Platform. The data systematisation activity made sense of the data collected through the lens of each scenario, identifying the targets for the community and validating the proxies and indicators chosen for each dimension a second time, taking advantage of the experience gained.

The objective of the activity with the participants was to retrieve the proxy target values that have been collected up to that time (stored locally), and to upload them into the RESILOC platform. This has been done through a guided real-time activity on the RESILOC Platform and organised in two sessions. The first step was the review and configuration of each proxy that has been captured, so the target values can be uploaded to the platform; the proxy's additional details (metadata), not already defined, was configured based on the experience gained. The second step was focused on the targets data entry, including some of the information on the metadata configured during the previous step. Participants of the Catania LRT technical team were therefore asked to check that all the requirements are met in order to carry out the above-mentioned operations (checking credentials to access the platform, checking access to proxy management features, having all the documentation on the data collected). The RESILOC research team used the feedback from this activity to further refine the development of the RESILOC platform.

The workshop was a mixed meeting, with both in-person and remote participants, and led by the Local Training Lead; it was held via Webex (IES Solutions account) platform, or face-to-face for those who were able to physically attend the workshop at the Catania Civil Protection Department headquarters. The workshop lasted no longer than 120 minutes in total and has been scheduled on a date and time set and communicated in advance.

The Local Training Lead guided the participants to the configuration and targets data entry of the proxies gathered so far, letting members of the Catania LRT technical group perform the required operations themselves on the RESILOC Platform. This activity has been done via real-time interactions aimed at supporting users in learning and memorising the steps needed to complete the given task, also improving their understanding and awareness regarding the actions to be performed and the logic behind them. During the workshop, the Local Training Lead assisted users in the appropriate configuration of the proxies, discussing with them which of the additional details proposed by the RESILOC Platform could be defined for each proxy. This has been done through open discussion during the first phase of the workshop.

The goal of the activity was to complete the scenario configuration (confirmation of all proxies and indicators, identification of possible metadata, targets assignation) and thus create the basis for working on the weights (relevance and direction) in the following workshop (workshop #7 - "Attributing value (weights) to proxies").

LRT members expressed their desire for more proxy configuration options, considering useful the possibility of extending/expanding the number of additional details (metadata) that can be associated to each proxy.

LRT members reworked and validated the proxies and indicators chosen for each proposed scenario several times, benefiting from the experience gained during the process.

3.2.2.4 Validation activities

The Validation activities were carried out through dedicated workshops placed specifically at the end of each workshop's package (trial steps), as planned in the trial script.

The 1st validation workshop was aimed at capturing through the use of a questionnaire the understanding on: the theoretical framework developed, the role of scenarios and how to carry out the data collection.

The technical core of LRT members has been invited to participate in this research activity because of their role; the purpose was to share with them the RESILOC Validation tools, developed as result of the activities carried out in Task 5.4: Field Trial Validation.

The goal of the research activity with participants was to collect and evaluate the results of the three workshops of phase one. This was carried out through a questionnaire (Validation tool 1.1) organised in two parts (10 questions in total). The first section evaluated the relevance/applicability of DIP (dimensions, indicators and proxies) in the context of Catania. The second section collected feedback on the role of scenarios as a tool for testing the validity of the DIP system, and collects information on the clarity and understanding of the data gathering process. Participants were asked to complete the questionnaire submitted by the Local Training Lead, returning it back by email before a given date. The RESILOC research team used the answers provided to further refine the development of the resilience tool that aims to improve resilience of local communities.

The workshop was a mixed meeting, with both in-person and remote participants, and led by the Local Training Lead; it was held via Webex (IES Solutions account) platform, or face-to-face for those were able to physically attend the workshop at the Catania Civil Protection Department headquarters. The workshop lasted no longer than 120 minutes in total and has been scheduled on a date and time set and communicated in advance.

The Local Training Lead introduced the participants to the RESILOC Validation Operational Model; this activity has been done via PowerPoint presentation aimed at explaining the Validation framework of RESILOC Trials. During the presentation, the Local Training Lead presented to the participants some of the validation tools developed, in particular Tool 0.1 (Preparation of Lessons Learned Master Document) and Tool 1.1 (Benchmark for the workshops); this has been done through the on-screen presentation of the two tools during the workshop. The aim was to clarify the questions included in the questionnaire, making representatives of the municipality and members of the LRT able to easily answer. The questionnaire was then distributed to the participants and subsequently retrieved at the agreed date.

The use of a questionnaire has been considered a useful approach by the participants to refine the understanding of the concepts treated, having to answer questions highlights any doubts or uncertainties that otherwise would not be noticed. LRT members also highlighted the usefulness of being able to respond via an online questionnaire (even from smartphones) in order to make the process faster, this makes the process of transmitting and collecting the questionnaires easier.

The 2nd Validation workshop explored participants' view on the level of the data collected completeness and opinions on any relevant gaps; asking to highlight the challenges encountered and expected to carry on with the data collection process.

The technical core of LRT members has been invited to participate in this activity, the purpose was to share with them the RESILOC Validation tools, developed as result of the activities carried out in Task 5.4: Field Trial Validation.

The goal of this activity with participants was to collect and evaluate the results of data gathering and data systematisation workshops covered by stage two. This has been carried out through a questionnaire (Validation tool 2.1) consisting of 7 questions in total. The questionnaire was aimed at capturing information related to the completeness level of the proxies and indicators for each dimension in the proposed scenarios; as well as capturing users' opinions on any relevant gaps and whether these affect the validity of the scenario for community resilience assessment. The questionnaire was also intended to gather information on the main difficulties encountered and foreseen for the data gathering process; also asking if the collection done up to that time was consistent with the GDPR regulations. Participants were asked to receive and complete the questionnaire submitted by the Local Training Lead,

returning it back by email before a given date. The RESILOC research team used the answers provided to further refine the development of the RESILOC tools.

The workshop was a mixed meeting, with both in-person and remote participants, and led by the Local Training Lead; it was held via Webex (IES Solutions account) platform, or face-to-face for those were able to physically attend the workshop at the Catania Civil Protection Department headquarters. The workshop lasted no longer than 120 minutes in total and has been scheduled on a date and time set and communicated in advance.

The Local Training Lead made a short recap on the RESILOC Validation Operational Model; this activity has been done via a PowerPoint presentation aimed at reminding the Validation framework of RESILOC Trials. During the presentation, the Local Training Lead presented to the participants some of the validation tools developed, in particular the Tool 0.1 updated (Preparation of Lessons Learned Master Document) and the Tool 2.1 (Data Collection questionnaire); this has been done through the on-screen presentation of the two tools during the workshop. The aim was to update the “Lesson Learned Master Document” (Tool 0.1) and clarify the questions included in the questionnaire (Tool 2.1), making members of the LRT able to easily answer. The questionnaire was then distributed to the participants and subsequently retrieved at the agreed date.

The second validation workshop, as mentioned before, focused on the issue of data collection. Unlike the previous validation activities, users were given the opportunity to take more time to reflect on those questions posed by the questionnaire, allowing them to respond not only in relation to theoretical training but also based on practical experience.

The criticalities emerged, were already highlighted but are summarised below.

First of all, some proxies were difficult to interpret and the comprehensibility of the same does not depend on the language, the intent is not so clear and there is not always a congruous bibliography to support them. LRT members highlighted that many proxies require data that must be obtained and are not immediately available, as well as some indicators are not suitable for Italy.

In a nutshell the participants said that the proxies help to provide a clear picture of the current state of a community, however there is room for improvement.

Users took more time to reflect and reply on questions posed by the questionnaire (Validation Tool 2.1), exploiting the opportunity to gain experience and provide answers based on hands-on practice.

3.2.3 Data quality check and data analysis

3.2.3.1 Assessing feasibility and attributing a value to Indicators and Proxies

The 7th workshop "Attributing value (weights) to proxies", focused on the "relevance" and "direction" assignment to proxies by the LRT technical group for the scenarios defined through the active use of the RESILOC Platform.

The technical core of LRT members has been invited to participate in this activity because of their role; the purpose was to introduce the weights assignment process in the RESILOC Platform for the proxies selected. The weights assignment activity allows the evaluation of the influence of the collected data for the various indicators in which they participate taking into account the scenario under assessment; the values of the 'weights' has been assigned to each proxy selected in accordance with the needs of the community and for the scenarios covered.

The objective of this activity with participants was to assess the values of the weights that should be assigned to the proxies that have been selected and input them in the RESILOC platform. This has been done through a guided, real-time activity on the RESILOC platform, which consisted of two steps. The first step was to assess the "relevance" of each proxy that has been captured; this has been done by taking into account the source of the data, whether it has been certified or not, its availability (measured or derived), the reference period and of course its influence within the indicator and scenario in which it is involved. The relevance value was then assigned taking into account these factors and on the basis of the LRT technical group's expertise and experience. The second step focused on selecting the "direction" of each proxy that has been captured; considering mostly its influence within the indicator and the scenario in which it is involved.

Participants were therefore asked to check that all the requirements were met in order to carry out the above-mentioned operations. The RESILOC research team used the feedback from this activity to further refine the development of the RESILOC tool.

The workshop was a mixed meeting, with both in-person and remote participants, and led by the Local Training Lead. It was held via Webex (IES Solutions account) platform, or face-to-face for those who were able to physically attend the workshop at the Catania Civil Protection Department headquarters. The workshop lasted no longer than 180 minutes in total and has been scheduled on a date and time set and communicated in advance.

The Local Training Lead guided the participants in the evaluation process and entry of "relevance" and "direction" for each proxy included in the scenario, letting members of the Catania LRT technical group perform the required operations themselves on the RESILOC Platform. This activity has been done via real-time interactions aimed at supporting users in learning and memorising the steps needed to complete the given task; also, improving their understanding and awareness regarding the actions to be performed and the logic behind them. During the workshop, the Local Training Lead assisted users in the weights assignment, discussing with them which relevance value and direction could be given to each proxy; this has been done through open discussion during the workshop. The goal is to complete the entry of the relevance and direction for all the proxies included in the scenario and thus create the basis for the pre-dry run on the system (workshop #8).

Based on the experience gained, the participants suggested the inclusion of a note field for each proxy in the relevance assignment template, considering it useful to add a justification on the assignment of a specific value.

For the implementation of future trials, they also suggested to identify thresholds of available data to execute the resilience assessment; this could provide support on the evaluation of resilience assessment feasibility.

