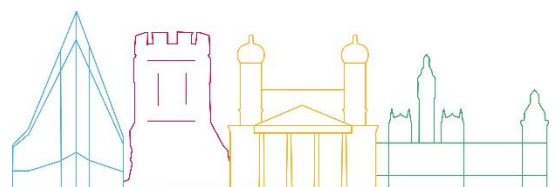




## D3.2 Local partnership and work plan

Bratislava, Camerino, Valencia and Hamburg

11 December 2020



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Author(s)	Chapters i-v by Eleanor Chapman (ICLEI) Individual city report authors vary. See individual cover pages for details.
Co-Author(s)	Intza Balenciaga (ICLEI)
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## Contact

[arch@iais.fraunhofer.de](mailto:arch@iais.fraunhofer.de)

[www.savingculturalheritage.eu](http://www.savingculturalheritage.eu)



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## Executive Summary

Each pilot city taking part in the ARCH project has developed a local partnership and corresponding work plan. This document presents the results of this process, as well as summarising the content of the related City Baseline Report (D3.3), which establishes the baseline for each city. All four cities have used the process of developing their local partnership and work plan, supported by project partner ICLEI, to revisit the focus for their local work in connection with the ARCH project, as originally defined in the Grant Agreement before the project began. As part of this process, local objectives have been drafted and refined in discussion with the wider ARCH project team.

The four cities have been supported in the process of identifying local stakeholders who may potentially be mobilised for active engagement in connection with these objectives (and related strategies and actions) and analysing their interests and relative level of influence, as well as other factors e.g. access to information and extent to which they are directly impacted by the planned work. This analysis has allowed the city partners to prioritise their local stakeholders, and define a core group, or 'local partnership'. A common framework and support materials were developed by ICLEI to enable this process. Some city partners have taken the defined framework a step further, e.g. the Valencia team conducted an extensive (largely online) consultation with identified stakeholders in order to ascertain stakeholder support for a series of possible actions, and decide which will be prioritised in the context of the ARCH project.

Each city's local work plan is divided into four parts. Part 1 outlines the current situation, summarising the content of the baseline review, introducing the historic areas in focus for ARCH, the relevant hazards expected to affect them, and the most relevant corresponding plans, strategies and actions already in existence. Part 2 describes the stakeholder analysis undertaken to identify key departments, organisations and groups actively involved in managing, maintaining, using, or otherwise with an interest in the historic areas in focus, as well as identifying which of these are to be engaged as local partners. Part 3 outlines the overall vision for the city's local partnership, and defines specific objectives. Part 4 outlines the strategies and corresponding actions proposed to achieve these objectives, including a timeplan and allocation of responsibilities.

Each of the four cities' local work plans hinges on an overall aim that informs the detailed design of the plan. These aims were further discussed and refined at a workshop with project partners in September 2020. The aims are as follows:

**Bratislava:** to increase the resilience of the medieval town centre, the Devin Castle located on the dolomite cliff above the Danube River, and Celto-Roman structures on the Bratislava Castle hill, creating space for different stakeholders to interact, and new capacity to deal with climate change impacts, with a view to aligning adaptation and mitigation goals and integrating these with its municipal policies.

**Camerino:** to mitigate the impact of natural hazards of the small old town with an integrated approach, developing knowledge and tools for monitoring and preserving cultural heritage.

**Hamburg:** to integrate climate change adaptation into management of the World Heritage site Speicherstadt and Kontorhausviertel, including improved monitoring of impacts on built fabric, as well as on visitors and the local community, and increased community awareness.

**Valencia:** to improve the resilience of the Huerta and the Albufera and to demonstrate how they support the city of Valencia in adapting to climate change.

## **Gender Statement**

This report has been developed with regard to the guidance provided in the ARCH Project Handbook (D1.2, Part 7) with respect to gender aspects in publications and research. Efforts have been made in the writing and review process to ensure the use of gender inclusive language.

## I. What is this document?

As part of ARCH WP3, each pilot city has developed a local partnership and corresponding work plan, which have been compiled in this document (deliverable D3.2). This document presents the results of this process, as well as summarising the content of the related City baseline report (D3.3), which establishes the baseline for each city. Following this background section, each city's local work plan is divided into four parts. Part 1 outlines the current situation, summarising the content of the baseline review, introducing the historic areas in focus for ARCH, the relevant hazards expected to affect them, and the most relevant corresponding plans, strategies and actions already in existence. Part 2 describes the stakeholder analysis undertaken to identify key departments, organisations and groups actively involved in managing, maintaining, using, or otherwise with an interest in the historic areas in focus, as well as identifying which of these are to be engaged as local partners. Part 3 outlines the overall vision for the city's local partnership, and defines specific objectives. Part 4 outlines the strategies and corresponding actions proposed to achieve these objectives, including a timeplan and allocation of responsibilities.

## II. Why develop local partnerships and local work plans?

The aim here is to establish a framework that will define local activities and associated stakeholders, and identify preliminary links (where relevant) with the research activities to be led by ARCH scientific partners. The process of developing this framework is intended to offer scope to review and confirm (and/or modify) the local challenges and priorities defined at proposal-writing stage (described in Task 3.5 of the Grant Agreement). It is anticipated that identifying stakeholders, engaging with them and developing an understanding of their needs and interests may also result in changes to intended priorities, or addition of new ones. While this may create some uncertainty and even initial discomfort for the project team, it can also be viewed as a positive process, likely to facilitate more effective working processes and results that are more broadly meaningful. Stakeholders who can see their needs and interests represented in the planned aims, strategies and actions are more likely to be interested in achieving good results, and as a consequence more motivated to actively take part. This is likely to become more important as the project progresses, and is essential to mobilizing support for the project beyond the small team of city staff who are mandated to work on the project. It is also a key factor in securing a legacy for the project beyond its limited period of funding.

## III. What is a local partnership?

The term 'partner' is frequently used within the ARCH project. All members of the consortium are effectively 'research partners' in the sense of working together to achieve common goals, with a distinction made between science and practice, i.e. 'city partners' working within the pilot city administrations and 'scientific partners' working for academic or research institutions. In

addition, 'local research partners' identifies the scientific partners each paired with a city partner to provide dedicated local research support.

The term 'local partners' is used here in a similar sense of collaboration, to describe the individuals, and their departments or organisations, that will ideally work with each city partner on local strategies and actions, supported by the ARCH project. The local partnership may be an entirely new group formed for this purpose, or it may build upon an existing group or groups.

## IV. What is a local work plan?

For the purposes of the ARCH project, each pilot city's local work plan is a 'touchstone' or key reference document intended to guide the city partners over the course of the project – and possibly beyond.

It should be treated as a useful 'live' document that can serve multiple purposes:

- 1) To inform scientific partners of priority local aims, strategies and planned actions,
- 2) To identify possible links between these and the aims, methods and actions defined by the scientific partners,
- 3) To link identified local partners with specific actions,
- 4) To introduce new stakeholders to the ARCH project and why it is locally relevant, 5) to outline a draft plan for implementing actions, and
- 6) To track progress.

The local work plan should be referred to regularly throughout the project and updated if necessary to reflect input from local partners; existing plans, strategies and actions; as well as other local developments and possible changes to priorities.

## V. Related documents

This document is closely related to certain other deliverables, specifically:

### *D2.1 Communications strategy*

In this guideline, target groups for each pilot city are identified and possible channel to engage with them at a general level. This information may be useful for part 4.3 Strategy to collaborate with local partners.

### *D3.1 Guideline on ARCH co-creation approach*

This guideline serves to define a common vision, principles and a practical framework ('rules') for working together, as well as identifying possible barriers and strategies to overcome these. The target audience is the project team (researchers and city partners) directly engaged in the ARCH consortium, however it may also offer a basis for city partners to engage and work effectively with their local stakeholders, and as such should be consulted for development of



the local work plan. In particular, content from the sections on ‘vision’, ‘principles’, ‘obstacles’, and ‘operational framework’ may be usefully adapted to suit local collaborations.

### *D3.3 City baseline report*

This report defines the baseline regarding resilience of historic areas in the pilot cities. It has been consulted for development of the local work plan, particularly with respect to Part 1 ‘Where are we?’ to ensure that information is consistent and to avoid duplicate work.

### *Digital stakeholder engagement toolkit*

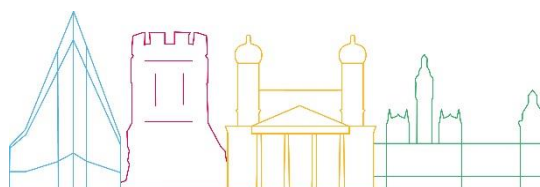
In light of COVID-19, ICLEI has developed a digital stakeholder engagement toolkit intended to support city partners to continue engaging local stakeholders in times where face-to-face contact is either very limited or impossible. It offers a list of tools and a series of tips to ‘digitally’ engage with local stakeholders.



# Local partnership and work plan for Bratislava

ARCH D3.2

30 October 2020



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Author(s)	Eva Streberová (Bratislava)
Co-Author(s)	Margaréta Musilová (MUOP), Anna Gondová (MUOP), Eva Pauditšová (UNIBA), Stanislava Brnkaľáková (Bratislava)
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## Contact

[arch@iais.fraunhofer.de](mailto:arch@iais.fraunhofer.de)  
[www.savingculturalheritage.eu](http://www.savingculturalheritage.eu)



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# Local work plan: Bratislava

## 1. Where are we?

In general terms, the cultural heritage of Bratislava, as considered for ARCH project, covers architectural heritage (buildings and structures), monumental, archaeological resources, moveable heritage as well as cultural landscapes. Its built-up area is characterised by complex settlement arrangements with a high density of cultural monuments. These significant heritage assets are at risk from hazards that are primarily climate-related: mainly pluvial flooding, erosion, heatwaves and other extreme weather events.

