

A. de la Cruz (30<sup>th</sup> June 2023)

# D6.3 Implementation Plan and Risk Contingency Plan



## D6.3: Implementation Plan and Risk Contingency Plan

### Summary

This document is the second version of the Implementation Plan and Risk Contingency Plan. First, it indicates how the workload of the project has been divided and organized as well as the way to evaluate if the project objectives are reached according to the schedule and within the budget. Additionally, it defines key steps to following in order to initiate the project action. The second part lists a number of risks that could affect different aspects of the project outcome. It includes risk mitigation measures and a contingency plan for each case.

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Deliverable lead beneficiary	Deliverable author(s)	Contributor(s)
Aquatec (AQUA)	Alex de la Cruz (AQUA)	Angel Villanueva (AQUA) Rita Brito (LNEC) Marianne Bügelmayer (AIT) Dennis Havlik (AIT) David Pacheco (CET) Barry Evans (UNEXE)
Internal reviewer(s)	External reviewer(s)	
Beniamino Russo (AQUA)	Eloisa Vargiu (CET)	
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## List of Acronyms and Abbreviations

CoPs	Communities of Practitioners
CS	Case Study
CSF	Case Study Facilitators
GA	Gran Agreement
KoM	Kick off Meeting
KPI	Key Performance Indicators
NDA	Non-disclosure agreements
PMT	Project Management Team
SSO	Specific Subobjectives
WP	Work Package

## Executive summary

The second version of the Implementation Plan and Risk Contingency Plan has been updated in the 6th month of ICARIA's project lifetime (June 2023). The first section summarizes the evolution of the implementation plan with the main goals achieved during the initial semester of the project. Next, it depicts key steps forward envisaged in the implementation strategy for the following 12 months (up until the next version of this document in M18).

Furthermore, this document presents an updated identification list of risks, prevention measures and contingency plans considering the new challenges and eventualities that will be faced in the coming months.

Finally, another section indicated the list of risks materialized since the beginning of the project and indicates the measures that have been taken to minimize their effect.

This Implementation Plan and Risk Contingency Plan will be updated in months 18 and 30 under the supervision of the Project Management Team (PMT).

# 1 Introduction

The present document is the updated version of the Implementation Plan and Contingency Plan of the ICARIA (Improving Climate Resilience of Critical Assets) project corresponding to month 6 of its lifespan. This research project is being developed within the European Union Research and Innovation funding program Horizon Europe under the Grant Agreement (GA) number 101093806.

The document corresponds to Deliverable 6.3 of Work Package 6 (WP6) - Project Management. The general objective of WP6 is to ensure an efficient coordination and management of both the technical-scientific and the financial matters of the project to ensure the fulfillment of all objectives and milestones defined in the GA. The specific objectives of this WP are as follows:

- Quality assessment of project progress, results, and impact
- Timely submission of deliverables and reports to the European Commission
- Keep the project within budget and schedule while achieving the objectives
- Risk mitigation and management
- Establish effective communication channels Consortium –Commission

The main objective of this second version of the Implementation Plan and Contingency Plan, corresponding to deliverable D6.3, is to:

1. Update the implementation strategy according to the current status of the project
2. Forecast potential risks and challenges that might affect the project outcome and define prevention and contingency measures to avoid or reduce the probability of negative occurrence and consequences.

Given the fact that along the whole lifespan of ICARIA its characteristics and nature evolve, the initial version of the project Implementation Plan and Risk Contingency Plan delivered in month 2 has been updated in month 6. This version takes into account new risks that may arise after the initial implementation period. Later during the project, updated versions of this document will be delivered in months 18 and 30. All versions of the Implementation Plan and Contingency Plan could include input from the Project Management Team (PMT) as well as any member of the consortium.

In this updated version, another section called “*Materialized risks*” has been included. This section presents some of the risks that have been materialized during the first six months of the project, together with the actions undertaken in each case.

## 2 Implementation plan

### 2.1 Work developed between M1-M6

In terms of project coordination, during the initial semester of ICARIA, three main objectives have been pursued. The following table presents these objectives and the initiatives taken for their fulfillment.