The members of the LRT performed the assignment of relevance and direction values independently and in batches, discussing them periodically in weekly meetings. During the weekly meetings, the relevance and direction values identified for each proxy were debated and, if confirmed/approved, entered on the platform.

3.2.3.2 Pre-dry run on the system on the synthetic scenario

In order to collect the data (proxy values), it was necessary to draft an assignment letter that would allow the LRT members to go to the responsible offices and have the required capability/authority to request the data (thus avoiding being 'bounced back', which had happened several times). In the meantime, the technical team of the LRT decided to continue the work of identifying targets, relevance and directions while waiting for the assignment letter

to arrive. This led to a situation where the LRT had the two scenarios (earthquake and flood) fully configured and ready to host the proxies' values, given the work on target, relevance and direction completed while waiting for the assignment letter. It was therefore agreed that it would not make sense to do the pre-dry run, planned for a "synthetic" scenario, with the two scenarios earthquake and flood "ready" for the proxies' values insertion; so, it was decided to do the dry run directly on both scenarios with the data available at that time, and then repeat the assessment again later as the data are progressively collected.

3.2.3.3 Assessment and validation of pitfalls #1

Due to the non-execution of the pre-dry run, based on the decisions reported in 3.2.3.3, the related Validation activity was cancelled accordingly.

3.2.3.4 Dry run on the system on the two scenarios risks

Originally planned by the script to be the "Pre-Dry Run on the RESILOC platform using a synthetic scenario", the 8th workshop of the Catania trial substituted what was originally supposed to be the 9th workshop "Dry-Run performed on the RESILOC platform using the earthquake and flood scenario". This was due to the work already completed on target, relevance and direction assignment while end-users waited for the mandate letter needed to have access to public offices and collect the proxies values; it would have been worthless to do the pre-dry run, planned for a 'synthetic' scenario, when the two scenarios planned for Catania were in fact already set up. Having the two scenarios 'ready' for the assessment, the aim was to do a dry-run on both scenarios with the data up to that time available, and then repeat the assessment again in September with the data collected in the interim.

The workshop, organised by the Municipality of Catania and the IES Solutions (IES), involved the participation of the technical core of the LRT and was held in person in the Catania Civil Protection Department headquarters. The purpose of the workshop was to perform the Dry Run by working on the RESILOC platform on the earthquake and flood scenarios.

The workshop on the dry-run was performed in two separate sessions, went as follows:

- During the first session, the dry-run was carried out for the earthquake scenario using the data collected up to that time; the snapshot for earthquake have been set up by the LRT in the RESILOC platform and the resilience assessment has been performed. The results were then analysed and the validation tools were implemented. In the first place, feedback from the participants have been collected; then the assessment and validation of pitfalls has been made. The Delphi approach was carried out using a dedicated questionnaire for the validation of the tool and completed database, in order to validate the earthquake scenario and its proxy completeness.
- During the second session, the dry-run was carried out for the flood scenario using the data collected up to that time. Following the same approach described above, the snapshot for flood has been set up by the LRT in the RESILOC platform and the resilience assessment has been performed. The results were then analysed and the validation tools were implemented. In the first place, feedback from the participants has been collected; then the assessment and validation of pitfalls have been made. The Delphi approach was carried out using a dedicated questionnaire for the validation of the tool and completed database, in order to validate the flood scenario and its proxy completeness.

The last part of the workshop was dedicated to a verification focus group prepared by Tavistock Institute of Human Relations (TIHR) and carried out by the Local Trial Manager. The participants were also asked to discuss the level of usability of the platform and to fill in a questionnaire. The verification activities carried out can be summarised as follows:

Non-participant observation: an IES staff member observed and noted the interaction with the technology, questions raised, problems experienced, and solutions found. These then fed into:

- A short focus group (30 minutes): it took place immediately after the workshop where participants were asked to discuss the level of usability of the platform.
- A short questionnaire, which the participants completed online or on paper at the end of the workshop. The purpose of the survey was to capture the participants' experience with the usability of the RESILOC platform.

At the end of the workshop, the participants suggested to add a 'flag' in the page dedicated to proxies values entry, so that it would be possible to mark a proxy as 'not currently available'. This would eliminate the need to set the relevance for that proxy to zero in order to exclude it from the calculation; it would then be possible to keep the relevance value previously decided and assigned.

3.2.3.5 Assessment and validation of pitfalls #2

Considering the modification on the trial script mentioned above, the “Assessment and validation of the pitfalls No. 1” was not carried out and the role of providing possible pitfalls of the tools, unregistered during the sprints, was delegated to the next Validation workshop (the originally planned Validation Workshop #4 “Assessment and validation of the pitfalls No. 2”).

The assessment and validation of the pitfalls #2, included the implementation of the Delphi validation and its related tools. The Delphi technique is a communication and forecasting method based on two or more iterative rounds, where different weights are assigned to the experts participating in the session. In this case, the method was applied without assigning any weight due to the horizontal approach towards the LRT, in order to encourage the discussion on DIP (dimensions, indicators and proxies) through structured rounds. The Delphi Validation has been carried out by proposing the same questions after the end of each assessment, to be able to evaluate the level of completeness of each snapshot. The validation concluded with a questionnaire (Validation Tool 3.2) administered after the end of the Dry Run, which aims to highlight possible pitfalls of the tools, to be reported to the technical partners so to be tackled effectively.

Similarly to what happened for the dry-run, the Assessment and validation of pitfalls #2 was performed in two separate sessions. During the first session, the assessment and validation of the pitfalls was carried out for the earthquake scenario using the questionnaire elaborated as part of the Delphi validation. During the second session, the assessment and validation of the pitfalls was conducted for the flood scenario, using the same questionnaire adopted for the earthquake scenario but adapted for the flood one.

Participants answered the questionnaires prepared as part of the Delphi Validation for both scenarios analysed; in particular, they emphasised that, the remarks and comments provided for both the questionnaire were largely applicable to both scenarios investigated, with little differences between them.

3.3 Phase II: Trial

3.3.1 European Awareness Scenario, D-Day and Trial

The second phase of the RESILOC trial in the Municipality of Catania involved the identification of suggestions intended to create a strategy to improve local resilience. This phase was carried out during the event held in Catania on 23-24 September 2022; the result was a first local resilience strategy for the community of Catania.

3.3.1.1 Preliminary strategy developed by the technical LRTs

The preliminary strategy was elaborated on the basis of the results of the previous phase of the process (Trial in Catania - Phase 1); the LRT "technical group" drew up a preliminary list of possible actions/activities that needed to be included in the local political agenda.

The activities saw the participation of the LRT coordinators, members of organisations involved within the "extended" LRT, and IES as support.

The members of these organisations participated in the preliminary strategy definition activity, led by the technical group of LRT, their link with the locals and their contacts network have been fundamental to represent the voice of the community in the process, as well as envisaging the response of the locals to the possible actions to undertake.

In addition, they have been involved by the municipality for the dissemination and transmission of information on the approved resilience local strategy.

The activity was open to the public in the form of an open-door meeting organised by the municipality and supported by IES Solutions. The population has been informed about the activity via dissemination of press releases through the Municipality of Catania's official webpages.

3.3.1.2 European Awareness Scenario

N/A

3.3.1.3 Validation done through the plenary session of EASW

N/A

3.3.1.4 Local Strategy

Based on the indications provided by the LRT members, the preliminary strategy was integrated by the Municipality of Catania and local Civil Protection representatives with the decisions that could potentially be implemented by the local authorities during the post-trial phase; the discussion produced a Local Resilience Strategy as the main output of this process, with the objective of integrating it within the Municipal Civil Protection Plan. Its validation and approval took place through a plenary session involving local authorities (represented by policymakers and technical services), first responders, emergency services and citizens representatives.

Local authority representatives, at the end of the working session (24/09/2022), reviewed the proposed strategy, modified it according to what could be administratively and operationally feasible by the city administration, and finally approved the document during the plenary session.

The activity was open to the public in the form of an open-door meeting organised by the municipality and supported by IES Solutions. Once the Local Strategy was approved, the

population was informed about the task achieved via dissemination of press releases through the Municipality of Catania's official pages.

3.3.1.5 Validation on the emergency response

N/A

4 Gorizia Field Trial

4.1 Phase 0

This section describes the activities carried out in Gorizia for the preparation of the field trial. Such activities include: i) initiatives aimed at supporting the consolidation of the LRT of Gorizia and the introduction to the RESILOC approach and rationale; ii) activities aimed at the co-production of Trial Script and Validation Framework for the community of Gorizia; iii) activities related to Trial Validation Plan.

Moreover, besides the activities related to community involvement in Gorizia held and presented in the table below (Table 1), the following topics must be taken into considerations:

- Throughout the month of July 2021, the Municipality of Gorizia has received and analyzed the forms filled in by local stakeholders in order to formalize the LRT composition (Survey published 30 June 2021).
- Throughout the months of April, May, June and July 2021 several contacts and calls were made with the main stakeholders (i.e., Italian Red Cross - CRI, Civil Protection) to strengthen relationships and enhance participation to the project activities.
- The Municipality of Gorizia and ISIG, were able to deliver several surveys addressed to the LRT and the community, which focused on different topics and with different purposes.