After carrying out their first quantitative vulnerability assessment, as part of the H2020 project RESIN Climate Resilient Cities and Infrastructures ([www.resin-cities.eu](http://www.resin-cities.eu)), the Bratislava city team aims to take a further step with focusing on historical areas and cultural heritage protection, to be able to adapt the historical centre and other valuable (tangible) cultural heritage sites to the impacts of future scenarios of climate change. The current city-level *Action Plan for Climate Change Adaptation* reaches the end of its term in 2020 and a new action plan is already under preparation - a *Sustainable Energy and Climate Action Plan* (SECAP). The SECAP offers itself as a good opportunity for testing and co-creating the tools of the ARCH project.

In order to achieve this, Bratislava City needs to gather relevant stakeholders from the fields of cultural heritage, climate change and disaster risk management around the table, to gain understanding of the issues which the stakeholders are facing in everyday work and life, provide them with tools that will help address these issues, and in the end provide solutions that will make the city's cultural heritage more resilient to the impacts of climate change.

### 1.1. Target historic areas

The target historic areas that will be addressed by the ARCH research team are: the medieval town centre (monument preservation reserve), the Devin Castle located on the dolomite cliff above the Danube River, and Celto-Roman structures on the Bratislava Castle hill.

Bratislava's historical centre is situated within the former city walls in the Old Town city borough. Based on the terrain and the character of development, the Old Town can be divided into four areas: the western part, the northern part, the eastern part and the historical centre adjacent to the Bratislava riverfront (on the left bank of the Danube River). From the point of view of heritage protection zoning, the area is divided into a central historical monument preservation zone and a monument reserve (the medieval core of Bratislava). The monument preservation zone is further divided into smaller areas called sectors, based on the character of the built-up area: its architecture, terrain and landscape. The monument reserve contains many historical buildings, fountains and historical gardens, as well as other elements of tangible cultural heritage. Inside and below the buildings in situ preserved heritage can be

found, such as the Celtic kiln and mint; Celto-roman structures (masonry and floors) which belonged to the different manufacturing workshops in the Celtic oppidum that once spread across the centre of today's Bratislava; remains of the city's medieval fortification; and the St. James chapel and charnel house. These monuments, as well as other (unknown) underground monuments, are vulnerable to changes in permeability of the surrounding surfaces, as well as to intense precipitation and rising groundwater levels, which are driven or made worse by climate change and urban development in the surrounding areas. Most of these monuments are under the protection of the Bratislava City Museum and City Gallery. Archaeological research on these sites has been undertaken by the Bratislava Municipal Monument Preservation Institute (MUOP).

The Devín city borough is situated in the western part of the cadastral territory of Bratislava City at the confluence of the rivers Morava and Danube. It is well known for the Devín Castle national monument, the ruins of which are one of the most visited monuments in Bratislava. Despite its small size, the Devín Castle Hill is surprisingly rich in rock variety and geological history dating back to the Early Palaeozoic to Late Tertiary period. Twelve open fissures with narrow karst and pseudo-karst caves (16 – 13 million years old) lie beneath the castle in the rock cliff, where a permanent exhibition of finds such as ceramics, coins, weapons etc. was reopened in 2017. The castle is a historical monument of national and European importance and is under the administration of the City Museum of Bratislava. Currently, there is ongoing archaeological and geological research in the area as well as plans for the reconstruction of ruins (the walls) and buildings at site. The caves, as well as other areas with permanent exhibitions and the middle castle, are threatened by humidity from precipitation. The dolomite cliff on which the castle stands is experiencing erosion and rockfall.

## **1.2. Governance framework for cultural heritage management, disaster risk reduction and climate change adaptation**

Bratislava's *City Baseline Report* (D3.3) gives a very detailed overview of the governance framework for cultural heritage management, disaster risk reduction (DRR) and climate change adaptation. At present, all of these are being dealt with at different ministries in a "silo"-like fashion. The *City Baseline Report* concludes that there is an absence of direct links between cultural heritage resilience and climate change adaptation in urban areas and disaster risk management. The updated national strategy for adaptation to climate change and the forthcoming SECAP (mentioned above) open up the topic of cultural heritage protection as well as revealing the absence of relevant legal tools for local authorities to enforce implementation of adaptation measures. One possible solution to this would be a new act on climate change adaptation and mitigation of impacts, which would also to a certain extent amend existing legislation on building and construction, spatial planning, cultural heritage protection, DRR and other relevant sectors.

### 1.3. Expected impacts of climate change and environmental hazards

In Bratislava exposed cultural heritage elements include: archaeological resources, such as archaeological finds and archaeological sites (i.e. Celtic acropolis with Roman architecture, Celtic Metal casting and coin minting workshop, Celtic kiln); buildings and architectural structures (i.e. Devín Castle, St. James's chapel) and groups of separate or connected buildings (i.e. Monument preservation zone); cultural landscapes, such as combined works of nature and humankind (i.e. Monument preservation reserve). The climate change related hazards, especially due to the atmospheric moisture change (e.g., intense rainfall, change in humidity cycles, etc.) and temperature change (e.g., diurnal and seasonal extreme events), produce physical, social and cultural impacts on the heritage of the city. The historic assets and archaeological finds, in fact, are strongly exposed to damage due to moisture and erosion in the construction materials, attacks by fungi, local instability, with consequent loss of value and a potential decrease in visitor safety. Moreover, the consequences of these impacts result in loss of tourism revenue due to decreasing visitors.

According to the 'Atlas of risk-based vulnerability assessment of Bratislava city' done under the H2020 RESIN project, the Old town is the city borough at most at risk from heatwaves and pluvial flooding, due to its high ratio of impermeable surfaces, terrain morphology and critical infrastructure concentration and population density.

### 1.4. Resilience of historic areas and the larger urban system

Bratislava's larger urban system is in general prepared for emergencies (see Bratislava's *City Baseline Report* - Chapter 7). 'Preliminary resilience assessment'). However, there is room to improve the existing institutional capacity at the local level which would focus on increasing the resilience of historic areas in particular and minimising their risk to hazards related to climate change. Specific assessment of the risks faced by the target historic areas has not been undertaken to date, and there is great potential for defining, planning and incorporating measures to improve resilience, e.g. an early warning system, citizen awareness building campaigns, or interventions in the form of green, blue and grey infrastructure).

## 2. Who are we?

The Office of the Chief City Architect has been the department responsible for supervising climate change adaptation projects in Bratislava City and currently is also supervising the implementation of ARCH project. This department falls directly under the Office of the Mayor of Bratislava City, which is a separate organisational sub-unit from the City Hall. At the City Hall, all other operational departments are hosted (for example, environment, social services, culture, sport, transport, infrastructure, management and maintenance of public property, management and maintenance of rented property, finances, etc.

The core team consists of one part-time senior environmental manager (project manager), two part-time assistants (one senior and one junior). Support in financial administration is provided by the Department of Strategy and Projects, City Hall of Bratislava (part-time). The team is supervised by the Chief City Architect.

The Bratislava City team is supported in the ARCH project tasks by two local research partners: the Municipal Monument Preservation Institute (MUOP) – a research organisation of the city (archaeological research) and the Department of Landscape Ecology at the Faculty of Natural Sciences, Comenius University in Bratislava (UNIBA).

The MUOP team consists of two full-time senior assistants (project managers), who are responsible for implementation of different assignments and (currently) two part time assistants. Support in other expert matters (e.g. archival research, methodology, etc.) and financial issues is provided by full-time employees of MUOP.

The Faculty of Natural Sciences, Comenius University has been systematically developing molecular-biological, biotechnological and environmental research and teaching since 1919 when it was founded. In 1992, the fifth basic field of study at the Faculty of Natural Sciences became environmental science and new departments were established among which the Department of Landscape Ecology (involved in ARCH project) was formed. Bratislava City has an ongoing cooperation with this Faculty, especially in terms of data provision, analyses and co-creation in projects funded by EEA Grants and the European Commission's Horizon 2020 programme.

## 2.1. Existing capacity

Ing. Arch. Ingrid Konrad, Chief City Architect of Bratislava City, supervises the Bratislava project team for ARCH. A chief architect is the expert guarantor for urbanism and architecture according to Slovak legislation. Among other things, the Chief City Architect actively participates in the creation of spatial planning documents, such as the master plan and is a key component of the decision making process on building permissions for investment activities, is a member of the City Assembly and a member of the City Parliament. Mrs. Konrad has been supervising projects for climate change adaptation, mitigation, sustainable housing, and cross-border cooperation since her entry in 2011. She has also supervised the development of strategic documents that deal with climate change adaptation such as the Strategy and Action plan for adaptation to negative impacts of climate change in Bratislava.

Mgr. Eva Streberová, PhD. is an environmental manager working currently at the Office of the Chief City Architect of Bratislava City. Among other tasks, she is responsible for implementation of international projects on climate change adaptation in which Bratislava is involved. She was the leading author of the city's 'Action Plan for Adaptation to Climate Change' and the 'Atlas of vulnerability and risk assessment of adverse climate change impacts in Bratislava City'.

Ing. et Ing. Monika Šteflovíková is an external employee of the Office of the Chief City Architect of the City of Bratislava and has experience in climate change adaptation projects done in Bratislava in the past and providing consultancy services for municipalities. By profession she is a landscape and spatial planner.

Mgr. Stanislava Brnkaľáková, PhD. is an environmental and landscape manager and an external employee of the Department of the Chief Architect of the City of Bratislava. She is active in the fields of research and academia and has long-term experience with H2020 projects on adaptation to climate change and its impacts on natural ecosystems.



Jana Danielová is graphic designer. Her contribution to the local ARCH team is in creating dissemination materials.

## 2.2. Capacity gaps

Climate change adaptation projects have been carried out under the auspices of the Chief City Architect's office since 2012. Until today, adaptation to climate change does not have its own unit in the organisational structure of the municipality. The topic is partly dealt with by separate departments, such as the environmental or urban planning departments (in operational terms), but in terms of strategies and projects, the thematic of climate change adaptation is based at the Office of the Chief City Architect (one person full-time). To a certain extent, this topic is also part of the portfolio of the Metropolitan Institute of Bratislava, a budgetary organisation of the city. At borough level, the topic of climate change adaptation is mostly covered by the environmental or urban planning departments, or the investment and project implementation departments at each of the **17 city borough municipalities** (the latter is only the case for boroughs that have external funding for project implementation).