**Table 1.** Summary of the work developed between M1-M6

Coordination objective	Incentives taken
Ensure an adequate onboarding of all members of the consortium to the project	<ul style="list-style-type: none"> <li>• Organization of the first plenary meeting (Kick off Meeting)</li> <li>• Holding a general meeting to present the reporting system</li> <li>• Preparation of WP-specific mailing lists</li> </ul>
Establish effective and frequent communication within the ICARIA core team (PMT)	<ul style="list-style-type: none"> <li>• Organize monthly PMT meetings and produce detailed minutes with specific tasks assignments and follow ups</li> <li>• Hold bilateral WP-WP or WP-Case Study (CS) meetings to discuss relevant matters</li> <li>• Organize the first Annual Technical Meeting in Naples in M7</li> </ul>
Define a common conceptual framework for the whole consortium	<ul style="list-style-type: none"> <li>• Considerable efforts have been devoted to Task 1.1 and Task 1.2 to establish a common and consistent conceptual framework</li> <li>• Bilateral monthly meetings between WP1 and Case Study Facilitators (CSF) to ensure an adequate and consistent implementation of ICARIA risk assessment framework in each case study</li> <li>• Establish a definition of weather extreme events that is applicable to all CS</li> </ul>
Timely submission of deliverables	<ul style="list-style-type: none"> <li>• According to the project Description of Action (DoA), a total of 8 deliverables have been submitted in the first semester.</li> </ul>
Establishment of the local Communities pro Practitioners (CoP)	<ul style="list-style-type: none"> <li>• Identification and contact of relevant stakeholders</li> <li>• Formalization of the stakeholders engagement to the project as 3rd parties via an officially signed letter.</li> <li>• Organization of initial meeting to kick off CoP's action</li> </ul>
Setting up WP7	<ul style="list-style-type: none"> <li>• An ethics advisor has been appointed to ensure an adequate management of personal data</li> </ul>

Remarkably, according to the project Gantt diagram (see Annex I), by the end of M2 (February 2023), the Milestone 1 was achieved. The following items serve as proof of such fulfillment:

- Handover of 8 deliverables according to the project DoA (see Table 2).
- Organization of the project Kick off Meeting between the 26th and the 27 of January 2023 by AQUATEC.



So far, no Key Performance Indicators (KPI) have been reached as, according to the DoA, their deadlines are set later on in the project schedule.

**Table 2.** Summary of the ICARIA project deliverables handed over between M1-M6

Deliverable number	Deliverable name	Work package	Responsible partner	Due month
D5.1	Dissemination and communication Plan - Initial version	WP5	CET	M6
D5.4	Stakeholders engagement plan	WP5	UNINA	M6
D6.1	Project Management Manual	WP6	AQUA	M2
D6.2	Implementation plan and Risk contingency Plan – Initial version	WP6	AQUA	M2
D6.3	Implementation plan and Risk contingency Plan – Version 2	WP6	AQUA	M6
D6.6	Innovation Management Plan	WP6	AQUA	M6
D6.8	Data Management Plan – Initial version	WP6	AQUA	M6
D7.1	OEI - Requirement No. 1 (Engagement of an external Ethics Advisor)	WP7	AQUA	M2

## 2.2 Next implementation steps

The Implementation Plan of ICARIA for the coming months aims to: (1) promote an adequate and timely development of WP 1, 2, and 3 to ensure that all modeling tools, and risk assessment therefore are fully developed and tested before the start of the implementation phase of the project (WP4) in M18; (2) align the work of WP 5, 6 and 7 with the project development and the needs of the consortium.

This plan will be articulated according to the following guidelines that indicate the measures that will be adopted to ensure an adequate organization of the project:

### 1. Consortium coordination and partners engagement

- Monthly PMT meeting
- Annual plenary meetings
- Annual technical meetings (face-to-face PMT meetings)
- Regular bilateral WP and CSF meetings

### 2. Technical matters

- Development of cutting-edge single and compound hazard models
- Development of comprehensive multi-risk assessment models

- Evaluation of different adaptation scenarios
- Evaluation of the satisfactory fulfillment of project KPIs and milestones