Table 1: Gorizia Trial Preparation Activities

Date	Activity	Description
21 April 2021	Online workshop with local stakeholders	Workshop with main LRT stakeholders to socialise them on the project purpose and field trials (CGO representatives, Civil Protection Representatives, CRI representatives)
14 June 2021	Online meeting with the Department of Civil Protection of Friuli Venezia Giulia	During the meeting CGO presented RESILOC project to the Regional Civil protection unit of Friuli Venezia Giulia. The meeting has been an opportunity to share experiences and create synergies with the Regional Civil Protection for the planning of activities in the RESILOC project framework.
23 June 2021	Public meeting with local stakeholders for their involvement in the LRT	A public online meeting was organized for the presentation of the project to the community of Gorizia and the presentation of the LRT, its goals and purposes. 25 representatives of various local associations and institutions that work on emergency management took part to the workshop. During the meeting feedback was collected so to have a more inclusive approach in structuring the LRT's activities.
30 June 2021	Meeting with Punto Giovani representatives	Purpose of the meeting was to investigate on the possible involvement of the Punto Giovani (Youth center) within the LRT.
01 July 2021	Visit to the Civilna Zascita (civil protection) of the Municipality of Šempeter-Vrtojba (SLO)	The RESILOC team of the Municipality of Gorizia visited the Civilna Zascita (civil protection) of the Municipality of Šempeter-Vrtojba in (Slovenia) to present the project activities and the trial roadmap. Purpose of the meeting was to involve the Slovenian Civil Protection within the project activities and to engage in a

		proactive cross-border discussion on resilience building practices.
30 July 2022	Online workshop with LRT of Gorizia	Purpose of the workshop was to present the structure of the LRT, to co-develop the "trial preparation process", to provide information on the RESILOC ethics framework, structuring the operability of the LRT providing adequate tools and knowledge to all participants.
19 October 2021	Presentation of RESILOC project to the volunteers of Civil Protection of Gorizia	The meeting was held at the local Civil Protection headquarter and its purpose was to present the project activities and to involve volunteers of the Civil Protection of Gorizia in the trial preparation and implementation process.
17th of December 2022	Workshop with the university students of the University of Trieste	The workshop took place in the framework of the class on "Natural risks management" at the University of Trieste. The workshop was moderated by ISIG researchers and CGO representatives. The workshop was intended to present RESILOC project, its objectives, the LRT and the Gorizia Trial and engage in a communication on resilience with the students, so to raise awareness on resilience.
17 December 2021	Workshop with LRT members "The Field Trials: preparing the trial for Gorizia"	Online workshop with the purpose of co-designing and validating the Field trial Script and the Validation plan, and to socialize the LRT with the next steps of the Field Trial Execution.
13 January 2022	Meeting on RESILOC trial with high ranking representatives from local civil protection and emergency agencies.	The meeting aimed at discussing the organization and logistics of the Gorizia field trial and it was addressed to high ranking representatives from local civil protection and emergency agencies. The participants highlighted the importance of citizens' involvement and agreed on the intention of testing the Municipal Operational Center (COC) of Gorizia on the various scenarios of the exercise, together with the intention of involving the cross-border colleagues to better test the ability for a coordinated emergency response.
31 January 2022	Coordination meeting with Civil Protection Organizations for the organization of the Field Trial in Gorizia	Online meeting with 27 representatives from the local Civil Protection organizations. Aim of the meeting was to inform local civil protection organizations on RESILOC activities, tools and objectives. Moreover, the meeting objective was to jointly plan the civil protection exercise and the trial steps.

4.2 Phase I: Capacity Building

4.2.1 Stage 1: Dimensions Indicators & Proxies

As soon as Deliverable 3.1 was released, the DIP framework was translated into Italian, so to allow the LRT members to better understand the framework and select the relevant proxies for the context of Gorizia and for each scenario selected. This was a necessary step as the majority of LRT members had very little knowledge of English.

4.2.1.1 Workshop #1 – the DIP framework

The first Trial workshop was carried out online on March 21st, 2022, and aimed at brokering the DIP (Dimensions, Indicators, Proxies) framework to the wider LRT in a more comprehensive and complete way.

The workshop was divided in different sessions:

- The first session focused on the presentation of the DIP framework, including practical examples from the Governance dimension.
- The distinction between the wider and technical LRT was underlined once again, describing its role and involvement in Trial activities.
- Validation steps of the trial were presented and explained.
- In the fourth session, the roles of scenarios selected for the Community of Gorizia (hydrogeological, seismic, pandemic) were introduced so to help contextualize the application of the DIP framework within the community of Gorizia.
- The last session served as a debriefing to introduce the following steps of the process and to fill in the Validation - Lessons Learned Document on the Success, Opportunities and Recommendation on the activities developed during the workshop. The Validation Tool is a tool which aims to enregister all the success, opportunities and recommendation regarding the trial and its execution phase. The tool is the master tool for validation purposes which has been completed in each workshop.

11 participants took part to the workshop: CGO and ISIG representatives, and 8 members of the LRT of Gorizia (Civil Protection - Gorizia, Local Police, ANFFAS, Proloco Goriza, Diritto di Parola, Red Cross – Gorizia, Youth Point).

4.2.1.2 Workshop #2 – Dimensions and Indicators Selection for each scenario

The second Trial workshop took place in presence on March 23rd 2022. The purpose of the workshop was to assess the feasibility of the DIP (i.e., Dimensions, Indicators, Proxies) theoretical framework and scenarios chosen for the Gorizia Trial and aimed at selecting dimensions and indicators for each scenario chosen for Gorizia (i.e., pandemic, seismic and hydrogeological scenario).

The workshop was divided in two sessions:

- The first session focused on the assessment of relevance/applicability of DIP (dimensions, indicators and proxies) in the context of Gorizia, analysing the dimensions and related indicators for each scenario. The participants, divided into three groups based on the scenarios, have assessed the relevance/applicability of each indicator though pre-prepared materials translated in local language (i.e., Italian) of all dimensions and indicators of the framework.
- The group work was followed by a plenary session where the group discussed strengths and weaknesses of the framework. The second session aimed at collecting feedback from the participants through two Validation Tools: the Lessons Learned Document and a questionnaire for the validation of the relevance/applicability of the DIP system in Gorizia.

The workshop was addressed to the wider LRT and 10 participants took part to the workshop: CGO and ISIG representatives, and 7 members of the LRT of Gorizia (Civil Protection – Gorizia, Red Cross – Gorizia, Local Police, CGO representative, Youth Point, ANFFAS, Diritto di Parola).

4.2.1.3 Workshop #3 – Selection of Proxies for each scenario

The third workshop took place in person on March 31st 2022. The purpose of the workshop was to continue the assessment of the feasibility of the DIP (Dimensions, Indicators, Proxies) theoretical framework and scenarios chosen for the Gorizia Trial and focused on the selection of proxies for each indicator and scenario, in order to finalize the co-production of the scenarios for the community of Gorizia. During the workshop, the LRT selected the proxies for each scenario, analyzing the proxies provided by RESILOC and adding specific observations and integration based on the knowledge of the context of Gorizia.

The workshop was divided in three sessions:

- In the first session, the assessment of the relevance/applicability of DIP (dimensions, indicators and proxies) in the context of Gorizia Municipality for the pandemic scenario was completed, in working groups
- The second session aimed to assess the relevance/applicability of the proxy for each selected indicator for each scenario (i.e., pandemic, hydrogeological and seismic scenario), in order to complete the assessment of the DIP framework for the Municipality of Gorizia.
- In the third session, feedback from the participants was collected through the Validation Tool "Lessons Learned Document" which has been updated in its Successes, Opportunities and Recommendations sections.

The workshop was addressed to the technical core of the LRT. 8 participants took part to the workshop: CGO and ISIG representatives, and 5 members of the LRT of Gorizia (technical core).

The main result of the first 3 workshops is related to the selection and integration of the indicators and proxies for each dimension and each scenario selected for the Field Trial in Gorizia. Indicators and proxies were selected and integrated through the engagement of the LRT and validated later in the process by the LRT itself.

4.2.1.4 Workshop #4 – the RESILOC platform

The fourth Trial workshop was carried out online on 7th April 2022. The Workshop was aimed at introducing members of the technical LRT of Gorizia to the RESILOC platform, its structure and functionalities and presenting the users' manual. The workshop was co-organised by CGO, ISIG and IES Solutions.

The workshop was divided in three sessions:

- During the first session, the platform was presented through a power point presentation, together with the related users' manual (which was sent to the participants at the end of the workshop).
- During the second session the users were socialised to the platform through a live demonstration of its features, with a dedicated session for questions and answers.
- In the final session the Validation Tool – Lesson Learned Document was completed in the Success, Opportunities and Recommendation sections.

The workshop was addressed to the technical LRT and 7 participants took part to the workshop: CGO and ISIG representatives, and 4 members of the LRT of Gorizia (Civil Protection – Gorizia, Local Police, CGO representative, Youth Point).

4.2.2 Stage 2: Data Gathering & Data systematisation

Throughout the month of April 2022, the technical LRT, with the support of ISIG researchers and CGO project officer, focused on the data collection activities and on the integration and definition of new indicators and proxies based on the feedback of the LRT on the completeness of the DIP framework provided for each scenario selected (i.e., pandemic, hydrogeological, seismic). The data collection process required more time than expected, as it needed the support of several local Institutions and Agencies, as well as back-office work on the Statistical data available. The data collected was then systematised on an Excel file and, subsequently, on the platform. The data collection process was supported by the survey shared on the LimeSurvey platform, made available by RESILOC technical partners. This tool allowed the LRT of Gorizia to collect data that was unavailable through official statistics, mostly on risk perception, risk awareness and communication, and mostly on topics related to the social and DRR dimensions of the DIP framework. The process was also supported by the Social Media Analysis tool, which allowed the LRT of Gorizia to collect and analyse information on citizens' trust in authorities, and risk perception, among others, with the support of technical partners from the Jožef Stefan Institute.

Workshop #5 – Validation of Data gathering and Data systematisation

The fifth Trial workshop was carried out in person on 5th May 2022. The purpose of the workshop was to both validate and identify the gaps of the data collected, assessing the validity of the scenarios selected for Gorizia.

The workshop was divided in three sessions:

- The first one aimed at validating the data collected and the new indicators and proxies identified that are related to topics such as disability, vulnerability, equality, etc., as suggested by the LRT during the previous workshops. Moreover, the social media analysis was presented as a data collection tool to collect qualitative for the community of Gorizia.
- In the second session, data collected as per the Dimensions, Indicators and Proxies (DIP) previously selected, has been described and analysed together with the LRT, so to identify possible gaps.
- In the third session, feedback from the participants was collected through the Validation Tool "Lessons Learned Document". Moreover, the first session of the Delphi approach for the validation of the tools and completed database was carried out, in order to validate each scenario and its proxies' completeness.

The workshop was addressed to the technical LRT and 4 participants took part to the workshop: CGO and ISIG representatives, and 2 members of the LRT of Gorizia (Civil Protection – Gorizia, CGO representative).

4.3 Phase II – Trial

4.3.1 Stage 3: Data quality check and data analysis

4.3.1.1 Pre-dry run on the system on the synthetic scenario

Workshop #6 – Pre-Dry Run on the pandemic scenario

The Trial workshop #6 was initially scheduled for May 12th. Due to technical issues related to the functioning of the RESILOC platform (servers hosting the platform were disconnected), the

workshop was suspended and later rescheduled on 25th May 2022. The technical issues influenced the overall assessment of the platform usability by the LRT, recorded in the related validation milestone.