For the reason that pluvial flooding, due to intense rainfall represents a rising concern of local authorities, the city has identified the need to improve the surface runoff and monitoring of underground water levels. The quality, quantity and composition of the pluvial water are currently monitored by state-owned Slovak Hydrometeorological Institute and State Geological Institute of Dionýz Štúr. Nevertheless, the city does not have direct access to any raw data (but mostly access to publicly available documents such as reports, journal articles, web map services, etc.).

Historical data and records of the built environment, including cultural heritage (such as plans of buildings, etc.) in the monument preservation reserve are available mostly in the archives of the City of Bratislava in forms that need to be collected and pre-processed (or digitalised) in order to be compatible with the tools developed in ARCH.

Since MUOP is developing a 'Pavement handbook' dealing with quite a large area (that covers the whole monument preservation zone) and also areas with an entirely different character (e.g. street level urbanism, in situ heritage sites), a certain capacity gap is filled by outsourcing some necessary services that cannot be performed by its research staff (e.g. digitalisation, field research, technical services, etc.). The research team consists mainly of archaeologists (six), art-historians (three) and one architect. The rest is administration staff (two).

The UNIBA team is represented by an environmental senior researcher, two junior environmental researchers, and a hydrogeologist, while individual tasks are performed by experts such as microbiologists. UNIBA is consistently building its own network of monitoring devices (meteorological variables). The team undertakes microbiological sampling and analyses, supports Bratislava City with various data sets and is able to support also with pre-processing of data needed later on by technical work packages in the co-creation process.

## 2.3. Stakeholder analysis process and results

Stakeholders were mapped following a simple four step structure: 1) identify, 2) assess/analyse, 3) prioritise, and 4) understand. The stakeholders were mapped visually using an interest/influence matrix. Three areas of competence were considered – cultural heritage preservation, climate change monitoring and adaptation, disaster risk monitoring and management. Besides areas of competence, stakeholders were considered in terms of their relative importance (primary, secondary, tertiary).

On one hand, the concentration of state authorities and public administration in Bratislava is high, as the city is the capital of the country. On the other hand, Bratislava City's cadastral territory is a rather small area and its population is just roughly 470,000 inhabitants.

The completed analysis matrix can be found in Annex 1. Based on this analysis, 24 stakeholders at local, regional and national level were selected to form the local partnership. These are shown in the simplified matrix below, along with an indication of their competence (cultural heritage management, climate change adaptation, disaster risk management, or other).



Figure 1: Stakeholders at local, regional and national level and their competences.

As the ARCH project is currently in the middle of its lifespan, new stakeholders might be added to the matrix as the project becomes more known in academic circles and other stakeholder forums (especially stakeholders from the third sector).

## 2.4. Existing groups and initiatives

In terms of international networks, **Bratislava City** is a member of the Covenant of Mayors and EUROCITIES. Internally, the city has several working groups, focused around different topics, such as clean air, water security, management of greenery, geographical information systems, etc. These groups have been established by different decision-making bodies, such as the City Parliament, the director of the City Hall, the Mayor, and the director of a unit of the City Hall etc. Other decision-making bodies, which might play an important role future, e.g. in adopting the tools developed in the ARCH project, are the different committees of the City Parliament (such as the cultural committee, committee for strategic and urban planning and environment, etc.). Bratislava also has memoranda of cooperation with several universities and research organisations – such as the Slovak Technical University, Comenius University, University of Economics in Bratislava, Academy of Fine Arts and Design, Slovak Academy of Sciences (consists of many institutes on individual disciplines).

**MUOP**, working in the field of cultural heritage protection, is close to organisations operating within this field on the international (ICOM, ICOMOS, ICAMT, etc.) and regional level (Monument Board of the Slovak Republic, Slovak Archaeological Society at the Slovak Academy of Sciences). MUOP is also an active member of several working groups established by the city (mentioned in the paragraph above) regarding cultural heritage. In addition, MUOP is part of an Interreg EU project 'Living Danube Limes' (2020-2022), which is a continuing cooperation with partners from the former 'Danube Limes Brand' project (2012-2014) focused on Roman monuments along the Danube river. Within the city network, MUOP cooperates with City Museum Bratislava and BKIS, the Tourist Board and Bratislava region (BSK), as well as the Niederösterreichische Landesregierung (Austria). Together with Bratislava City, these organisations organise events such as the Roman Games and Limes day every year in autumn. On the scientific level, MUOP cooperates with the Slovak Academy of Sciences – Archaeological Institute, Geological Institute, Institute of Earth Sciences, the Slovak National Museum – Historical Museum, Archaeological and Natural Sciences Museum. MUOP also cooperates with other foreign partners, namely: Archaeological Park Carnuntum (Austria), Stadtarchäologie Wien (Austria), BIBRACTE – Center of European Archaeology (France), Archäologisches Museum Frankfurt (Germany), ARCHAIA Brno (Czech republic), Museo Nazionale Archeologico d'Umbria a Perugia (Italy), Museo Mercati di Traiano Roma (Italy), Tatabánya múzeum (Hungary), Budapest Historical Museum (Hungary), Podunajské múzeum Komárno (Slovakia), G. Klapka Múzeum (Hungary), Hansági Múzeum (Hungary), Masarykova Univerzita Brno (Czech republic).

**UNIBA** – the Department of Landscape Ecology is member of scientific networks and research groups, such as IALE – International Association for Landscape Ecology, SURE – Society for urban ecology and Slovak ecological society – SECOS. Furthermore, the researchers involved in ARCH project have a long-term and ongoing cooperation with the Institute of Landscape Ecology and Geography of Slovak Academy of Sciences, Slovak Hydrometeorological Institute, BROZ, Bratislava Water Company, and has experience with cooperation with local stakeholders coming from the public sector, such as the city boroughs of Bratislava City or the Bratislava self-governing region.

## 2.5. Our local partnership

For Bratislava City, the key stakeholders (local partners) of primary importance are mostly its own organisations that have the delegated competence by the City in areas such as the management of cultural heritage. This is the case of the Bratislava City Museum with its different offices around the city and the Bratislava City Gallery. Bratislava City is also the seat of the Slovak national museum which has extremely valuable *in situ* preserved archaeological finds at the Bratislava Castle. Of secondary importance are the 17 city boroughs are also very important, as administrative units with their own decision-making power, budget and competence. Finally, the different regional and state level authorities with competence in the different topics covered by the project – cultural heritage preservation, climate change monitoring, and disaster risk management – are of tertiary importance. The stakeholders of primary importance are, for the purpose of this local partnership plan, referenced as core stakeholders and they are going to be invited to participate in the co-creation process of the ARCH project tools.

Bratislava City has been closely cooperating with its local research partners in the ARCH project also prior to the project. With UNIBA, the cooperation has been mostly on the topic of climate change adaptation in previous projects such as the H2020 project 'RESIN' (Climate Resilient Cities and Infrastructures), 'Bratislava is preparing for climate change – application of pilot adaptation measures for sustainable management of rain water' and 'EU Cities Adapt'. MUOP traditionally nurtures connections with the organisations, involved in cultural heritage protection at different levels. This happens at the local level (city organisations - Bratislava City Museum, Bratislava City Gallery, Bratislava Tourist Board, cultural section of the Old Town municipality etc.), regional level (Regional Monuments Board) and state level (Ministry of Culture, Ministry of Foreign and European Affairs, Monuments Board of the Slovak Republic, Slovak National Museum, Bratislava region). The ARCH co-creation process with local partners also benefits from partnerships established in the city's past collaboration with several universities based in Bratislava (Faculty of Architecture of Slovak Technical University, Comenius University, Comenius University-Philosophical Faculty, and Faculty of Natural Sciences). Via ARCH local research partner – Faculty of Natural Sciences of Comenius University in Bratislava (UNIBA) – more local stakeholders from the research arena can be engaged, who can be relevant in terms of providing knowledge or data.

The overall aim of the Bratislava team in the context of the ARCH project is to bring together stakeholders, that might not have necessarily interacted before, and in doing so to create the capacity to face (and act in response to) climate change impacts and other hazards that put cultural heritage in Bratislava at risk. Many of the members of the core stakeholder group (local partnership) have already cooperated closely because of the character of their area of competence, administrative tasks, procedures and routines. However, some stakeholders are new in the organisational structure of the city (such as the Metropolitan institute of Bratislava) or have not yet had the chance to cooperate on the themes of the project. For others, cultural heritage resilience is a relatively new focus area.

So far, the city of Bratislava does not have a working group that would focus on supporting resilience to the impacts on climate change on cultural heritage. The city, its local research partners and relevant stakeholders related to the project ARCH or any other projects can later in the process (around the last year of the project) form a working group or task force, which

will deal with the issues of urban resilience and potentially act as an advisory body to support local stakeholders.

### 3. Where are we going?

#### 3.1. Our overall aim

The overall long-term goal of Bratislava's local work plan, but also the ARCH project in general, is to increase the resilience of selected cultural heritage sites in Bratislava, at local level. The city needs to provide space where stakeholders from different backgrounds or areas of competence can interact, that might not necessarily have interacted before, and create new capacity to deal with climate change issues and their impacts not only on cultural heritage but also on other city assets (such as the creation of an advisory body to support local decision-makers).

The city also needs to align its adaptation and mitigation goals within climate change scenarios to be able to define what actions need to be taken to preserve cultural heritage, while also integrating these with its municipal policies (e.g., the sustainable energy and adaptation action plan).

#### 3.2. Objectives

In order to protect cultural heritage in Bratislava and increase its resilience to climate change impacts, the city needs to be able to assess the impacts of climate change hazards and understand the level vulnerability of its cultural heritage to these impacts. In order to provide what is necessary for undertaking such an assessment and to design appropriate resilience options the city also needs active participations of its stakeholders.

Thus, to reach the above-mentioned aims, the objectives can be summarised as follows:

**Objective 1: Stimulate engagement of stakeholders from different background and possibly institutionalise a new working group. In this objective the following activities are envisaged:**

- a) Create a core group of local partners (stakeholders) – this group will participate in an intensive co-creation and knowledge transfer process between the local partners, Bratislava City and its local research partners in ARCH – MUOP and UNIBA. This is essential in order to create tools that will be tested, accepted and later used in local conditions;
- b) Create a supporting advisory group to support local decision-makers - e.g. a task force for resilience and risk management (long-term objective). The members of the core group of local partners should be also represented in this task force.