### **3. Results exploitability**

- Involvement of local stakeholders of Communities of Practice (CoP) in key steps and critical decisions of the project:
  - Identification of main hazards and critical assets for the risk assessment
  - Design on the Decision Support System (DSS) functionalities
  - Identification of suitable adaptation solutions for specific scenarios and assets
- Involvement of following regions via specific workshops

### **4. Project outreach and results dissemination**

- Keep an active dissemination strategy via the project website and social media actions
- Participation in thematic conferences at national and international level
- Involved project ICARIA in relevant research clusters
- Publish papers in technical journals presenting the developments and results achieved

### **5. Financial management and reporting periods**

- Regularly assess the financial evolution of the project via internal reporting periods every 6 months
- Ensure an adequate management of information and document presentation during the first official reporting period in M18 by informing all partners of the administrative requirements and the documents that need to be prepared and supervising their delivery

### **3 Identification of risks, mitigation measures and contingency plan**

In the context of project management, a “risk” is meant as a probable situation that can cause an unwanted change in the project objectives, schedule or planned activities. ICARIA involves a consortium of 15 partners and 3 case-studies. Hence, a number of risks can potentially affect the desired outcomes of the project, some of them were even identified during the development of the project proposal. Therefore, it is essential to identify each risk and define appropriate contingency measures.

These risks can be associated with both internal and external factors. Internal risks derive from inadequate management and coordination of the consortium and results disseminations, while external risks are associated with matters beyond the control of the consortium (e.g., data availability, involvement of key external stakeholders, confidentiality issues).

As project coordinator, AQUATEC has conducted an identification and analysis of the risks that can threaten the adequate execution of project activities, paying special attention to those that directly affect the key steps for the project initialization. This analysis has been carried out through a participatory process that has involved the members of the PMT. The steps followed in the risk definition process are as follows:

1. Preliminary identification of risks done by the coordinators based on several sources:
  - a. Risks included in the ICARIA proposal and DoA
  - b. Further risks identified by different PMT members
  - c. Further risks identified by any partner at any point of time
2. Definition of a specific list of risks and tailored risk-prevention measures with a contingency plan for each case.

Thanks to developing this process in a participatory manner, it was possible to amplify the points of view involved in the risk identification. These risks were also categorized in the following fields

- Project management
- Research
- Dissemination and exploitation

For each one of the identified risks, the affected WPs were identified, together with a proposal of mitigation measure(s) to avoid or reduce the probability of negative occurrence and a Contingency Plan to mitigate the consequences of its occurrence and increase the final project success.

**Table 3.** Identification of risks related to research activities and proposal of risk-prevention measures and contingency plan.

Description of the risk	WP involved	Proposed risk-prevention measures	Contingency plan	Impact	Probability
Discrepancies between CSF when laying out the general structure of the models to perform the risk assessments	WP 1, 2, 3 and 4	Before beginning to build and execute models to assess impact and risk of the scenarios considered in each trial and minitrial, all CSF will have to define an “architecture” of the case study (CS) according to the nomenclature and framework defined in Task 1.1. This common basis will have been previously agreed between the WP1 leader and CSF. It will serve to ensure a common procedure and nomenclature to define the work in each CS.	WP1, the Project coordinator and the CSF will evaluate the reasons of the discrepancies in a meeting and will jointly assess who to integrate the CS approach to the common framework	Medium	Medium
Difficulties in establishing the baseline regional / critical infrastructure resilience and agreeing on how to address them	WP 1, 2, 3 and 4	Definition of a common framework for the project in WP1. The Consortium could utilize the methodology and tools developed in the RESILOC <sup>1</sup> project to facilitate this process.	If needed, specific Workshops for each specific CS can be organized the CSF and/or the trial and minitrial coordinators	High	Medium