Eventually, the workshop took place in person, and its purpose was to perform the Pre-Dry-Run by working on the RESILOC platform on the synthetic scenario (pandemic scenario). The Pre-Dry Run aimed to support the LRT to deploy the tool to assess the level of resilience in the community for the pandemic scenario.

The workshop was divided into three sessions:

- In the first one, the pandemic scenario prepared for Gorizia was presented on the RESILOC platform.
- In the second one, the LRT assigned the relevance and direction of each proxy selected and integrated in the previous workshops by the LRT within the pandemic scenario.
- In the third session, the validation tools were implemented: feedback from the participants was collected through the Validation Tool "Lessons Learned Document". Then, the second round of the Delphi approach for the validation of the tools and completed database was carried out, in order to validate each scenario and its proxy completeness.

The workshop was addressed to the technical LRT and 7 participants took part to the workshop: CGO and ISIG representatives, and 5 members of the LRT of Gorizia (Civil Protection – Gorizia, Local Police, CGO representatives of different services).

4.3.1.2 Dry run on the system on the two scenarios risks

Workshop #7 – Dry Run on the seismic and hydrogeological scenarios

The seventh Trial workshop took place in person on 30th May 2022. The purpose of the workshop was to perform the Dry Run by working on the RESILOC platform on the seismic and hydrogeological scenarios selected for the community of Gorizia.

The workshop was divided into four sessions:

- In the first session, the seismic and hydrogeological scenarios prepared for Gorizia were presented through the RESILOC platform.
- In the second session, the LRT assigned the relevance and direction of each proxy selected and integrated by the LRT in the previous workshops within the two scenarios.
- In the third session, the validation tools were implemented. In the first place, feedback from the participants were collected through the Validation Tool "Lessons Learned Document". Then, the third round of the Delphi approach for the validation of the tools and completed database was carried out. Subsequently, the Validation tool 2.1 was implemented in order to validate the data gathered and its systematization for each scenario and its proxy completeness for the assessment of the three scenarios.
- The last part of the workshop was dedicated to a focus group guided by the Tavistock Institute, which focused on the level of usability of the platform. The focus group was complemented by a questionnaire.

The workshop was addressed to the technical LRT and 6 participants took part to the workshop: CGO and ISIG representatives, and 4 members of the LRT of Gorizia (Civil Protection – Gorizia, CRI – Gorizia, CGO representatives of different services).

4.3.2 Stage 4: European Awareness Scenario, D-Day and Trial

4.3.2.1 Preliminary strategy developed by the technical LRTs

Workshop #8 – Preliminary Strategy done by the technical LRT

The 8th Trial workshop took place in person on June 27th, 2022. The purpose of the workshop was to review and integrate the Preliminary Resilience Strategies developed through the analysis of the results of the previous stages of the Trial in Gorizia.

During the Workshop, the technical core of the LRT analysed the Preliminary strategies developed by the technical core of the LRT together with ISIG in the previous weeks as a result of the Pre-Dry Run and Dry Run and integrated the document, which included considerations on:

- The results of the data gathering and systematization process.
- The results of the Delphi for the DIP framework.
- The results of the validation tools.
- The results of the Dry Runs and the assessment.

At the end of the workshop, the Validation Tool – Lesson Learned Document was completed in the Success, Opportunities and Recommendation sections.

The workshop was addressed to the technical LRT and 5 participants took part to the workshop: CGO and ISIG representatives, and 3 members of the LRT of Gorizia (Civil Protection – Gorizia, ARI – Gorizia, CGO representative).

4.3.2.2 European Awareness Scenario and Validation done through the plenary session of EASW

Workshop #9 – European Awareness Scenario Workshop – Part 1

The first part of the European Awareness Scenario Workshop (EASW) in Gorizia was carried out in person on 1st July 2022. The purpose of the workshop was to perform the European Awareness Scenario Workshop.

The workshop was divided into five sessions:

- In the first session, the RESILOC experience carried out in Gorizia was presented to the participants.
- The second session was dedicated to the analysis of risk perception and communication in Gorizia and to the presentation of good practises of risk communication (see section 5.3.2.3 below).
- In the third session, the results of the RESILOC tools were presented.
- In the fourth session the first part of the EASW was performed by working in different groups, with the aim of analysing the results obtained from the assessment of the hydrogeological and seismic scenarios. The groups focused on the identification of the main resilience objectives by analysing strengths and weaknesses of the community of Gorizia.
- The last session was dedicated to a discussion with the Trial Observers.

Throughout the whole workshop, the validation tool “Lessons Learned Document” has been implemented and updated in its Successes, Opportunities and Recommendations sections.

The workshop was addressed to the wider LRT and 18 participants took part to the workshop: CGO and ISIG representatives, and 11 members of the LRT of Gorizia (Civil Protection – Gorizia, CGO representatives of different services, ANFFAS, Diritto di Parola, Consulta Territoriale Isontina Disabili, CRI – Gorizia, Nova Gorica Fire fighters representative, Regional Civil Protection FVG; and on-line RESILOC Advisor and Observer for the Community of Gorizia, BILSP representative).

Workshop #9 – European Awareness Scenario Workshop – Part 2

The second part of the European Awareness Scenario Workshop (EASW) in Gorizia was carried out in person on 2nd July 2022. The purpose of the workshop was to perform the European Awareness Scenario Workshop. The workshop was divided into two sessions:

- In the first one, the second part of the European Awareness Scenario (EASW) was performed by working in a plenary session aimed at identifying actions and performance indicators towards the objectives set in the first phase of the EASW.
- In the second session, the Citizens' Jury was performed (online) to validate the results of the EASW, to generate consensus and produce an action plan.

Throughout the whole workshop, the validation tool "Lessons Learned Document" has been implemented and updated in its Successes, Opportunities and Recommendations sections.

The workshop was addressed to the wider LRT and 13 participants took part to the workshop: CGO and ISIG representatives, and 7 members of the LRT of Gorizia (Civil Protection – Gorizia, CGO representatives of different services, ANFFAS, Diritto di Parola, CRI – Gorizia, Consulta Territoriale Isontina Disabili; and on-line RESILOC Advisor and Observer for the Community of Gorizia, BILSP representative).

4.3.2.3 Capacity building on risk perception, awareness and communication

Workshop #10 – Risk perception, risk awareness, and risk communication in Gorizia

Differently than originally planned in the Trial Script of Gorizia, the workshop on risk perception, awareness and communication was embedded in the EASW on 1st July 2022. This was done considering the relevance of the topics and the importance of discussing them at the end of the Trial process, when the assessment of resilience in Gorizia would have been already performed and strengths and weaknesses identified. Moreover, by performing the workshop at the latter stage of the Trial, made it possible to analyse the data collected through a survey on risk perception, risk awareness and risk communication conducted in the previous months.

The workshop was addressed to all LRT members and representatives of Gorizia Municipality. The workshop was carried out by an external expert from QueSite, a think-tank that supports activities for local authorities in relation to civil protection topics. In particular, QueSiTe has developed an integrated civil protection planning methodology, combining aspects of actual planning with programmatic indications and risk analysis.

The workshop focused on the analysis of risk perception and communication in Gorizia and on the presentation of good practises of risk communication at national and international level. The exercise has highlighted gaps between perception, awareness and actions currently in place in the Municipality of Gorizia and has helped identifying how a risk is perceived within the community, and how the risk is tackled from a communication perspective, highlighting were the communication system and resilience strategies are deficient and must be improved.

4.4 Follow-up activities

In the months following the Trial of Gorizia, the LRT continued its work on the field, as follows:

- Continued the data collection activities.
- Prepared the Citizens' Jury for the validation of trial results.
- Worked on the consolidation of the Local Resilience Strategy for the Municipality of Gorizia.
- Presented the work carried out within the project framework to a wider public through public events.

4.4.1 Citizens' Jury

The extended and in presence Citizens' Jury was performed with a wider public of local citizens, on October 16th 2022, with the participation of over 150 citizens of the community of Gorizia. The Citizens' Jury has offered an opportunity to communicate to a wider forum of potential LRT members not only the results but also the processes of resilience building at local level. The Citizens' Jury also allowed the LRT of Gorizia to validate the work done throughout the Trial Implementation process and the focus set on vulnerability, diversity, and inclusion. Moreover, the Citizens' Jury was an opportunity to engage citizens in policy drafting, as the jury assessed what would later be consolidated in the Local Resilience Strategy.

4.4.2 Local Resilience Strategy

The Local Resilience Team of Gorizia worked on the consolidated Local Resilience Strategy for Gorizia, which includes 6 objectives and sub-actions. The Local Resilience Strategy is a co-produced document that aims to equip the local decision-makers with a set of principles and guidelines that will inform and lead all forthcoming policies at municipal levels.
Stemming from the results of the RESILOC resilience assessment, the Local Resilience Strategy offers a tool to increase policy and action coherence and sets a landmark in terms of considering resilience a transversal objective to the work of all departments and services at municipal level. The Strategy is thought as a guiding document that offers sustainability to the priorities identified through the RESILOC resilience assessment.
The Local Resilience Strategy is undergoing the process of adoption by the City Council of the Municipality of Gorizia at the time of writing.

4.4.3 Main local events

- From 25 to 28 August 2022, ISIG and the Municipality of Gorizia had the opportunity to share the experience of the Local Resilience Team of Gorizia during the opening ceremony of the 50th World Folklore Festival organized by the Cultural Association Etnos of Gorizia. **Resifolk** was an important initiative to reach the local community and to raise awareness on the topics of resilience and disaster risk reduction, as well as to inform the local community on the risks and about the Emergency Plan of the Municipality of Gorizia. Throughout the duration of the event, an information booth of the RESILOC project was set up in the city centre, where information materials on civil protection and the local hazard risks were distributed, as well as where RESILOC staff have been able to share information about the project activities and promoted ResiFestGO, scheduled for October 13-16, 2022.
- The work carried out in Gorizia within the project framework, was presented to a wider public during **ResiFestGO** – Resilience Festival in Gorizia, which was organized during the Italian National Civil Protection Week 2022 (13-16 October 2022), so to target local, regional, national, European and cross-border stakeholders. ResiFestGO aimed to

provide emergency managers and citizens the opportunity to discuss on the topics of resilience and Civil Protection, from a cross-border and European perspective. Simulation activities, seminars, a Civil Protection Exercise, round tables, and a "Citizens Jury" have contributed to the definition of the strategic objectives for the Resilience Strategy of the Municipality of Gorizia, also in light of the persistence of the pandemic and the recent cross-border emergency linked to the forest fires of July 2022.