**Objective 2: Select and implement the optimal measures to make cultural heritage more resilient to climate change impacts by co-creating tools with support of local research partners and core local stakeholders.** The core local stakeholders will be

consulted and invited to larger meetings and/or workshops, in order to verify the results of the co-creation process and get informed about ARCH outcomes that they can use and ways in which they might be useful for them. Their insights on the political-administrative, societal, legal, and financial barriers for the implementation of ARCH tools is extremely relevant so that the tools and the outputs can be adapted to deal with such barriers.

**Objective 3: Integrate cultural heritage resilience and risk management into policies and strategies (new SECAP).** Resilience planning and specifically cultural heritage resilience planning is set to become part of the city's future policy documents and strategies, such as the sustainable energy and climate action plan.

## 4. How will we get there?

### 4.1. Work plan

A detailed work plan, outlining strategies, actions and indicators to support the overall aim and objective defined above, is attached at Annex 2.

### 4.2. Activities to develop and implement your work plan

Throughout the project, Bratislava City is planning to organise several meetings, sessions and workshops with the support of its local research partners and ICLEI. Each of these events will be followed by a press release published on the city's website. In addition, smaller operative ad-hoc meetings with local partners and local research partners depending on the nature of the tasks carried out in the project.

The launch event for the local partnership plan was the **kick-off meeting** on the 3<sup>rd</sup> March 2020, where the presence of the core stakeholder group was important. The goal was to familiarise the core local partners with ARCH project objectives and validate the research problem for Bratislava City and case study sites at an early stage.

A **'match-making' online consultation (or workshop)** was organised with the ARCH scientific partners to provide detailed information to the technical work packages and create space for defining specific activities within the local work plan of Bratislava, its local research partners and partners. The project partners of the technical work packages consulted related needs and interests of local partners in the process of tool co-creation. The event was planned as a two-day online consultation workshop and was organised by Bratislava City on May 25 and May 28, 2020.

**The first face-to-face consultation session on the ARCH tools will be focused on requirements for the hazard and object information management system.** A consultation meeting with the core local partner group will be organised to discuss the functionalities of the information systems. The session will provide an opportunity to discuss requirements and identify new tools / modules, as well as to validate those already implemented for the information systems. The local research partners and Bratislava City have already held two



four such meetings – three of these with the Bratislava City Museum at Devin Castle and one with the Slovak National Museum – Historical Museum at the Bratislava Castle.

The **second consultation** session will be focused on the findings of the impact and risk assessment. The aim of the consultation meeting is to validate the synthetic scenario for pluvial flooding of the area of the historical monument reserve and erosion scenario at the Devin castle and provide feedback for D3.7. Participation of the core local partners group is needed, while attendance of the larger stakeholder group is welcome.

Two workshops will be co-organised by Bratislava City on **defining the resilience options and pathways**. These workshops will be organised with the aim to validate the usage of the vulnerability, hazard and risk data (from WP4 and WP5) in the pathway approach, ii) to define the acceptable threshold (T6.4), iii) to validate the initial resilience option list (T6.1); iv) to set the criteria to re-organise the resilience options in groups (T6.2); v) to analyse the best funding opportunities (T6.3); vi) to validate the pathway alternatives (T6.4); vii) to discuss the step-by-step methodology, the usability and the adjustments of the resilient pathway approach (T6.4). Participation of the core local partners groups is needed, attendance of the larger stakeholder group is welcome. The first workshop will be in 2021 and the second in 2022.

Relevant local partners will be also invited to the **Mutual Learning Framework**, face-to-face event that will be organised in Bratislava. The idea is to have local partners further involved in the project and experience the exchange of knowledge and experience with the keystone cities.

During the final year of the project, Bratislava City is aiming to have gathered enough input on increasing the resilience of cultural heritage for its new SECAP. This policy document is to undergo a process of public participation and review by all the city's local partners and relevant stakeholders (as it will cover also other sectors such as citizen health and wellbeing, transport, energy and heat, urban biodiversity, etc.) before final adoption by the City Parliament.

One of the local partners of Bratislava City is the Faculty of Architecture at the Slovak Technical University and the Institute of management at the Slovak Technical University which are both enrolled in the MUNISS student competition<sup>1</sup>.

Throughout the project Bratislava city will prepare **press releases** to inform the general public about the overall progress of the project as well as the local work plan. The press releases are to be published after each public consultation session or workshop. Press conferences will also be held after each consultation to inform external organisations as well as the general public about the progress of the local working group.

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<sup>1</sup> The City of Bratislava is supporting the MUNISS competition by providing professional consultations and workshops from the practice of public administration, but also by financial means, to support an urban intervention, which could be implemented after the competition and would act as a pilot project for the overall regeneration of the area. The idea is to involve students of spatial planning, urban planning and architecture at the level of an international university competition for solving specific tasks of city development.

Year	Milestone type	Objective	When	Target audience	Public or invitation only
2020	<b>Kick off meeting with local partners</b>	Familiarise local partners with ARCH project objectives, validate research problem for Bratislava City and case study sites	March 3, 2020	All local partners, relevant departments	Invitation
2020	<b>Online consultation session/webinar</b>	Discuss local work plan and consult on related needs and interests.	May 25 and 28, 2020	Core local partners and departments	Invitation
2020-2022	<b>Press releases</b>	Inform external organisations and local community about local plan and consult on related needs and interests.	Press releases will be published after each meeting with consultation session with local partners	Public	Public
2020	<b>Consultation session</b>	Define user needs for hazard and object information management inventory	To be agreed with scientific partners	Core local partners (end users)	Invitation
2020	<b>Consultation session</b>	Define user needs for risk and impact assessment tool, validate the impact scenarios	To be agreed with scientific partners	Core local partners (end users)	Invitation
2020	<b>Conference AMPS</b>	Presenting the ARCH project and "Pavement Handbook"	6/2020	General and professional public	Public



2020	<b>PAESTUM, Italy</b>	BMTA-Mediterranean Archaeological Fair	19. – 22.11.2020	General and professional public, tourism	Public
2020	<b>SOLIN, Croatia</b>	International Congress of Historic Cities	23.- 27.11.2020	Archeological tourism	Public
2021	<b>FIRENZE</b>	Salone Archaeologia e turismo	26.- 28.3.2021	Archaeological Tourism	Public
2021	<b>Student workshop</b>	Transfer of knowledge to students enrolled in the MUNISS student competition	Second half of 2021	Core local partners - university	Invitation by the local partners (university)
2021-22	<b>Mutual learning workshops between the foundation and keystone cities of ARCH</b>	Involve relevant local partners into the workshops organized as part of the WP3 task 3.6.	To be agreed with scientific partners	2-3 relevant local partners	Invitation
2021	<b>Stakeholder workshop on resilience options</b>	Validate preliminary outputs of two previous consultations, define user needs of resilience options	To be agreed with scientific partners	LNV, Bratislava, MUOP, UNIBA, Tecnalia, ICLEI, ENEA, UNICAM, RFSAT; possibly also core local partners (end users)	Invitation
2021	<b>Metropolitan forum</b>	Present preliminary outcomes to general public and wider group of stakeholders	To be determined by the MIB (organizers)	General public	Invitation
2021	<b>Co-creation workshop involving keystone cities of ARCH</b>	Involve relevant local partners into the workshops organized as	Late 2021 - To be agreed with scientific partners	2-3 relevant local partners	Invitation

		part of the WP3 task 3.6.			
2022	<b>Stakeholder workshop on pathway approach</b>	Validate preliminary outputs of two previous consultations, define user needs for designing pathways	To be agreed with scientific partners	Bratislava, MUOP, UNIBA, LNV, Bratislava, and Tecnia, SOGESCA Core local partners (end users)	Invitation
2022	<b>Student workshop</b>	Transfer of knowledge to students enrolled in the MUNISS student competition	Second half of 2022	Core local partners - university	Invitation by the local partners (university)

**Table 1: Calendar of activities by Bratislava and local research partners - MUOP and UNIBA throughout the duration of the project.**

### 4.3. Strategy to collaborate with local partners

The strategy for the local work plan is based on the principles of mutual benefits and co-benefits. For the time involved in the project, it is key to explain to local partners the mutual benefits of such a partnership. Their local knowledge and experience are valuable to the co-creation process and can influence the development of tools or other outputs that will later support local stakeholders in carrying out daily tasks or in decision-making processes. The input of local partners (stakeholders) is important for creating tools that can be used at different stages of resilience planning: at the stage of planning (for example, land-use planning, planning and designing public space at the local scale, strategic planning), systematic recovery of cultural heritage, assessment of investment projects and support of other activities related to mitigation and adaptation to climate change and erosion hazards.

Secondly, Bratislava City's strategy is to interact with stakeholders from early on as well as during the project, at the stage of testing the tools developed by the technical WPs 4 – 6 and providing feedback for relevant deliverables. Bratislava City is linked with its stakeholders either via decision-making and different approval processes (between sectoral authorities on local and other levels of governance). Some stakeholders are its own contributory organisations – such as the Bratislava City Museum, Gallery of Bratislava City responsible for the management of cultural heritage and planning of its preservation, or play an important role in strategic urban planning (Metropolitan institute of Bratislava) and approval of investment activities (departments at City council, city boroughs and its departments and authorities). In order to have enough opportunities for interaction, we have listed a number of relevant public events in the work plan as well as project workshops where we see opportunities for co-creation with our local stakeholders.

Last, but not least, the strategy is also to explain the co-benefits to local stakeholders (partners) from applying resilience options for minimising the risk that climate change poses for cultural heritage resilience. Such co-benefits might be either economic (such as savings on resources), may enhance public space, but can also support local communities.