<sup>1</sup> <https://cordis.europa.eu/project/id/833671>

Description of the risk	WP involved	Proposed risk-prevention measures	Contingency plan	Impact	Probability
Delay of the activity or failure in achievements of milestones and KPIs	All	Monthly PMT meetings will pay careful attention to upcoming delivery deadlines and will also keep track of the evolution of all lines of work ongoing on the project in a continuous manner. If a potential delay is identified in a specific deliverable or milestone, a meeting between the coordination team, WP leader and Task/Deliverable responsible will be held. If necessary, the rest of the contributors to the deliverable will also attend the meeting. In that meeting, opportune measures for each specific case will be defined to ensure a timely delivery of the document.	In case an activity is delayed, the coordinator will notify the EC Project Officer to jointly try to solve the problem. In case an activity is repeatedly late, or some WPs are always delayed, the Coordinator, with the support of the EC, may take action in order to ensure proper completion of the tasks (e.g., redistribution of tasks, subcontracting)	Medium	Medium
Lack of data availability for modeling and risk assessment	WP 1, 2, 3 and 4	ICARIA will devote many efforts to fill data gaps through the implementation of different novel techniques and strong background acquired by project partners (AIT specialist in the use of AI to achieve downscaled climate scenarios and hazards and CERTH specialist in the use of no-conventional methods to validate hazard and impact models).	If a data gap cannot be filled, WP leaders have to notify the coordinator to follow one of the following foreseen strategies:  1. If there are problems collecting data from organizations, administrations and services operators that are ICARIA partners, the Coordinator will formally request them to provide the data. The signature of additional NDAs or the use of partially dummy data (with fake coordinates, for instance) can be explored.	High	Low

Description of the risk	WP involved	Proposed risk-prevention measures	Contingency plan	Impact	Probability
			<p>2. If there are problems collecting data from organizations, administrations or services operators that are not ICARIA partners, the Coordinator, case-study coordinators or other ICARIA partners will write a letter asking the corresponding authorities to ask for the collaboration of the organizations, administrations or service operators. The signature of NDAs or the use of dummy data (fake coordinates, for instance) can be explored. If this situation persists, the Coordinator will ask the Project Advisor to contact the city authorities with political influence to sign an official letter asking for the collaboration of these external administrations, organizations or service operators in the project.</p> <p>3. In case the previous measures do not work, alternative data sources will be identified.</p> <p>Finally, in case an activity is compromised,</p>		

Description of the risk	WP involved	Proposed risk-prevention measures	Contingency plan	Impact	Probability
			the coordinator will notify the EC Project Advisor in order to adapt the WP implementation plan. The EC may take action to ensure that the adaptation of the WP implementation plan does not compromise the project achievements		
Uncertainty chain affecting the reliability of results (climate projections, hazard and risk results and adaptation benefits)	WP 1, 2, 3 and 4	ICARIA will devote great resources to analyze uncertainty sources and propagation in Task 1.3 and specific uncertainties caused by different environmental drivers and humanitarian activities evaluated using generalized likelihood uncertainty estimation (GLUE) method or fuzzy set approach (Task 2.2).	If uncertainty causes a major issue in results reliability, extraordinary monographic meetings will be organized in order to identify the causes and define corrective actions. These measures could be redefinition of frameworks, changing methodologies or exploring different data sources.	High	Low
Uncertainties and low performance of the models	WP 2, 3 and 4	To increase the certainty and performance of models, a detailed calibration and validation of the models is needed. To calibrate and validate models recent data is required. It is expected that this data will be either gathered from members of the consortium who have	In case that some of the data needed for the calibration and validation processes is not available, the Coordinator will ask the Project Officer to contact the local authorities with political influence to sign an official letter asking for the data needed.	High	Low

Description of the risk	WP involved	Proposed risk-prevention measures	Contingency plan	Impact	Probability
		access to it (mainly the Risk Owners) or from external parties who could be included in the local CoPs. If needed it could also be considered to deploy a set of sensors to carry field measurements.			
Uncertainties and low performance of the impact models	WP 3	To increase the certainty and performance of impact models, they must be calibrated using actual damages or impacts data. As this information can be very varied in terms of its nature (e.g., economic damage, affected assets, consequence on people safety), collection of such datasets is often complicated. For this reason, each case of study is expected to involve stakeholders in their CoPs who are able to provide this kind of data.	If a CSF is unable to obtain data for impact, it can ask the Coordinator to formally request this data to public authorities. If this measure was to fail, alternative data sources could be explored.	High	Low
Low quality of deliverables	All	The quality of deliverables is ensured by an internal and external peer-reviewed system. It involves two rounds of revision for each deliverable. The first one is done by a member of the consortium who has not been involved in the development of the document. The second one will be done by the project coordinator, who will approve the final version to be delivered.	If a deliverable does not have the expected quality for a European research project, the Coordination will not submit it and ask the partner to improve its content and/or presentation. In case of delay, the Coordination will inform the Project Advisor in advance to explain the reasons for the delay.	High	Low