4.5 Main divergencies from original script

Amendments to the original Trial Script of Gorizia were introduced in the implementation process so to:

i. Allow for an efficient deployment of LRT resources.

ii. Adapt to the needs related to the data collection process.

iii. Overcome misfunctioning of the RESILOC platform which led to an extension of schedule foreseen for the pre-dry run and the dry run.

The most relevant divergencies from the original script can be summarized as follows:

1. Workshop on risk perception, risk awareness, and risk communication in Gorizia was not held in the first stage of the trial and was moved to the fourth stage to allow for a better analysis on risk perception, awareness and communication in Gorizia, given the results of surveys and resilience assessment performed during the Pre-Dry Run and Dry Runs.
2. The workshop on citizens' risk perception and awareness (focused on school students) could not be held due to the unavailability of schools during the last trimester of the school year.
3. Data collection process resulted to be more time-consuming than expected. This is why it was decided to keep it as a work in progress process that is intended to continue through time.
4. To allow for a more efficient deployment of LRT resources and to avoid falling in the risk of drop-out, it was decided to cluster workshops (both trial and validation workshops) as relevant and consequent back-to-back activities. Following this principle, the workshop "Assessing Feasibility and Attributing a Value to DIP" was embedded in the Pre-Dry Run.

5 Tetovo Field Trial

5.1 Phase 0

The work with the community in Tetovo during Phase 0 of the trials consisted mostly of training and communication activities. There was a total of four trainings combined with local communication. The trainings' topics were:

- Theoretical and practical training of volunteers to response to floods and follow-up crises
- Training "Community User Meeting Trials and Users" with the participation of representatives of the LRT in the village of Tetovo
- Training "Basic knowledge and techniques for first aid in disasters, accidents and crises"
- Training "Psychosocial support in disasters, accidents and crises"

The trainings aimed at sensitizing the local community, and in particular the wider LRT, about the concept of resilience and its significance at the individual and community level.

There was also a major communication event in Ruse, the municipal city elaborating on the information already communicated about the RESILOC project and its concepts and tools trialling in Tetovo.

5.2 Phase I: Capacity Building

The "core" activity in capacity building for Tetovo community was to reach a certain level of common understanding and terminology for "resilience". Every person has their own understanding of resilience, disaster, vulnerability or crisis in general. In order to reach a common understanding for the targets and the general inventory of the project, we started with 4 workshops (60+ participants) where "resilience" and the RESILOC project were explained. The workshops took place in the village of Tetovo in 2021 and the first trimester of 2022. In the beginning of February 2022, we created a "core" technical LRT team consisting of Members of the LRT (Mayor of Tetovo), a Trial Manager (former Ruse regional governor, Deputy minister of Civil protection, now professor in Varna and Ruse Universities), a Member of Ruse regional Civil Protection authority, an IT expert (Tetovo community, police officer), Training manager (TMT – BRC Ruse), Disaster management expert (BRC Ruse), RESILOC BRC coordinator (HQ of BRC Sofia).

5.2.1 Dimensions Indicators & Proxies

Immediately after Deliverable 3.1 was released, the DIP framework was translated to Bulgarian language. This was absolutely necessary as the majority of LRT members do not use English. With the translated DIP framework, on 11th of April 2022 the first workshop (WS 1) of Stage one was executed. During WS 1, the general DIP framework was explained and discussed with special emphasis on the use of the framework, internal logic and role of DIPs for assessing resilience. In WS 2, the selection of proxies was put at the centre of the discussion. Having in mind two possible scenarios "cascading fire event" (wildfire) and "harsh winter conditions" (snowstorm) each proxy was evaluated for relevance to the scenario in Tetovo content, availability of data and possibility to collect them, time relevance (as the official data provided by National Statistical Institute are 3-4 years older than the data collected in the field), and sensitivity of the data (viewed from two perspectives - whether the data is open source and anonymized and whether it is at the level of the community or at least at the level of Ruse

Municipality). As a result, there was a selection of altogether 139 proxies, 110 per each scenario. Some of them were adapted from original ones for better suitability in the Tetovo context, while others were created for the specific scenario. 95 of them were to be collected from official sources and "expert" estimations, 44 were to be collected from interviews with the local community.

5.2.1.1 Validation activities of WS1-3

The approach that was sought after was to collect feedback data at each step during Stage 1. The reason for this decision was manifold. On one hand, it was sought that the feedback is as immediate as possible, thus, as honest as possible. On the other hand, this would reduce the risk of important feedback being forgotten from one time to the other. In addition, the questionnaires were distributed at the end of the workshops when the participants were already somewhat tired. This is why only a couple of questions were included in each data collection exercise. To a certain extent this approach also allowed to track the progress in opinions and dexterity with the DIP framework of the LRT members.

The information captured through validation questionnaires at the end of each of the workshops in Stage 1 treated the topics that were worked on during the specific workshop. For example, at the end of WS2, we asked participants to what extent the RESILOC framework is capable of covering the specific needs of Tetovo, Ruse from the point of view of the hazard scenarios.

At the end of Stage 1, a Validation Workshop 1 (Val WS 1) took place. In it, we further explored the perceptions of LRT members about the RESILOC framework applicability for Tetovo, its usability in another community (Ruse Municipality) and appropriateness of the data format requirements for the proxies. To wrap up the stage, a semi-structured discussion also took place, in which the participants discussed in depth their experiences with the DIP framework, its resemblance to (and divergence from) other tools tackling different aspects of resilience, as well as their expectations about the data collection process.

5.2.2 Data Collection

The most important question at this stage was to reach a level of understanding for the real importance of data collection and the relevance of the data to be collected. Simple collection of anonymous data without an idea about their final use, methodology of their processing, and how the processed data would be used to determine community resilience could make this task underachieved and, in the end, lead to miscalculations and suboptimal results. This, consequently, would definitely devalue the RESILOC approach and instruments. To avoid this, BRC and BILSP put significant efforts into explaining in advance the importance of the stage and, as much as possible, to practically explain how the whole system (RESILOC platform) works.

5.2.2.1 Training on RESILOC platform

Despite its place in the script as the first workshop of the stage, the "core" LRT decided to postpone the training as much as possible in order to have the RESILOC platform sufficiently advanced, hence sufficiently stable. Consequently, the WS dedicated to the training on the platform was executed on 15th June 2022. The big advantage during this stage was an excel table prepared by the local facilitators in advance. It contained all data needed to be filled in the RESILOC platform, such as values of the proxies, minimum and maximum values, relevance, with all of them being attached to a specific scenarios. This approach of using an auxiliary table helped in two ways. First, at the time of training, all core LRT members were already aware of the actual purpose of all data that had to be filled in and, second, as the

platform behaved disorderly and some scenarios needed to be re-entered several times, the excel table with all data helps extremely to speed up the process.

5.2.2.2 Data gathering

Data gathering was divided into three main strands. The first part was gathering data from public sources, with special emphasis on data that are recent and free of charge as the Tetovo community would not have the possibility to obtain paid longitudinal data on its own. Second was data gathered through a survey among the general population. Forty-four proxies were part of the survey and 103 community members participated in the data collection. Third was data collected via expert estimation meaning that the members of the core LRT filled the data in to the best of their knowledge. In most cases, these were binary proxies like “is there <… something ..>? yes or no”.

5.2.2.3 Data systematisation

All the data gathered was collected in the abovementioned excel table and their attributes were described during the WS executed on 13th June 2022.

5.2.2.4 Validation activities of WS4-6

The approach that was sought after during Stage 2 was to collect feedback data at the end of the stage in terms of the data collected, but also in terms of the process of its gathering. Structured data was collected through a short questionnaire at the end of the data systematisation workshop. An in-depth discussion, then took place during the validation workshop (Val WS 2). LRT participants were asked whether they found the data collected to be reliable, correct, secure, and complete, as well as how they found the data gathering and data systematisation process altogether.

5.2.3 Data quality check and data analysis

5.2.3.1 Assessing feasibility and attributing a value to Indicators and Proxies

On 14th June 2022, WS 7 dedicated to assessing feasibility and attributing a value to indicators and proxies was executed. At this stage, the final adjustments to the list of proxies were made. During this workshop, the Delphi process was initiated. Each expert in core LRT was nominated to be in charge of one dimension and all proxies in it. Then, they had to present their proposal with min - max values, relevance, and direction in front of the other members of the core LRT and argue their opinion until an agreement was reached on all values. With all data assessed and filled in the excel table, we executed the “Training on RESILOC platform” as already described in 6.2.2.1.

5.2.3.2 Pre-dry run on the system on the synthetic scenario

During the WS executed on 20th June 2022, the pre-dry run on the system was made. Every member of the core LRT had to enter proxies and indicators in the platform in order to experience first-hand how the platform works in a real-life setting and in general to reach the end result, i.e., resilience snapshot. The most important result of this WS was a test executed by each of the core LRT members on how the platform works and identification of the gaps in it.

5.2.3.3 Assessment and validation of pitfalls #1

During the pre-dry run, participant observation was conducted by BILSP as part of the work under T4.3. At the end of the workshop, a focus group discussion on the same topic took place.

The discussion was initiated by prompting participants to share their general impressions of the RESILOC platform (including things they like and dislike about it).

The platform was recognized as an analytical tool, which could be better positioned to the different communities that would / could use it. A need for at least basic scientific knowledge to be present in the community was identified as a precondition for making (full) use of the platform. The reason for this is that without at least basic knowledge the community would not be able to identify the right proxies and indicators for itself.

The RESILOC platform as a software tool is "not that difficult" even though there are things that are not very linked among each other (e.g., the obligatory "tag / category" field that needs to be filled in in order to create a proxy, which does not appear anywhere afterwards).

During the workshop, despite the prompts, a number of comments were more on the conceptual side (in the general line of correspondence between local capacity and platform availability) and not that much on the software side.