#### **4.4. Checking and reporting on progress**

Progress monitoring will be done in various ways. First of all, the progress will be monitored quantitatively – as for example the total number of press releases, meetings/workshops held or public presentations held. Secondly, minutes will be produced from meetings and shared among the participants to ensure that the tasks distributed are going to be adhered to. General summaries of progress achieved will be published in the Bratislava City Annual Report. Also, the Office of the Chief City Architect provides reporting on a biannual basis also on the implementation of adaptation measures (including resilience options) for the City Parliament and the Covenant of Mayors for Climate and Energy.

## **Annex 1: Stakeholder analysis table**

Sector	Organisation	Relationship with municipality (if any)	Information (what useful information can they provide?)	Impacts (how, if at all, are they impacted by the issue?)
Public - tertiary	Old Town City Borough (municipality)	One of the 17 city boroughs of Bratislava city, the mayor of city borough has a mandate in the city council, ( <a href="https://www.staremesto.sk">https://www.staremesto.sk</a> )	Management of the immovable assets of BA, administrates and maintains historical sites, issues permits to sale and manages opening hours of stores... info about the municipality itself, list of the deputies	The municipality is responsible for carrying out preventive measures to prevent damage to property in its territory, especially regarding pluvial and fluvial flooding, droughts and heatwaves. Possible damage to the historical monuments in the centre can also lead to a decrease of quality of tourism, deterioration of provided services, more difficult fulfilment of strategies due to higher costs (maintenance, mitigation measures) or as a result of unexpected complications caused by climate change
Public - Tertiary	Devin City Borough (municipality)	One of the 17 city boroughs of Bratislava city, the mayor of city borough has a mandate in the city council, ( <a href="https://www.devin.sk">https://www.devin.sk</a> )	Provides info about the historical sites and the municipality itself, its location near by natural reserves (the riparian forests of Danube and Devinska Kobyla mountain) creates and healthy conditions and a healthy way of life and work of the inhabitants of the city district, maintains historical monuments and buildings of local importance entrusted to the administration of the borough, builds and maintains the communication within the municipality	The municipality is responsible for carrying out preventive measures to prevent damage to property in its territory, especially regarding pluvial and fluvial flooding, droughts and heatwaves. Possible damage to the historical monuments can also lead to a decrease of quality of tourism, deterioration of provided services, more difficult fulfilment of strategies due to higher costs (maintenance, mitigation measures) or as a result of unexpected complications caused by climate change
Public - Quaternary	Bratislava metropolitan institute	Bratislava's contributory organization ( <a href="https://www.bratislava.sk/sk/sprava/metropolitny-institut-bratislavy">https://www.bratislava.sk/sk/sprava/metropolitny-institut-bratislavy</a> )	Dealing with urban planning and development, urban transport, architectural development – creating public spaces of better quality	-
Public – Tertiary State administration	General investor of Bratislava	Contributory organization for investment projects, construction & maintenance (founded by the Mayor of Bratislava after approval by the municipal council) ( <a href="http://www.gib.bratislava.sk">http://www.gib.bratislava.sk</a> )	Dealing with preparation and realization of building and transport constructions, rescue and restoration of immovable cultural monuments, administration, operation, maintenance, restoration and construction of fountains, monuments and plaques, maintenance and care of greenery	Existing monuments which are in areas prone to pluvial flooding or other climate-change related hazards are vulnerable and their maintenance/reconstruction may require additional financial resources
Public - Quaternary	Bratislava city museum	<a href="http://www.muzeum.bratislava.sk/en/">http://www.muzeum.bratislava.sk/en/</a>	Research institution and organization belonging to Bratislava City. It is the oldest museum in Slovakia conserving and presenting the history of the city (movable assets such as collections and immovable assets such as heritage buildings), the activities of the museum are aimed at documenting and presenting the history of the city, which are offer to its visitors at nine permanent displays situated mainly in the historical old-town center	Existing monuments which are in areas prone to pluvial flooding or other climate-change related hazards are vulnerable and their maintenance/reconstruction may require additional financial resources

Sector	Organisation	Relationship with municipality (if any)	Information (what useful information can they provide?)	Impacts (how, if at all, are they impacted by the issue?)
Public – tertiary sector	The monuments board of the Slovak Republic	<a href="https://www.pamiatky.sk/sk/page/pamiatkovy-fond">https://www.pamiatky.sk/sk/page/pamiatkovy-fond</a>	The Monuments Board is a state budget organization founded by the Ministry of Culture of the Slovak Republic, mainly dealing with protection of historical monuments, they can provide the list of historical and cultural monuments (movable and immovable), manages and supervises the performance of state administration in the area of the protection of the heritage fund carried out by the Regional Monuments Offices, which perform it in their territorial district, which is the territorial district of the region	-
Public - Quaternary	The institute of Archaeology of the SAV	<a href="http://archeol.sav.sk/index.php/en/about-us/">http://archeol.sav.sk/index.php/en/about-us/</a> )	The Institute conducts scientific and research activities in the scientific discipline of Archaeology and in related scientific disciplines. It effectively and creatively contributes to the resolution of theoretically challenging and in practice current scientific issues, it is as well training institute in archaeology	
Public - Quaternary	Slovak national museum – Historical museum	<a href="https://www.snm.sk/?poslanie-a-historia">https://www.snm.sk/?poslanie-a-historia</a>	Research main activity – research authority, The Slovak National Museum is the top state institution responsible for preparing museum collections, facilitating scientific research and organizing cultural and educational events in this field in the Slovak Republic, it creates, documents, processes, evaluations, protects and makes various collections of artistic, historical or scientific objects accessible to the general public	Existing monuments which are in areas prone to pluvial flooding or other climate-change related hazards are vulnerable and their maintenance/reconstruction may require additional
Public, Tertiary, Tourism, Culture,	Bratislava tourism board	Direct – promotion of tourism, including promotion of city tourism, including services provided by municipal organisations	basic information in the field of tourism, events, transport, accommodation, gastronomy and others, provides information through a wide range of promotional materials, cycling maps, publications, etc.	weather fluctuations have a negative impact on tourism and the quality of services provided, excessive rainfall can cause flooding or other degradation of cultural monuments and hiking / biking trails, which may affect negatively the quality and quantity of provided services, heatwaves may affect the provision of outdoor tourist activities and services during the summer months
Public, Tertiary, Tourism, Culture, Education Environment	UNESCO Secretariat	Direct - protection of monuments belonging to the world cultural heritage, support of regional cooperation in the area of monument protection, environment, sustainable development and others. Indirect - Enlightenment in the field of protection of cultural monuments, the environment, etc., work on the creation of international conventions and treaties	provides information, education in the fields of social and natural sciences, the environment, culture, etc.,	the World Heritage sites may be endangered/damaged, climate change and related hazards (esp. erosion)

Sector	Organisation	Relationship with municipality (if any)	Information (what useful information can they provide?)	Impacts (how, if at all, are they impacted by the issue?)
Public, Tertiary sector, Culture	The Ministry of Culture	Direct - Subsidiarity principle (delegated performance of state administration in the field of culture and tourism) Indirect - Creation of laws and strategies in the area of culture and tourism development, which the municipalities must fulfil through local strategic documents, concepts and so on.	provides information, provides cultural and educational activities, provides presentation of Slovak culture, manages activities of Slovak institutes abroad in the field of their cultural activities, creating strategic documents, methodological assistance, providing grants, providing information in the field of legislation, provides consultations and methodological assistance	cultural monuments can be damaged and higher expenditures for their reconstruction / restoration, eventually total degradation of cultural heritage, decrease of quality of tourism, deterioration of provided services, more difficult fulfilment of strategies due to higher costs of maintenance and mitigation/adaptation measures or as a result of unexpected impacts caused by climate change
Public, Tertiary sector, Environmental protection	Ministry of the Environment of SR	Direct - central state administration body, respects the principle of subsidiarity (delegated performance of state administration in the field of environmental protection) Indirect - creation of laws and strategies in the field of environmental protection, which municipalities must fulfil through local strategic documents, concepts, activities, etc.	providing information on environmental creation and protection, providing grants, creating laws and strategic documents informing and identifying environmental protection activities and adapting and mitigating the negative impacts of climate change, providing information on legislation, providing consultations and methodological assistance, provides a unified information system on the environment, area monitoring, research and research, provides information on the environmental aspects of land-use planning	increased expenditure on disaster removal
Public, Tertiary sector, Environmental protection	Slovak Environmental Agency	professional organization of the Ministry of Environment of the Slovak Republic Indirect - development of environmental reports and documents prevention and control of pollution, contributory organization in the field of culture and tourism, assesses the impact of activities on the environment	provides information in the field of landscape care and environmental protection, providing contributions in the field of culture and tourism, providing education	Greater demands on resources (personnel and financial) in the area of prevention and control in case of worsening of the negative impacts of climate change
Public, Tertiary sector, Environmental protection	State nature conservancy	Direct- Providing support in the area of monitoring, review of protected areas/species Indirect - project preparation and implementation	information on the status through reporting, information on current legislation, strategies and projects implemented, information on the effectiveness of implemented measures, information on territorial scope, information on funding opportunities for projects from grants	degradation of nature due to the effects of climate change and unexpected phenomena; impossible implementation of strategies as a result of previous phenomena, which caused a change in the original conditions under which the strategies could be fulfilled, material (?) damage, biodiversity loss (urban natural areas)
Public, Tertiary sector, environment,	Slovak Hydrometeorological institute	Direct – partnership with Bratislava city – support in monitoring water/air quality and climate change impacts and early warning systems Indirect - analysing the hydrological/climatological conditions in the country, which influence the creation of strategies and implementation of specific activities in the municipality to avoid damage to the environment and property, respectively.	information on current weather conditions and possible occurrences of floods and worsened wind conditions, informs on current warnings, provides data, information and results of studies in the field of hydrology, meteorology, climatology, phenology, emissions and air purity, provides information from the information system and environmental monitoring , information from the National Pollution Register, provides information on legislation, consultations, informs on projects implemented by SHMI	Need for more advanced monitoring and early warning systems (jointly with the city)