Description of the risk	WP involved	Proposed risk-prevention measures	Contingency plan	Impact	Probability
High dependency of several tasks in previous tasks from other WPs	All	Given the interconnected and sequential approach presented in ICARIA, the results of some tasks are highly dependent on what is previously done in other WPs. Therefore, a good coordination between WPs is needed, through the PMT meetings as well as bilateral WP meetings.	Given that some delays might occur due to the problems in other WPs, the Gantt chart of the whole project will be updated to assess the advancements of the project, but also to determine the severity of the existing delays. Additionally, a flow diagram or table clearly showing the links and information flow between WPs and tasks will be prepared in order to identify, for each WP, the input and output needs and respective WPs, tasks and deliverables. This flow will facilitate the identification of dependencies and the definition of the more critical.	High	Low
Difficulties to launch a consolidated CoP in each case due to the late response of stakeholders of interest	WP5	In order to avoid major delays in the activation of CoPs, it is suggested to consider these work groups of stakeholders as a growing group. Hence, a CoP can be indicated with an initial number of relevant local entities, which could rise along the project development.	If the stakeholders of interest are reluctant to participate in the ICARIA CoPs, the activity (also at political level) to engage pending authorities will be increased.	High	Medium

**Table 4.** Identification of risks related to project management and proposal of risk-prevention measures and contingency plan

Description of the risk	WP involved	Proposed risk-measures	Contingency plan	Impact	Probability
Lack of coordination among partners / WPs / tasks	All	<p>AQUATEC has extensive experience in coordination of large research projects similar to ICARIA. Moreover, the governing structure of the project is designed to promote the interaction and participation of all members. Furthermore, a large number of consortium members have worked together previously in other research projects with satisfactory results. In case coordination problems are observed, the monthly PMT will assess and solve them. WP's' implementation plans will be prepared, with detailed interdependencies (inputs/outputs) between tasks in every WP and between WPs, identify which partner is doing what and when, ensure approval of such plan by each partner in the WP and by the coordination. Finally, the PMT and the project coordinator will promote bilateral technical meetings between WPs with close interaction.</p>	<p>Coordination meetings along the project will address all issues that might occur at every given time</p>	High	Low
Low collaboration among partners	All	<p>The Project Management Manual (D6.1) will provide tools to foster partners' collaboration. Moreover, the schedule of regular meetings at all levels will promote the necessary collaboration to meet objectives. Finally, the</p>	<p>If the measures defined to promote collaboration are insufficient, extraordinary meetings will be held to address the problem. Depending on</p>	High	Low

Description of the risk	WP involved	Proposed risk-measures	Contingency plan	Impact	Probability
		Project Steering Board (PSB) will sit regularly to ensure the coordination and the flow of communication among WP.	each specific situation these meetings will involve the whole PST, specific WP/task/deliverable leaders or specific members of the consortium.		
Withdrawing a consortium member or key personnel from the project	All	All the partners were completely committed to this project at the project start, as indicated by their contributions on the Kick off Meeting. The level of satisfaction with project development and the risk of partner or key personnel withdrawing will be periodically assessed in PMT and PSB meetings if needed. According to Consortium Agreement partners have an obligation to transfer work so far completed to an alternate partner in case of withdrawal.	In case a partner or key personnel needs to withdraw for unforeseen reasons, the consortium will first look for a possibility to replace the necessary skills within the consortium. If this fails, an alternative partner with necessary skills will be sought.	Medium	Low
Conflicts within the Consortium	All	Partners are aware that the Coordination Team is available at any time for any complaint or dissatisfaction with the working plan in order to find solutions that can be discussed in extraordinary meetings by using video conference. Partners can also express and discuss their concerns to find appropriate solutions in the plenary meetings.	If no resolution is achieved, the PSB will be involved to mediate and resolve the situation between conflicting parties. As the last resort and if the conflict provokes negative outcomes or changes in the project execution, the Coordinator will explain the problem and its causes to the Project Advisor, and find a solution according to the European funding principles.	Medium	Low