A system usability scale questionnaire was also administered to the participants as part of the methodology followed within T4.3.

5.2.3.4 Dry run on the system on the two scenarios risks

During the WS executed on 22st June 2022, all the data collected and assessed for the two scenarios were entered into the RESILOC platform. Special attention was needed to be paid to the names of the proxies and indicators as the majority of them appeared in both scenarios and single mistake led to re-entering all data of a specific scenario.

5.2.3.5 Assessment and validation of pitfalls #2

As with the pre-dry run, during the dry run participant observation was conducted as part of the work under T4.3. At the end of the workshop, the system usability scale questionnaire was administered for the second time.

5.3 Phase II: Trial

5.3.1 European Awareness Scenario, D-Day and Trial

5.3.1.1 Preliminary strategy developed by the technical LRTs

During the WS executed on 21st June 2022 the core LRT were introduced to some of the best practices for community resilience planning having in mind that the communities can best address common issues with planning processes by ensuring:

- Broad stakeholder involvement.
- Visible support from the community's formal leaders.
- Resilience goal integration into community land-use, hazard mitigation, economic, and other development plans.
- Community plans that consist of prioritised, clearly identified, realistic resilience actions for implementation.

Resilience (strategic) plans can be improved over time. Plans should address:

- Prioritised gaps, vulnerabilities, and key issues.
- Appropriate levels of detail and accuracy based on available information and analyses.

As the goal is not to develop a full-scale resilience strategy, but rather recommendations on strategy for community resilience, the core LRT following the best practices decided to use a modified model of six steps for community resilience planning from the U.S. Department of Commerce[2].

The six steps considered are enumerated below and are linked to the stages of the trial in Tetovo:

1. FORM A COLLABORATIVE PLANNING TEAM / Phase I: Capacity Building
    - Identify leader - Mayor of village of Tetovo, member of core LRT
    - Identify team members - members of core LRT
    - Identify key stakeholders - representatives of local community, civil protection authorities, MoI, BRC - all members of core LRT
2. UNDERSTAND THE SITUATION / 6.2.1 Dimensions Indicators & Proxies
    - Using RESILOC platform and two specific scenarios
3. DETERMINE GOALS AND OBJECTIVES / 6.2.3 Data quality check and data analysis
    - DIP selection, determination and gathering of values of the proxies, min - max values, relevance, all of them attached to the specific scenarios.
4. PLAN DEVELOPMENT / On-line WS on 28/06/2022
    - Evaluate gaps - red and orange proxies in the screenshots of both scenarios from the RESILOC platform
    - Identify solutions
    - Develop recommendations on implementation strategy
5. PLAN PREPARATION, REVIEW, AND APPROVAL / European Awareness Scenario and D-day
    - Document recommendations on strategy
    - Obtain feedback and approval
    - Finalise and approve recommendations on strategy
6. PLAN IMPLEMENTATION AND MAINTAIN / Community decision after the end of the project, activities linked to the sustainability
    - Execute approved solutions
    - Evaluate and update
    - Modify strategy as needed

[2] U.S. Department of Commerce, October 2020, Wilbur L. Ross, Jr., Secretary, Walter Copan, NIST Director and Undersecretary of Commerce for Standards and Technology

During on-line WS on 28/06/2022 the core LRT evaluated gaps, identified solutions and developed recommendations on the implementation strategy.

The platform/system used for strategic analysis under the RESILOC project assesses the differences between the current state of the various "proxy" indicators selected by the community to assess its sustainability and their desired state /target values/, characterised by the indicators minimum/maximum value, relevance, trend – negative / positive. To alleviate and visualise the differences found, a colour scale based on the traffic light principle is used. The most significant differences between the desired and actual value are coloured in red. Orange/yellow show differences that are not particularly significant and green shows there is no difference or there is minimal difference between the actual value and the desired state.

For the purpose of prioritisation and convenience in the analysis of the detected differences between the desired and the actual state, attention was paid only to the areas in red and orange colours, i.e., where the differences are most significant.

For better visibility, the review was carried out according to the resilience dimensions as employed in RESILOC, namely:

1. Governance;
2. Economy;
3. Social sphere;
4. DRR – disaster risk reduction;
5. Infrastructure;
6. Environment.

Below, there is a summary of the strategic outline done for Tetovo on the basis of the resilience assessment with the RESILOC tools.

The Environment/Ecology dimension was not further analysed from the strategic point of view for the "Winter" and "Fire" scenarios, since there was no discrepancy found between the actual and desired values.

The identified differences/inconsistencies in red and orange were grouped into three different categories according to the possibilities of the community of the village of Tetovo to take measures for their solution.

1. Investment. Differences, the solution of which can be implemented effectively only with the help of investment measures. Such measures are not within the direct capabilities of the town hall, and for this reason opportunities will be sought mainly through "lobbying" for an increase in the village budget with targeted funds or attracting funds on a project basis.

2. Attracting capacity. Differences, the solution of which does not require serious investments, but at the same time requires administrative capacity / knowledge / skills that the mayor's office and the Tetovo Town Hall most likely do not have. A solution to overcome these differences will be sought through attracting partners who are willing to assist with overcoming them free of charge or at a small cost.

3. Capacity building. Differences, the solution of which does not require neither serious investment, nor attraction of capacity external to the community. This solution lies in mobilising the existing opportunities and local capacity in the village of Tetovo.

Details about the three groups of measures can be found below.

1. Investment

After reviewing the proxies in which discrepancies between desired and actual values are observed, the following groups of proxies can be formed:

Table 2 List of proxies related to investment

Area of Concern	Proxy
In health care and medical services (a total of six proxies, predominantly in the red zone)	1.13 "Physicians/1000",
	1.12 "Number of local health care providers (e.g., family doctors, nurses) who have disaster training"
	1.11 "Number of ambulances staffed and trained or medical assistance team"
	1.3 "Number of ambulances per 1000 inhabitants in the community"
	1.2 "Number of hospital beds per 1000 inhabitants in the community"
	1.1 "Number of hospitals per 1000 people by TA"
In the field of transport accessibility (a total of two proxies in the red zone).	1.8 "N. of land transport routes in/out of the community'
	1.5 '% of people with access to alternative transport routes'
In the area of alternative sources of energy (a total of two proxies in the red zone)	1.7 "% of public institutions with alternative sources of electricity"
	1.4 "% of houses with alternative sources of electricity
Other (both proxies in the red zone)	1.10 "Number of local fire and police departments"
	1.9 "Number of gas stations per 1,000 residents

2. Attracting capacity.

After reviewing the proxies in which discrepancies between desired and actual values are observed, the following groups of proxies can be formed:

Table 3 List of proxies related to attracting capacity

Area of Concern	Proxy
In the area of insurance (a total of four proxies in the orange zone)	2.11 "% of people using private insurance
	2.10 "% of the population having insurance coverage to protect them from the negative effects of disasters
	2.2 "% of household properties with insurance coverage for high-risk hazards"
	2.1 "% of households covered by insurance"
In the area of education and preparation for response and recovery after a BAC (a total of four proxies mainly in the red zone).	2.8 "% of community members who are trained in disaster response/search and rescue and first aid and CPR and are ready to help in an emergency",
	2.7 "How many times emergency drills are conducted within 5 years",
	2.6 "Number of preparation activities (PPE training, first aid training, create a personal plan to be used in an emergency, prepare an emergency kit for natural disasters, discuss how to prepare for a disaster with someone else, attend meetings to learn how to prepare for a disaster) per year'
	2.3 '% of households educated or acquired skills related to disaster recovery procedures'
In the field of NGO presence and participation (a total of two proxies, one each in the red and orange zones)	2.5 "Number of NGOs per 1000 population for pre- and post-disaster response"
	2.4 "% of the population actively engaged in such NGOs"

3. Capacity building.

After reviewing the proxies in which discrepancies between desired and actual values are observed, the following groups of proxies can be formed:

Table 4 List of proxies related to capacity building

Area of Concern	Proxy
Awareness and preparedness of the population for possible disasters (a total of 12 proxies in the red and orange zones)	3.13 "% of people in the community who have their own sources of drinking water (reservoirs, wells, etc.)",
	3.12 "Frequency and attendance of community organisation meetings for resilience"
	3.11 "Average number of days that pollution levels were above national air quality standards"
	3.10 "Level of awareness of the most likely risks to the community among the population"
	3.8 "Number of proposals to change essential services and functions annually",
	3.7 "% of community members aware of publicly available disaster plans (0% - if disaster plans are not available)"
	3.6 "% of community members have emergency supplies at home, work and in their cars"
	3.5 "% of the population who engage in voluntary work"
	3.4 "% of the population who trust their own ability to protect themselves during a natural disaster"
	3.3 "% of the population who expect to survive natural disaster in the next 3 years that will put them at risk"
	3.2 "% of the population who are actively involved in a local organisation that aims to prepare for disasters"
	3.1 "% of households who are aware of and believe in the government's disaster management plans'
Disaster Management Plan Update Work (one proxy in the orange zone)	3.9 "Calculated as the total number of citywide disaster management plan updates that occurred in the previous 5 years divided by five"

Based of analysis and findings, the core LRT made the following recommendations on resilience development, again divided in same three areas:

Table 5 list of recommendations (investment, attracting capacity and capacity building)

Area of recommendation	Proposed measure
Investment measures	Attracting investors through public-private partnerships (PPP), entering with ownership in joint ventures, investment against use of property;
	Joint participation (through the Municipality of Ruse) as a partner in investment projects with the aim of developing and operating the available building stock in the village of Tetovo;
	Lobbying to attract "public" investments in the village of Tetovo.
Attracting capacity	"Signing" cooperation agreements with interested parties;
	Consideration of topics of mutual interest with various organisations - from the Ministry of the Interior / Civil protection to the BRC and Four Paws (a local NGO), insurers, etc.;
	Creation of joint training programs.
Capacity building	Prioritisation of the key issues;
	Creation of effective mechanisms for information exchange, incl. social networks, internet, etc.;
	Building a feedback mechanism to account for the needs of community-led local development.

The developed recommendations for a resilience strategy were prepared to be discussed and, eventually, approved by community representatives during European Awareness Scenario and D-day.

5.3.1.2 European Awareness Scenario

The two days of the European Awareness Scenario Workshops took place on July 12 and July 14 2022 in Tetovo village. The turnout of people was more than expected – more than 40 participants in both days.