Sector	Organisation	Relationship with municipality (if any)	Information (what useful information can they provide?)	Impacts (how, if at all, are they impacted by the issue?)
Public, Tertiary sector, water management	Slovak water management enterprise (State enterprise)	Indirect – as a state enterprise participates in water management proceedings concerning the authorization of wastewater discharges, participates in setting environmental objectives for surface water bodies, groundwater bodies and protected areas, in the preparation of programs, plans, concepts, decrees, etc. affected municipalities	organize excursions and exhibitions that inform people about the current state and planned activities, publishes water quality yearbooks, final report on the qualitative balance of produced and discharged wastewater, reports from surface water quality monitoring, press releases, water management periodicals	Fluctuations in water runoff ratios and water level fluctuations, because of which the investment activity is affected. e.g. placement of hydroelectric power stations and other objects on watercourses, urban sprawl and use of impermeable materials for surfaces, closing off the rivers into underground pipelines (leading into sewage system or directly into Danube river), deterioration of water quality due to pollution, loss of biodiversity and changes in the aquatic ecosystem, more frequent floods and damages caused by torrential rain,
Public, Tertiary sector,	Association of cities and settlements in Slovakia	Direct - Support for subsidiarity, fiscal decentralization, modernization, support and development of self-governing democracy in public administration Indirect - participates in law-making (?), Represents Slovak towns and municipalities in international relations and development cooperation, represents towns and municipalities as employers, solves problems of local territorial self-government interests and rights of member cities and municipalities in respect of their autonomous status in accordance with legislation and the European Charter of Local Self-Government based on the principles of sustainable development and social cohesion	legal advice, informs on grants, information on legislation, methodological assistance	-
Public, Tertiary sector, Environmental protection	Regional Association for Nature Conservation and Sustainable Development	Direct - nature conservation and sustainable development, Danube river restoration and its adjacent wetland, the organisation is engaged in increasing awareness of nature conservation in the region by working with public and schools, organizing excursions, presentations, lectures and seminars as well as preparing publications, exhibitions and documentary films.	Information and data collected in various interdisciplinary projects on adaptation of urban areas to climate change or conservation and biodiversity protection projects.	changes in water level fluctuations of the river Danube and changes of the nearby land and biotopes caused by the climate change, increased maintenance costs at project sites (additional personnel costs)
Public, tertiary sector, culture	Bratislava City Gallery	Direct - The Bratislava City Gallery is a cultural-educational and scientific-research organization founded by the city of Bratislava. Its basic mission is to collect, professionally process, restore, preserve and make works of art accessible to diverse audiences through exhibitions, publications and various activities.  www.gmb.sk	Building plans and reconstruction/sanitation plans on work done in the past (relevant for creating 3D models of its buildings and suggesting resilience options)	The gallery displays its collections in two historical building located in the historical centre of Bratislava, namely at Mirbach Palace, situated in Františkánske square opposite the Franciscan Church, and at Pálffy Palace, situated in Panská Street opposite the British Embassy. The Pálffy palace is especially vulnerable to increased humidity in the ground floor and underground levels.



Sector	Organisation	Relationship with municipality (if any)	Information (what useful information can they provide?)	Impacts (how, if at all, are they impacted by the issue?)
Public, tertiary sector, civic protection?	Bratislava Municipal Police	Direct - is a law enforcement unit established on the basis of Act no. 564/1991 Coll. on the municipal police, as amended, and pursuant to this Act: ensures public order in the municipality, cooperates in the protection of its inhabitants and other persons in the municipality from threats to their lives and health, cooperates with the relevant departments of the Police Force in the protection of municipal property, citizens' property, as well as other property in the municipality from damage, destruction, loss or misuse, as well as with the use of control panels and other security systems (central security desks), and performs many other tasks in the field of monitoring, imposes and collects block fines, and performs other tasks for prevention within the scope established by this Act.	Information on damage and destruction to municipal and citizens' property by natural and climate change related hazards, experience and information useful for disaster risk monitoring and management	Might be involved in the works on disaster removal (created by climate change impacts and other natural hazards)
Public, Tertiary, Research	State Geological Institute of Dionýz Štúr SGIDŠ	Indirect - State Geological Institute of Dionýz Štúr, subordinated to the Ministry of Environment SR is a contributory organization which provides geological research and exploration at the territory of the Slovak Republic, creation of information system in geology as a component of the nation-wide information system, registration and evidence activities related to geological works performance, collecting, evidence and making available the geological works results carried out at the territory of the Slovak Republic, Central Geological Library performance, issuing and purchase of maps and professional geological publications.	The institute can provide data and information relevant for the scope of the project, as it has already done many times before	The institute research agenda might focus more towards climate change related impacts as these will manifest itself in a greater intensity in the coming years in Bratislava and its surroundings
Public, Tertiary, Civic protection	Ministry of Interior of the Slovak Republic	Direct - it is the authority in charge of the internal administration including the territorial and administrative structuring of the Slovak Republic, organisational assurance of elections to self-government elections (local elections), the organisational assurance of referendums, war graves and small entrepreneurship. Indirect – provides support and guidance for local governments and its citizens on protecting public order, security of persons and property, the safety and fluency of road traffic, by means of the Police Force and the Fire Fighting and Rescuing Corps.	Information on disaster risk management,	Increased costs on disaster risk removal as the impacts of climate change will manifest themselves in a greater intensity in the coming years in Bratislava and its surroundings

Sector	Organisation	Relationship with municipality (if any)	Information (what useful information can they provide?)	Impacts (how, if at all, are they impacted by the issue?)
Public, tertiary, Civic Protection	Regional Environmental Authority of the Ministry of Interior of the Slovak Republic	Direct - performs the state administration of care for the environment to the extent stipulated by Act no. 525/2003 Coll. on the state administration of environmental care and on the amendment of certain laws as amended and other generally binding legal regulations and legally binding acts of the European Union, which result in tasks for the field of environmental care, in its territorial district.	programs, plans, environmental concepts in the area of its competence and determining the decisive directions of environmental policy in individual sections of the state administration of environmental care at the regional level,	Impacts its tasks and responsibilities concerning expected climate change impacts and its effects on cultural heritage in extend of its competence given by Act no 525/2003.

## **Annex 2: Work plan matrix**

### Work plan matrix

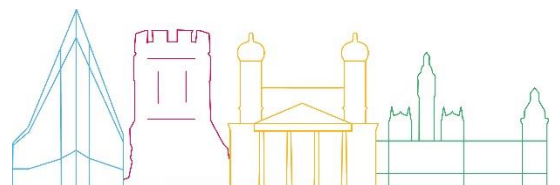
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# Local partnership and work plan for Camerino

ARCH D3.2

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Author(s)	Matteo Iommi (CAM), Quintilio Piattoni (CAM)
Co-Author(s)	
Contributor(s)	Saioa Zorita (TEC)
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## Contact

[arch@iais.fraunhofer.de](mailto:arch@iais.fraunhofer.de)

[www.savingculturalheritage.eu](http://www.savingculturalheritage.eu)



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# Local work plan: Camerino

## 1. Where are we?

Camerino is one of the four pilot cities of the ARCH Project with Hamburg, Bratislava and Valencia and it is engaged into the development of strategies, tools and methods to address issues related to geophysical and meteorological hazards, making more resilient its territory and population with a specific attention to the preservation and the enhancement of its cultural heritage. Reduction of the effects from natural hazards as well as resilience management, in all its forms (e.g. physical, social, economic), need to be considered as new topics and challenges for the city of Camerino, which require new approaches and new visions. Camerino has always been aware of the value of its cultural heritage (whether built, natural or social) as a fundamental element of its identity, and the corresponding need to conserve and improve it. According to the principles and the fundamentals of the ARCH project, the key-elements and the general approach for the city of Camerino are identified with: collaboration; integration of solutions; support with research and gathering; and constant updating, sharing and dissemination of results, outputs and new achieved expertise. The collaboration with the research partners and stakeholders, considered as co-authors of the choices and targets to be achieved, is a fundamental part of the Camerino contribution to this project.

In relation to the wide range of natural hazards and climate related risks, the city of Camerino recognises specific natural hazards that affected the cultural heritage, the safety and the well-being of inhabitants and the development of the old town. These include seismic hazards, mass movement and extreme precipitation. These three elements represent the most hazardous phenomena which can provide very hard impacts, as happened in the past and recent years, reducing and resetting the development of the community. These three hazards represent a “trinomial” system that needs to be addressed with integrated analysis, tools and solutions. These three hazards are generative of several effects and impacts on the social, economic, building and infrastructural systems, due to the specific characters of the natural and built environments of Camerino.

The city of Camerino is aware of the vulnerabilities related to these risks, having directly experienced (and continuing to recover from) their effects, which have recently produced many damages and difficulties for the population. The current situation of Camerino is mostly ruled by the seismic events that happened in 2016, which have caused many damages, destruction, depopulation, the end of economic activities and services, and altered the life of inhabitants. The reconstruction process of Camerino is starting, after a long emergency period, with the will to take advantage of the new opportunities based on resilience and adaptation approaches to enhance knowledge about, and preparedness for, the identified natural hazards. Several barriers and limits exist, represented in general by: gaps in digital information; gaps in sharing information systems; lack of direct data and low level of detail about climate and meteorological conditions; insufficient and not integrated information about hydro-geological and geomorphological systems; lack of knowledge on appropriate construction materials and techniques; nonexistence of specific and coordinated emergency plans for cultural heritage; and, in particular, the lack of data and digital tools in order to assess risk scenarios considering



impact chains and simultaneous critical events due to different hazards. In January 2017, a major heavy snowfall occurred in Camerino a few days after a significant seismic event; demonstrating that an extreme climatic event can influence also the evacuation strategies related to civil protection needs.<sup>1</sup>

### 1.1. Target historic areas

The target historic area for the ARCH project is Camerino's Old Town, enclosed within the medieval defensive walls (see Figure 1). Camerino's Old Town is an ancient urban centre that was expanded during the Roman Age. Nowadays, the road network design is essentially based on the medieval pattern. The urban morphology of the Old Town is characterised by a compact and continuous urban context with high building density and by narrow and small streets, trails and paths, a distinctive character of the middle age structure with no grids. The Old Town contains a large number of historic buildings, churches, monuments and artworks, representing a comprehensive and vulnerable cultural heritage system. Due to its ancient medieval structure and its location, the Old Town of Camerino is mainly exposed to seismic and geomorphologic hazards and weather events like heavy snowfalls. Two case studies have been selected within the old town of Camerino, due to their architectural, historical and cultural value: The Ducal Palace (13<sup>th</sup> to 15<sup>th</sup> century) and Santa Maria in Via's Church (16<sup>th</sup> century). These will be used as references for the vulnerability and resilience level of the entire historic area.