Description of the risk	WP involved	Proposed risk-measures	Contingency plan	Impact	Probability
Financial deviations or laxity of partners	All	<p>During the project proposal, an adequate budget was thoroughly developed between all partners considering the resources and efforts that will be required in each task.</p> <p>Moreover, partners will send internal technical and financial reports every six months to the Coordination Team so the evolution of expenses with respect to the total budget can be evaluated. This will allow the coordinator to detect any deviation in time to take measures if needed.</p>	<p>If a partner needs to change the allocation of financial resources, the Coordination Team will discuss the situation and request the change to the Project Advisor.</p>	High	Low
Extra costs in the process of purchasing equipment	All	<p>In case extra costs for purchasing equipment are required, a deep analysis of the necessity will be analyzed by the affected partner and the Coordination Team so that to reduce it just to the strictly necessary.</p>	<p>In case extra costs for purchasing equipment are required, a deep analysis of the necessity will be analyzed by the affected partner and the Coordination Team so that to reduce it just to the strictly necessary.</p>	Medium	Low

**Table 5.** Identification of risks related to dissemination and exploitation activities and proposal of risk-prevention measures and contingency plan

Description of the risk	WP involved	Proposed risk-prevention measures	Contingency plan	Impact	Probability
D&E activities raise little interest	WP 5	During the early stages of the ICARIA project, the communication team leading WP5 (led by CETAQUA) has developed a Dissemination and Communication Plan (D5.1) to define strategies to maximize the impact of ICARIA. This plan will also consider generating synergies with other EU projects such as MAIA <sup>2</sup> or MIRACA <sup>3</sup> . This Plan will be updated by the end of the project to define how to manage D&E activities after the end of the project.	If a low interest in the project is detected, the reasons for this will be analyzed by WP5 leader together with the PMT and an improved version of the Communication and Dissemination Plan will be developed.	High	Low
Difficulties to implement ICARIA results in other regions	WP 4 and 5	Along the project, a group of follower regions as well as the Project Advisory Board will actively participate in the project development. They will provide an external point of view from the perspective of an "outsider" region who could apply the results of ICARIA when developing their own risk assessments and resilience plans. Their input will serve as a reference to identify weak points in the replicability of the work produced. Furthermore, during the minitrials of climate scenarios, the CSF will be able to assess if the work developed by	Both during the Plenary Meetings and Technical Meetings, hence every 6 months, the project members will hold technical discussions regarding the implementation and replicability of the work delivered. These meetings will serve to identify issues in this sense and to define a common strategy to address them.	High	Medium

<sup>2</sup> <https://cordis.europa.eu/project/id/101056935>

<sup>3</sup> <https://cordis.europa.eu/project/id/101093854>

Description of the risk	WP involved	Proposed risk-prevention measures	Contingency plan	Impact	Probability
		other partners for the trials in other regions is applicable to their own case study.			
Low impact of the project in potentially interested regions	WP 5	A dissemination and communication plan will be prepared in WP5. This document will define strategies to ensure the outreach of ICARIA results to specific groups of stakeholders who are of special interest in the project (e.g. policymakers, regional governments and metropolitan authorities). Moreover, WP5 action will include the mapping of specific potentially interested stakeholders who will be reached and engaged through the presentation of reports and the organization of conferences and workshops.	During the monthly coordination meetings and consortium plenary meetings, KPIs regarding the outreach of ICARIA results will be assessed. If the efforts made fall short, the situation will be assessed to identify the reasons causing that situation and adequate measures will be defined to improve the situation.	High	Medium
Low engagement with the Communities of Practitioners (CoP) of the Case Studies	WP 5	Before forming the CoPs, Task 5.4 will predefine the profile of stakeholders who are relevant to the project aim, who have a specific interest and who can provide an add-on value to the development of the project. When the CoP is constituted, an initial meeting will be organized to define expectations, responsibilities and contributions expected from each stakeholder. Regular meetings/workshops will be organized to maximize the involvement of the CoPs in the Project and incorporate their input into the work developed.	In case one or several members of a CoP do not contribute to the project in the expected terms, a meeting will be organized to identify the reasons and redefine the terms of their role to improve their participation.	Medium	Low
Decreasing	WP 5	The number of visits to the ICARIA website reflects the	In case of decreasing website visits,	Medium	Low