The first D-day was dedicated to working on the two scenarios ("cascading fire event"/ wildfires and "harsh winter conditions"/ snowstorms) together with the community – giving a target value and relevance to each of the proxies in the scenario.

Before the second D-day the data collected during the first day was contrasted with the work of the (core) LRT and differences were identified. There were no proxies whose priority was changed after this. There were few proxies whose target value / relevance was lowered by the community members participating compared to the value given by the (core) LRT.

However, the (core) LRT, due to their work and / or background, have a more expert profile, thus, the final value was not changed. For those proxies whose target value / relevance was increased by the community members, after the D-day it was tested whether this would change their "colour" in the RESILOC platform. Even if it did, it increased from "orange" to "red" or it stayed in the "red", so no further changes were needed.

5.3.1.3 Validation done through the plenary session of EASW

During the second D-day, the results from the previous seminar were presented – the community members had the chance to see how their assessment of proxies compared to the one of the (core) LRT. After, a voting on the strategic measures from the recommendations to Preliminary Local Resilience strategy was made

Each of the proposed strategic measures were presented to the community members and were put to a vote with coloured papers (again following the semaphore approach (red to indicate overall disagreement with the proposed measure, yellow - conditional agreement and green to indicate full agreement. Participants were also provided with the option to abstain from voting by not raising any paper.

The results from the voting were generally positive. All measures were accepted by the community, some with a couple of additional considerations and no rejections.

5.3.1.4 Local Strategy

The types of measures proposed in the preliminary strategy were adopted by the Citizen Jury.

The lowest score of 29 persons in favour was given to one of the proposed investment measures, while only one measure received the sweeping approval of all 37 participants.

The votes on the rest of the measures were in between these two outcomes.

This community recognition served as the basis to finalise the Local Resilience Strategy as part of the RESILOC trial in Tetovo.

5.3.1.5 Validation on the emergency response

The EASW work served also as a validation on the emergency response because the assessment was based on the two emergency scenarios for the community of Tetovo and

there were local authorities, public (emergency) service representatives and emergency volunteers present at the workshops.

6 West Achaia Field Trial

6.1 Phase 0

Despite the late start of the W. Achaia trial, the first steps were promising. The Local Trial Manager ran several intersectoral and inter-agencies meetings to recruit volunteers representing the LRTs, to communicate and disseminate the project objectives in the local communities. As a result, thirty-four people joined the RESILOC activities at the beginning of the trial and several communication activities (sharing material like brochures, presentations, short video, etc. regarding RESILOC; articles and photos publication at the local and national press, region's site. It is worth mentioning that most participants came from the local community and Patras University and were already volunteers in rescue and fire protection groups.

6.2 Phase I: Capacity Building

During this phase, ten workshops (and an extra one) were needed to introduce participants to the project's key messages and reach an acceptable level of operating the platform. As planned in the trial planning, three different validation workshops were executed, and only one was conducted in conjunction with the dry run due to technical issues. The stepping stone for starting the phase was D3.1. Upon delivery, the W. Achaia team began building with the NKUA support the material for the workshops. Because of the vast area that W. Achaia extends, selecting an appropriate location to run the seminars while keeping the timeline and motivating the volunteers to participate at their costs was a rather challenging situation. Thus, three different sites were selected and prepared for the workshops. From the beginning, there was difficulty in choosing the right mix of people who, on the one hand, had the understanding of the resilience approach due to their multi-level involvement in disaster response and, on the other hand, would have the skills to operate and understand the platform with the scientific background behind it.

6.2.1 Dimensions Indicators & Proxies

The introduction and the adoption of the resilience assessment in terms of DIPs was a core challenge that W. Achaia addressed. Awareness regarding the community's resilience was measured by visualizing an instance of the actual situation using data that is grouped into Dimensions, Indicators, and Proxies. Participants needed to comprehend and bridge the primary theoretical and practical ground before adopting the way of working with the platform. The understanding was essential to proceed to the following workshops, and additional time was requested for the 1st and 2nd workshops. The set of stage 1 of Phase I, followed by explaining the data collection procedure. All the participants faced difficulties due to the extended data attributes and the different nature of the data. However, they concurred that reaching the resilience characteristics was a straightforward method. This first stage concluded by outlining three possible scenarios (wildfire, earthquake, and pandemics).

Points of strength were the enthusiasm of the participants to identify the weakness in their modus operandi and discover approaches that could prepare them to overcome effectively demanding duties and circumstances. The language barrier and the scientific-based terms proved challenging determinants.

6.2.2 Data collection

The second stage, Phase I, started by introducing the LRTs into the platform UI. Starting from simple tasks like "login", no particular difficulties were faced by the sum of the LRTs. The

structure and the functionalities were also explained, and the participants were capable very soon navigating effectively in the platform.

The next challenge and perhaps the most stressful workshop proved to be the following one; the data gathering workshop. After the acceptance of 177 proxies, the enormous data volume that the LRTs had to gather was a heavy test for the participants. Moreover, the distance between the theoretical background of the RESILOC platform and the actual operation of the platform by the LRTs' caused severe delays regarding the qualitative data. Therefore, another complementary session was needed to achieve an acceptable operational level.

The next workshop tended to systemize the data. The systematization of data was made after explaining basic terms of statistics and prioritizing the needs of LRTs'. Regarding the DRR and economy, there is an absolutely need for experienced and dedicated experts not only to systemize but also to collect the appropriate data, to identify the min and max values, the data reduction, and the need for interpolation (linear and non-linear) for proxies that no specific data could be obtained. During systemization it proved that the different sources that data was obtained, sometimes caused the need for assumptions to make it applicable for the respective community and not to reject the selected proxies.

The Data Collection stage was closed with the validation workshop, where the validation of the previous activities and the gaps (concerning the I&Ps') investigation materialized.

A strength point was the participation of University of Patras students familiar with the scientific research methods (data collection, fusion, and analysis). At the same time, few of them were active local community members. On the contrary, the absence of accessible local/regional statistics was an inhibitor. To overcome that obstacle, the participants had to spend advance time on research and interpolate data.

6.2.3 Data quality check and data analysis

Phase I concluded by the third stage, where the application of the selected DIPs for each scenario was assessed, and specific attributes were allocated to I&Ps'. Finally, the RESILOC platform was tested in complete operational application in two dry runs (pre-dry-run and normal dry-run). To overcome technical issues, the participants had to limit the first runs of the platform to almost half of the initially identified proxies and gradually increase the number of the selected proxies up to the maximum determined (177). As a result, two scenarios (earthquake and wildfire) were realized, and the first policy upshots started emerging as the LRTs translated the platform results.

The assessment and validation of platform pitfalls for both dry runs were swift and provided the experience to the platform users.

As in the previous stage, points of strength were the participants' enthusiasm and diversity. As challenges, we should identify the technical issues that delayed the procedures and required extra effort to be resolved.

6.3 Phase II: Trial

The final phase II, consisted of three workshops where the developed scenarios and RESILOC outcomes were interpreted, and a preliminary strategy was developed by the participants, mainly the LRT members and employees of the local technical and financing administration. Finally, the validation through a plenary session of the European Awareness Scenario and the resulting emergency response (after the adoption of the policy outlines) was realized in two separate sessions with the involvement of the local community members.

6.3.1 European Awareness Scenario, D-Day and Trial

As the first draft of the strategy has been developed in the previous sessions, the LRTs collaborated with the local technical and financial services employees' to shape an appropriate preliminary strategy. The consultancy to the local authorities usually refers to specific mini-studies that merge arguments regarding each solution's effectiveness and cost. However, until now, there has been no scientific method to compare the different mixes of solutions in real-time or discuss multi-aspect problems without omitting some of them.

During the EAWS, it was well noted that the data analysis that the RESILOC platform performs was much more detailed than the ordinary mini-studies suggestions. Also, the real-time "trial and error" capability that the platform provides was a pleasant surprise for all the participants interacting for the first time with the platform. The vivid outcomes visualization and the in-depth analysis that the collected and loaded data provided enhanced the support of the platform's use. The dependencies between DIPs were the central theme of discussion, and most of the participants agreed that proxy values and weight had to be updated on a steady basis to be able to monitor any community resilience adjustment. Special mention of climate change and the shift must be recorded and updated on the platform.

Finally, the local strategy, shaped in the EAWS, was given to the public verdict at the last validation session. Although the participating community members were reluctant at the beginning, starting the criticism of the platform's input, when it was demonstrated the capability to update and check the data and the weight in every proxy, the hesitation transformed into acceptance even if it was not total. Almost 65% of the participants were in favour of RESILOC, 11% were against such a tool, and the remaining 24% were somehow irresolute. It is believed that if the time to present and train the people on platform use were more than a few hours, most of the 24% would favour RESILOC.

7 Guidelines

The experience for the execution of the trials provides a number of lessons learnt which could serve as a foundation for similar future endeavours. These are listed below:

- Trials are implemented in a step-by-step approach. The trial structure comprises a sequence of phases, which are analysed into stages with several steps. These are mostly in the form of workshops, with the participation of community end users, stakeholders and ultimately citizens.
- Trial management is key and should be applied at local level, with local trial management as well as at global level, for all related trials.
- Trials are context-specific, in terms of needs, conditions, people, culture, strengths, weaknesses, language. The execution of trials should cater for adaptation to factors specific to each location.
- Local Resilience Teams are essential for the successful implementation of trials and should be established early in the process.
- The members and roles of the LRT members should be clearly identified and carefully selected to match required needs.
- Resilience job positions could also be established as new roles of local communities. The establishment of a 'resilience office' standing above local administrations is highly recommended - it would coordinate the activities, helping to reduce the typical intricacies in large communities with many offices and departments.
- The involvement of all actors is key for trials execution (in particular public administrations and agencies for data collection). Participants should be engaged early in the trials, ensuring motivation and commitment.
- Capacity-building is key for trial execution and the co-production approach. This implies skills of LRT members (e.g. IT, statistics) as well as brokerage of the DIPs. It should be done with a seamless transition between stages.
- The process of adaptation of the indicators and proxies proposed by the DIP framework and eventual definition of new ones is a critical juncture in the assessment process
- It is highly recommended to design, get agreed and implement a step-by-step plan to collect and (if needed) digitalise data for proxies
- Communication with the community should have a frequent flow and ensure that gaps are avoided.
- The execution of trials in conjunction with the “sprint” approach may be challenging for non-technical activities and participants. However it is most beneficial for receiving valuable feedback for the technical aspects (e.g. tools and platform)
- Trials should allow for flexibility in the time or sequence of the scheduled activities as changes are possible to be needed (e.g. participants limited availability).
- Resources for the field trial execution should include goods and services necessary such as audio-video equipment, stationery items, event planning (e.g. D-Day). Further resources (e.g., Private-public partnerships, investment projects) could be also be used to support resilience measures at community level.