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<sup>1</sup> Some tools available here:  
<http://wiki.resin.itti.com.pl/supporting-tools/method-multi-criteria-analysis/>



**Figure 1. Camerino's Old Town (target area).**

The main relevant hazards are earthquakes, geomorphologic and heavy snowfalls. Two very large earthquakes occurred in 1997 and 2016, reflecting the weakness of Camerino's Old Town in terms of the preservation of the cultural heritage and safety of the population. Some areas highlight the necessity of studies on geomorphologic and geological features of the urban sites, exposed to landslides. Climatic hazards concern the influence of the snow precipitation in winter on main local infrastructure (electricity, communications, public transport, roads etc.)

## **1.2. Governance framework for cultural heritage management, disaster risk reduction and climate adaptation**

Considering the governance framework for the target historic area, all levels of government (national, regional and local) need to be considered when it comes to cultural heritage management, disaster risk reduction and climate adaptation. The legal framework for cultural heritage management is strong at the national, regional and local level. Regional, Municipal and Local authorities cooperate with the National Ministry of Cultural Heritage, Activities and Tourism (Legislative Decree 42/2004; Legislative Decree 62/2008; Regional Law 04/2010), but without considering aspects like climate change and disaster risk in the cultural heritage preservation, protection and development visions. The Camerino Municipality does not have specific plans, programmes or guidelines about Disaster Risk Management on Cultural

Heritage in spite of the various museums<sup>2</sup>, historical palaces<sup>3</sup> and churches<sup>4</sup> in the Old Town. The Council member of the Camerino's Municipality has only the competences conferred on the planning and management of ordinary maintenance of historic buildings and landscapes, and other cultural heritage assets.

The management of the phases after disaster events is mainly entrusted to the Civil Protection Department, such as for the last seismic event (2016). The local civil protection office of a Municipality (C.O.C.) is the first authority that organises the response to a disaster or to an emergency before the possible interventions of the regional and national civil protection authorities. In relation to the management after disaster events of cultural heritage, the *Italian Ministry of Cultural Heritage, Cultural Activities and Tourism* (MIBACT) established, with circular n. 12/2012, dedicated regional coordination units, activated in the event of emergencies from natural disasters for the coordination and monitoring of interventions connected with the safeguarding of cultural heritage. The Regional crisis coordination unit (CCR) has the task to couple MIBACT, Civil Protection, Fire Brigade and Local Institutions. The aims of CCR are: coordinate the activities of Ministry personnel on the territory, ensure the necessary connection with the organizations assigned to emergency interventions, identify and manage the teams responsible for damage to cultural heritage, guarantee the supervisory and support functions during all emergency phases. The Municipality of Camerino has so far not developed a detailed pre-disaster planning framework for its cultural heritage sites (partly due a lack of detailed risk scenarios). High quality maps and information about earthquakes and geomorphological hazards are available, but their accessibility between departments could be improved, and they have not yet been directly applied to developing and assessing future risk scenarios. The local and regional civil protection offices do, however, have defined procedures for post-disaster management. In fact, the regional authorities refined their civil protection strategies after previous local emergencies, such as after the Marche-Umbria Earthquake occurred in 1997. The critical infrastructure providers do not have a specific agreement with the municipality for resilience improvement, but they support the municipality when disasters occur.<sup>5</sup>

The Office for Environment and Public Works can be considered the local public service more suited to manage climate change adaptation. However, there are no current specific and effective plans nor actions on climate change adaptation at the local level, - only strategies and policies at the regional level (Regional Plan for Climate 2007; Regional Environmental and Energy Plan 2016).

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<sup>2</sup> Civic and Diocesan museums and local artworks collections.

<sup>3</sup> Ducal Palace, Archbishop's Palace, Bongiovanni's Palace, Theater Marchetti, Borgia's Fortress.

<sup>4</sup> S. Venanzio's Church, S. Annunziata's Church, S. Domenico's monastery, S. Filippo's Church, S. Maria in Via's Church.

<sup>5</sup> Some basic information of the civil protection plan (in Italian) at: <https://www.comune.camerino.mc.it/documenti-cms/relazione-piano-di-protezione-civile/?a=>. Further details are reported in other confidential documents in the Camerino's Technical Office.

### 1.3. Expected impacts of climate change and environmental hazards

The Municipality of Camerino does not have detailed information to undertake planning for the most probable impact scenarios related to climate change and environmental hazards. There are general data concerning the environmental hazards and preliminary studies on geological, geomorphological and seismic features of urban and rural area in order to define urban planning strategies and management of the municipal area. The assessment of the expected impacts of climate change and environmental hazards needs additional studies. Starting from natural hazard, exposure and vulnerability data, expected impact scenarios will be developed by a GIS-based decision support system developed by ENEA research institute.

In terms of seismic risks, a database of the construction techniques, seismic vulnerabilities and structural damage sustained will be developed for the entire old town of Camerino. Moreover, the available data sheets concerning the construction techniques and the structural vulnerabilities of the buildings in the historic inner area, filled out after the Central-Italy Earthquake (2016) will be analysed. Specific analyses of the construction techniques and of the chemical, physical and mechanical properties of the materials (bricks and mortars) will be carried out. Secondary hazards like meteorological events may be analysed in order to define emergency strategies

### 1.4. Resilience of historic areas and the larger urban system

The resilience status of Camerino, according to the Preliminary Disaster Resilience Assessment conducted by Fraunhofer for Camerino's City baseline review (D3.2) according to the Resilience Scorecard (developed by the United Nations International Strategy for Disaster Reduction [UNISDR]) could be considered moderate in general with large potential for improvements, but current capacity in terms of resilience actions for the old town as well as the entire municipality is very low – with gaps on knowledge, expertise and tools. Some spheres of resilience with major deficits indicating a low resilience level are: (i) planning and integration of resilience, (ii) strengthening institutional capacity, (iii) infrastructures and (iv) identification and use of future risk scenarios.

On the other hand, other aspects that are already well consolidated are: (i) the will and the availability to pursue a resilient urban development, (ii) the awareness of the value of natural and cultural heritage, (iii) services and functions for post events concerning evacuation strategies, post disaster recovery organisation, temporary protection system, emergency stabilization of the buildings, removal and relocation of artworks in temporary sites, urban reconstruction strategies, etc. To improve and build on the resilience capacity of Camerino, there are different key areas to develop and better organise, in particular the following points:

- Enhancing local partnerships and support communication with citizenship;
- Taking advantage of current digital technologies and knowledge: use of risk scenarios;
- Institutional capacity;
- Effective disaster response;
- Financial capacity.

## 2. Who are we?

The ARCH Project in Camerino City is led by three officers, specifically hired for the ARCH Project: Matteo Iommi, Barbara Mastrocola and Quintilio Piattoni, under the supervision of the Urban and Building Planning Office (Barbara Mattei and Marco Orioli), the General Business Office (Francesco Aquili) and the Municipal Council (Riccardo Pennesi as representative).

All the tasks involved in the ARCH Project are carried out with the collaboration of the research partners (UNICAM, ENEA and INGV) and the facilitation provided by ICLEI.

### 2.1. Existing capacity

Camerino's team involves different units and groups:

- Municipality of Camerino;
- UNICAM (University of Camerino);
- INGV (National Institute of Geology and Volcanology);
- ENEA (Italian National Agency for New Technologies, Energy and Sustainable Economic Development).

The Municipality of Camerino is represented by a Municipal Council member, Municipal Officials of three main sectors (public and private works, urban planning and cultural heritage) and their collaborators for the ARCH project.

Riccardo Pennesi	Municipal Council member
Marco Orioli (supervisor)	Head Office - Public works (public construction)
Quintilio Piattoni	Ph.D. Engineer (ARCH Project)
Barbara Mattei (supervisor)	Head Office - Private works and urban planning
Matteo Iommi	Ph.D. Architect (ARCH Project)
Francesco M. Aquili (supervisor)	Head Office - General Business
Barbara Mastrocola	Curator of Camerino Diocesan Museum (ARCH Project)

**Table 1. The municipal officials of Camerino.**

The University of Camerino is represented by administrative officials, professors and researchers of three main areas of interest: diagnostic of artworks and cultural heritage, cultural heritage and GIS, structural engineering and geology.

Arianna Bartoletti	Administrative activities and International cooperation Office	Office staff member
Annalisa Albanesi		Office staff member
Graziella Roselli	Diagnostics of artworks and cultural heritage	Professor
Giuseppe Di Girolami		Engineer
Enrica Petrucci	Cultural heritage and GIS	Professor

Diana Lapucci		Ph.D student
Lucia Barchetta		Ph.D student
Andrea Dall'Asta	Earthquake Engineering	Professor and ARCH Project Coordinator
Alessandro Zona		Professor
Michele Morici		Professor
Marco Materazzi	Geology	Professor

**Table 2. Unicam's officials and researchers.**

INGV's members are shown in the following table:

Costanzo Antonio	INGV
Buongiorno Fabrizia	INGV
Bignami Christian	INGV
Esposito Alessandra	INGV
Musacchio Massimo	INGV
Pannacione Apa Maria Ilaria	INGV

**Table 3. INGV's members.**

ENEA's members are shown in the following table:

Rosato Vittorio	ENEA
Giovinazzi Sonia	ENEA
Di Guglielmo Angelo	ENEA
Fioriti Vincenzo	ENEA
Giordano Ludovica	ENEA
Mirabile Gattia Daniele	ENEA
Mongelli Maria Luisa	ENEA
Persia Franca	ENEA
Roselli Ivan	ENEA
De Canio Gerardo	ENEA
De Nicola Antonio	ENEA
Di Pietro Antonio	ENEA
Falconi Luca	ENEA
Puglisi Claudio	ENEA
Sciortino Maurizio	ENEA
Villani Maria Luisa	ENEA

**Table 4. ENEA's members.**



## 2.2. Capacity gaps

There is a lack of knowledge of the main features of the Old Town with reference to the main natural hazards and the vulnerability of the cultural heritage. The main extreme events occurred in the last years, such as the Central-Italy earthquake (2016) and heavy snowfalls (2017). These events highlighted the lack of a suitable pre-disaster planning in order to increment the resilience of the urban area. Currently, the main activities related to urban resilience are managed by the office for urban planning, by the office for the environment and public works, and by the local civil protection department. As mentioned earlier in Part 1, these departments face obstacles in particular to developing adequate pre-disaster planning, due to knowledge gaps, especially concerning detailed risk scenarios. The ARCH project will be useful in order to develop a possible permanent coordination between the municipal offices and some regional departments already involved as local stakeholders. In fact, the Civil Protection Department and the Special Office for the Rebuilding (USR) will support the municipality of Camerino in order to define the main vulnerabilities for the whole Old Town. Regarding climate related risks and in particular heavy snowfalls, there are no detailed historic records of meteorological data concerning detailed historic records. Weather data can be acquired from some weather stations in the nearest municipalities (the nearest being 12km away), covering wind speed, wind direction, air temperature, relative humidity, total solar radiation – dating from 1999 onwards, however this data is not accurate for the conditions in Camerino.