Description of the risk	WP involved	Proposed risk-prevention measures	Contingency plan	Impact	Probability
website visits		engagement with the project. In particular, the objective is to convert new visitors into returning ones and in this way to build a strong community interested in climate change and urban resilience topics.	specific actions will be carried out to attract visitors to the website. This could include increasing the number of recurrent publications (news and blog entries), the creation of audiovisual and/or interactive media, or exploring new channels to share the link to the website, thus being social media, technical or general media and the project partners' websites.		

## 4 Materialized risks

The following table summarizes the risks that have materialized during the first 6 months of project ICARIA and mitigation measures that were adopted to minimize their effects.

**Table 6.** Risks materialized and mitigation measures taken in the first semester of project ICARIA

Risk materialized	Contingency measures
Difficulties to define a common terminology for risk assessment of multi-hazard events	Several monographic meetings have been held within WP1 and WP2 to address conceptual and terminology matters. Also, the leaders of WP1 have reviewed existing literature and former EU research projects with similar topics to ICARIA. Furthermore, the recent publication of the “EU-level technical guidance on adapting buildings to climate change” (EC 2023) has been considered to ensure an adequate alignment between the ICARIA framework and the current terminology used at EU level. As a result, a solid and commonly accepted theoretical framework has been defined for the project.
Difficulties to find a definition for extreme weather events that work for all 3 case studies	Given the fact that the 3 CS belong to different climatic zones, finding a project-level definition of extreme events (e.g. heat wave) is a complex matter. FIC has performed a review of potential definitions that can be adapted to the 3 CS (based on percentiles rather than on absolute values). These options have been discussed among the CSF and FIC until an adequate definition has been found.
Difficulties on establishing communication between consortium partners	WP specific mailing lists have been prepared and shared with the whole consortium.
Delay on the definition of the case study architecture	Specific meetings have been done to better coordinate the efforts of the three CSF in defining a comprehensive architecture for each CS. Based on the experience from former EU projects, the Barcelona Metropolitan Area has defined the first architecture, which has been used as a reference for the other two CS.
Delay in the formation and initial meeting of the CoPs	In order to ensure a timely initiation of the project CoPs, all three CSF have devoted additional resources and efforts to organize an initial CoP meeting by the end of M6 in alignment with the requirements of Task 5.4. Furthermore, in the Deliverable 5.4, a detailed roadmap has been drawn to define all the CoP workshops and meetings that will take place in project ICARIA. This roadmap has been designed following the precedent set by the EU project BINGO (Van Alphen et al. 2021).



## 5 Conclusions

The first section of this document presents a summary of the achievements reached in project ICARIA during its first semester according to the Implementation Plan. These can be summarized as follows:

- Initiating the project and promoting an efficient communication within the consortium
- Establishing a common conceptual framework for the project development and the case studies design
- Promote the engagement of 3rd party stakeholders to the local Communities of Practitioners

Furthermore, the general guidelines that will be followed in the implementation of the project until M18 are indicated. These aim to ensure an adequate development of the project in the following directions:

- Consortium coordination and partners engagement
- Technical matters
- Results exploitability
- Project outreach and results dissemination
- Financial management and reporting periods

As the core of the Risk Contingency Plan, the 3rd section of the document describes the risks associated with the three main dimensions of ICARIA activities: research activities, project management and dissemination and exploitation of results.