- Cooperation between stakeholders within and between different levels of administration can support better and more sustainable resilience strategies.

A set of guidelines are derived from the trials, including practicalities for adopting a common, Europe wide, approach to resilience improvement in local communities.

- Adopt a Holistic Approach to Community Resilience. A holistic approach is needed to address resilience comprehensively as a concept which considers a local community in its complexity, by identifying the resilience components at community level (i.e., by means of dimensions/indicators and proxies) so to be able to describe how their interaction influences resilience at local level.
- Define a Shared Terminology on Resilience. A shared terminology is key to unify the understanding of the key relevant concepts and to provide clarity on the process of resilience building at community level. This enables the development of connections that are strong and useful.
- Promote Civic Engagement for Resilience Assessment and Enhancement. Community involvement is at the core of the above activities. Participation and communication can be increased by promotion of a stronger sense of community and belonging among citizens and stakeholders. This can be achieved with the adoption of the model of the Local Resilience Teams (LRTs).
- Develop Sustainable Resilience Building Tools. Develop and test tools effectively supporting the assessment of resilience at community level, as well as enabling communities to design resilience building strategies. This needs a modular, scalable, and participation-enhancing design.

8 Conclusion

This Deliverable reports the execution of the four trials that took place in Catania, Gorizia, Tetovo and West Achaia. Field trials execution was managed by the Trial Management Team that was formed for this purpose, including local trial managers at each of the four sites. Each trial faced specific challenges depending on the particular conditions of each site. Overall, the execution of trials is assessed as successful, thanks to the commitment of the project partners as well as the local communities. The commitment of the local communities as well as the motivation of the people that voluntarily participate in the trials are the key factors for the successful outcome of such endeavours.

Different tools and processes were trialed in different trials. More specifically:

- In Catania: RESILOC Inventory – Questionnaire on Social Dimension, LimeSurvey, Sentiment Analysis, Movement Sensors and RESILOC platform
- In Tetovo: RESILOC Inventory – Questionnaire on Social Dimension, LimeSurvey, and RESILOC platform. Also European Awareness Scenario and Citizens Jury
- In Gorizia: RESILOC Inventory – Questionnaire on Social Dimension, LimeSurvey, Sentiment Analysis and RESILOC platform. Also European Awareness Scenario and Citizens Jury
- In West Achaia: RESILOC Inventory – Sentiment Analysis and RESILOC platform.

8.1 Ethics considerations

The participation to the Trial workshops was completely voluntary and the participants were appropriately informed about the possibility to stop participating at any time. Moreover, no particular risk related to the participation to the workshops has been identified: answers and considerations of participants will be treated with strict confidence. Some quotes from the Q&A may be used in our publications but these will be anonymised and any personal information that could be used to identify people will be removed. There were no direct financial benefits associated with participation to these workshops, although it is hoped that the activity will be of public benefit by contributing to a better understanding of resilience to natural (and other) hazards and helping to improve the resilience of the community.

Privacy and confidentiality have been carefully considered in the workshops not only to meet the legal requirements, but also ethical considerations of the project. Informed consent form and information sheet were either sent in advance to participants in case of online workshops or handed over in case of in-person workshops. In any case, they were appropriately filled in and signed by the participants.

Data collected throughout the activity will be used to develop the RESILOC project objective. For this particular research activity (Trial Execution), the following personal data: name, organisation and community name, email (optional) and phone number (optional) has been collected. Only authorised administrators assigned through internal project processes will have access to data. The workshops were also video recorded for documentation, communication and dissemination purposes. Data collected will be kept for a maximum of 2 years after the project ends (November 2024).

VII. Appendix A: RESILOC ethics self-assessment sheet

RESILOC ethics self-assessment sheet

This document is a self-assessment sheet that must be filled out by owners of RESILOC deliverables. This is to ensure that research and/or development activities related to each project deliverable comply with requirements of RESILOC Guidelines on Ethics and Data Protection (GDPR).

This RESILOC ethics self-assessment sheet must be used as part of each project deliverable that involves humans either in an active (e.g. data subjects) or passive (e.g. affected by tools) manner. Project reports (e.g. management or financial reports) are not required to undergo this ethics assessment.

This document is an important exercise part of the RESILOC Ethics Framework as it allows the owner of each RESILOC deliverable to reflect on ethical consideration and data protection requirements in a structured and approved manner before submitting the document to the Commission for review.

The document shall be used in line with the RESILOC Ethics Framework including the guidelines and procedures under deliverables D9.1 to D9.12 (all documents are made available on the RESILOC Own Cloud). The ethics self-assessment sheet must be included as the 1st Appendix A of the each RESILOC deliverable. In addition to filling out the sheet, authors must provide explanations of the answers given on the main table. Such explanations must be provided in the methodology section of the deliverable using the headline "Ethics Considerations and Data Protection". The ethics self-assessment sheets of private deliverables must be assessed through the responsible position within the issuing organisation. However, for public deliverables, the ethics self-assessment sheet must be approved by the RESILOC Internal Ethics Board. For that, please send this document to the Internal Ethics Board.

For Information or assistance contact:		helena.marruecos@iml.fraunhofer.de	
The self-assessment was conducted by:		The self-assessment was approved by:	
Name	Peggy	Name	Nadejda
Surname	Papadopoulou	Surname	Miteva
Institution	NKUA	Institution	BILSP
Date	03.01.2023	Date	04.01.2023

		yes	no	n/a
G	**GENERAL**			
a	Did the research for this deliverable involve the collection of personal data?	X		
b	Does this deliverable, and the activities that have fed into it, comply with Regulation (EU) 2016/679 known as GDPR and 2002/58/EC Directive on privacy and electronic communications?	X		
c	Does this deliverable, and the activities that have fed into it, comply with the relevant national data protection and privacy laws, codes of practice and guidelines?	X		
d	Are there any ethics risk identified related to your work under this deliverable?		X	
1	**Human Participation/ Informed Consent**			
1.1	**Procedures and criteria that will be used to identify/recruit research participants** (D9.1)			
a	Did the research for this deliverable involve the recruitment of research participants? *(this includes surveys and interviews)*	X		
b	Did you identify selection, inclusion, & exclusion criteria?	X		

1.2	**Recruitment of respondents via social media** (D9.4)						**X**
b	Were special measures taken to ensure that the participants are adults?						
c	Did the research for this deliverable involve data collection using social media?						
d	Were measures taken to use only public profiles for the collection of data?						
		yes	no		yes	no	n/a
1.3	**Use of the informed consent forms and Info sheets to recruit research participants** (D9.2)						
a	Consent Form was issued	X		Issued in local language	X		
b	Information sheet was issued	X			X		
c	Combined sheet was issued	x			X		
1.4	**Use of the informed consent forms and information sheets on data processing** (D9.9)						
a	Consent Form was issued	X		Issued in local language	X		
b	Information sheet was issued	X			X		
c	Combined sheet was issued	x			X		
2	**Organizational measures**						
2.1	**Data Protection Officer or contact person** (D9.5)						
a	Do you have a Data Protection Officer or contact person for participants?				X		
b	Was this contact mentioned on the Informed Consent Forms?				X		
3	**Technical measures**						
3.1	**Technical safeguard mechanisms for handling of personal data (PD) and special categories of personal data (SCOPD)** (D9.6 / D9.8) (SCOPD include information such as ethnic origin, political opinions, data concerning health, etc. For more details see Article 9(1) GDPR).						
a	Did the research for this deliverable involve the collection of SCOPD? (D9.6)					X	
b	Which mechanisms were used to safeguard the personal data collected?						
	pseudonymisation	X		anonymization			
	encryption			other *(specify in the line below)*			
	access restriction	X					
3.2	**Data minimisation** (D9.7)						
a	Has as little as possible data been collected throughout the research process?				X		
b	If more data was collected than initially needed, did you ensure the data was deleted?				X		
3.3	**Data profiling** (D9.10)						**x**
a	Was or will the data collected in the deliverable be used for data profiling?						
b	Were all data subjects informed of the profiling and its possible consequences? (as part of the Inform Consent Form and the Information Sheet)						
c	Were sufficient measures in place to safeguard their fundamental rights?						
3.4	**Processing of previously collected personal data** (D9.11)						**x**
a	Did you obtain consent to use personal data from previously executed research?						
b	Are technical/organisational measures required to safeguard the rights and freedoms of the data subject according to EU and national legislation in place in your organisation?						
4	**Other Issues of ethical concern**						
a	Were there any other ethical considerations detected during the work of this deliverable that are not covered by the list above?						x
b	If yes, please list the concerns below and elaborate on the related counter measures in the methodology section of this document						

B cont.								
5	**Opinions/approvals provided by ethics committees and other experts**							
5.1	**Following documents received opinions/approvals provided by ethics committees and other experts for the research conducted for this deliverable.**							
			yes	no		yes	no	n/a
a	Informed Consent Forms and Information sheet	IEB	X		EEA			X
		DPO	X		LEB			
b	Questionnaires / Surveys	IEB	X		EEA			X
		DPO	X		LEB			
c	Design /Methodology of research activity	IEB	X		EEA			X
		DPO	x		LEB			

VIII. Appendix B: RESILOC trials photos

Catania trial

Figure 1: Catania Trial - Final Trial Event

Figure 2: Catania Trial - LRT WS and Awareness Campaign

Gorizia trial

Figure 3: Gorizia Trial - LRT Workshop

Figure 4: Gorizia Trial - LRT Workshop

Tetovo trial

Figure 5: Tetovo Trial - LRT Workshop

Figure 6: Tetovo Trial - LRT Workshop

Figure 7: Tetovo Trial - Citizens Jury

West Achaia Trial

Figure 8: West Achaia Trial - Dry Run

Figure 9: West Achaia Trial - Trial Event and Validation

Figure 10: West Achaia Trial - Trial Event