The main identified risks can be synthesized into the following list:

- Discrepancies within the consortium regarding technical matters
- Lack of coordination and/or cooperation between parties
- Data availability and uncertainty
- High complexity of the project due to the interconnections and interdependencies of the analyzed domains
- Low impact of dissemination initiatives
- Low interest of CoP members on participating in ICARIA
- Financial definition or partner laxitud

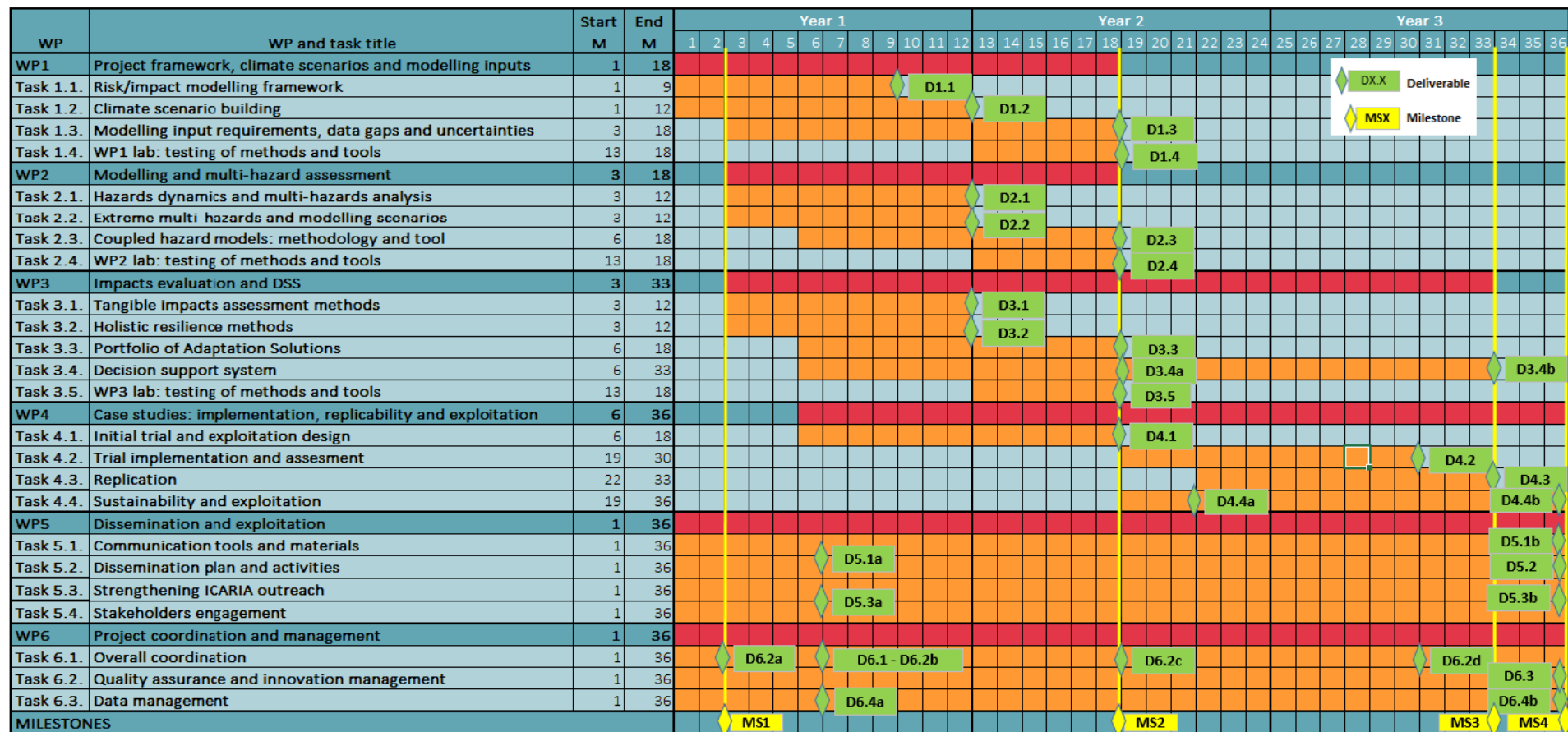
Corresponding risk-prevention measures and contingency plans have been elaborated for all the risks identified and are presented in detail in this document.

The last section summarizes the main risks and difficulties that have occurred between M1 and M6 and explains the measures that were taken in each case to minimize the impact on the consortium.

This Implementation Plan and Risk Contingency Plan will be updated in months: 18 and 30 and will be thoroughly applied in the ICARIA project under the supervision of the Coordination Team.

## **Annex I: Project ICARIA Gantt Diagram**

**Table 7.** Project ICARIA Gantt diagram



## References

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More info: [www.icaria-project.eu](http://www.icaria-project.eu)



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