## 2.3. Stakeholder analysis process and results

The Municipality of Camerino together with UNICAM's members have selected 20 local stakeholders, at national, regional and local levels, to take part in its local partnership for the ARCH project (Section 2.5 and Annex I). At a Local Launch Event held on 28<sup>th</sup> May 2020 these departments and groups received an introduction to the aims of the ARCH project for Camerino's Old Town, the scientific partners and the activities – as a first major step to engage them as stakeholders (see Annex 1: stakeholder analysis table).

After the Local Launch Event a preliminary calendar of meetings and activities (Section 4.2) was defined for the local stakeholders and the wider public.

The idea is that future meetings will allow to facilitate the data sharing to carry out the risk scenarios for the target area together with the engaged stakeholders. Furthermore, the public meetings will be useful in order to share both the aims and the results of the ARCH project's activities. The organisation of the meetings is led by the Municipality of Camerino and facilitated by UNICAM, thanks to their academic and institutional network. The Mayor and the Municipality council will be involved in public meetings. Starting from topics, objectives and related issues, a list of expertise has been defined and a research has been undertaken at the local, regional and national level to identify influential stakeholders. These have already been contacted to agree on the development of the research and to give contributions when necessary.

During the total lockdown months in Italy – due to COVID-19 pandemic – the municipal Office for the Environment and Public works together with ENEA's members carried out some online

meetings in order to try to involve some companies that manage local infrastructure located within Camerino's urban area (Local Network Systems in Camerino). Their possible engagement will be useful in order to use their information to develop risk scenarios on the local network systems. Currently, these companies are considering some features of possible future agreements with ENEA.

The stakeholders involved, together with ARCH Camerino team, are shown in Annex 1: stakeholder analysis matrix

## 2.4. Existing groups and initiatives

At the regional level some institutions<sup>6</sup> have been identified with similar objectives and actions about urban resilience and cultural heritage preservation. Some of these institutions will be engaged as local partners (see Section 2.5). Furthermore, UNICAM is also involved in some relevant research projects concerning the assessment of the seismic vulnerabilities of public buildings and schools within the Marche Region, together with other research institutes. Considering the consolidated collaboration between the Municipality of Camerino and the local institutions, the ARCH project can be a useful opportunity to improve the current relationships.

## 2.5. Our local partnership

As already mentioned, the core team is made up of officials of Municipality of Camerino, University of Camerino (UNICAM), the National Institute for Geophysics and Volcanology (INGV) and the Italian national Agency for new Technologies, Energy and Sustainable Economic Development (ENEA).

The local partners, also shown in Annex 1, are:

National Level	MIBACT (Ministry for cultural heritage and activities and tourism)
	National Civil Protection Dept.
	ANIDIS (National Associations for Earthquake Engineering)
	Carabinieri command for cultural heritage
	CERHER (Centre for the resilience of heritage sites)
Regional Level	Superintendence of architectural and landscape heritage of Marche Region
	Marche Region
	Hydrographic district of central Italy
	USR (Special Office for Reconstruction of Marche Region)
	ABAMC (Institute of Conservation of Marche Region)
	Order of Architects of Province of Macerata

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<sup>6</sup> Civil Protection Office of the Marche Region, the Special Office for the Reconstruction of the Marche Region, Superintendence of Architectural and Landscape Heritage of Marche Region and Institute of Conservation of Marche Region.



Local Level	Archdiocese of Camerino and San Severino Marche
	Civic-Diocesan Museums
	Local Civil Protection Department
	Permanent Consultation for Development
	GEOMORE (Geological modelling for risks and resources evaluation) Spin-off of UNICAM
	Camerino High Schools (Licei Varano di Camerino)
	Io Non Crollo (Local Private Association)
	Panta Rei (Local Private Association)
	Concentrico (Local Committee)

**Table 5. List of stakeholders.**

## 3. Where are we going?

### 3.1. Our overall aim

The overall aim is to mitigate the impact of natural hazards on the Old Town with an integrated approach, developing knowledge and tools for monitoring Camerino's cultural heritage and preparing it for future disasters.

#### Objectives

1. To improve predictive models and risk assessment methods to lead future actions for current post-earthquake reconstruction, in order to mitigate effects of future events and to enhance preparedness to natural hazards.
2. To increase knowledge on the geological-structural setting of the "Camerino hill" and the geomorphological processes determining the hydrogeological hazard.
3. To increase the knowledge of historic buildings' vulnerability with reference to construction materials and techniques.
4. To monitor significant cultural heritage sites in order to provide alerts and real-time information about damage due to natural hazards and degradation due to environmental conditions.  
To develop guidelines for the managing and securing of artefacts and artworks after seismic events.

## 4. How will we get there?

### 4.1. Work plan

The common topics and targets of the ARCH Project are transferred and applied in the Camerino city case, according to the specific context of Camerino, with a general framework with which all the activities, objectives and expected results are planned and managed. The work plan of Camerino city represents the reference structure in which Camerino, the research partners and local partners work together to achieve shared objectives.

Before the Local Launch Event (28 May, 2020), the municipality of Camerino contacted potential local partners in order to receive their preliminary feedback. Furthermore, during the national lockdown in early 2020 due to Covid-19, the Municipality of Camerino tried to contact some local network companies. This is still ongoing at the time of writing. During the Launch Event, both the main aims and the activities of the Camerino team as part of the ARCH project were described to the potential partners, including local institutions and associations.

The municipality of Camerino organised a ‘match-making’ meeting with ARCH scientific partners on 21 July, 2020 in order to describe the city’s needs, to define the objectives and to discuss how the research partners will carry out the supporting activities. The meeting served to define a preliminary draft of the local work plan (see Annex 2).

Further details concerning the main activities and the involved scientific partners are reported in the following table.

The current local work plan matrix is attached to this document as Annex 2, where relevant strategies, actions, and indicators can be found. The work plan matrix will likely be updated during the project since priorities might change over the course of the project together with the local stakeholders (see initial attempt below).

## 4.2. Activities to develop and implement your work plan

Camerino city is planning to organise meetings and workshops to carry on the work plan and to implement co-creation approach with the support of its local research partners and ICLEI. The aim of the all planned communication events is to dialogue with the local community, other institutions, stakeholders and other cities with relevant expertise with the hope to increase the resilience of our cultural heritage

In order to refine the work plan (and corresponding objectives), several meetings will be carried out both with the scientific partners, with the local partners and the community in order to receive their feedback and better understand their needs.

The following table summarises the main activities to be developed in relation to the local work in Camerino in the framework of the ARCH project.

Year	Milestone type	Objective	When	Target audience	Public or invitation only
2020	Launch Event	Presentation of the ARCH Project with the main aspects, topics and relevant issues to the local stakeholders.	May 28, 2020	All local partners and stakeholders	Invitation

Year	Milestone type	Objective	When	Target audience	Public or invitation only
2020	Match-making event and virtual visit	Discuss, review and confirm the work plan and the involved objectives	July 21,2020	Scientific partners and WPs' members	Invitation
2020	Online consultation	Inform stakeholders and local partners about advances on work plan and consult theme on related needs and interests	End November	End users to be identified	Invitation
2020	Online consultation	Publish online information about advances on local work plan and obtain feedback.	Early December	Public	Public
2021	Online consultation	Inform stakeholders and local partners about advances on work plan and consult theme on related needs and interests	End December	End users to be identified	invitation
2021	Launch action (open day at heritage site)	Launch local partnership and increase visibility within administration and wider community	Early February	Public	Public
2020-2022	Stakeholder workshop meetings	Define needs for data management inventory	Every 4 months	End users to be identified	invitation
2021	Online consultation	Publish online information about advances on local work plan and obtain feedback.	Early June	Public	Public

Year	Milestone type	Objective	When	Target audience	Public or invitation only
2022	<i>Update heritage management plan</i>	<i>Incorporate relevant ARCH findings</i>	<i>End May</i>	<i>N/A</i>	<i>N/A</i>

**Table7: Calendar of activities**

### 4.3. Strategy to collaborate with local partners

Since the beginning of the project, before the Local Launch Event (28<sup>th</sup> May, 2020) the municipality of Camerino contacted local stakeholders in order to prepare for the meeting and receive their preliminary feedback. During the total lockdown (March-June 2020) due to COVID-19, the Municipality of Camerino organised a Launch Event in May 2020; where the ARCH project was presented to local stakeholders. This online-meeting allowed including local institutions and associations, which shared their perspectives and views.

It is important to highlight that time spent on the stakeholder engagement in Camerino is conditioned by social distancing restrictions due to the COVID-19 pandemic at national level. In addition, Camerino is involved in complex activities related to the reconstruction of its municipal area due to the earthquake occurred in 2016. In spite of these difficulties, Camerino carried out both formal and informal online meetings with the local stakeholders and the scientific partners.

The Office for the Environment and the Public Works of Camerino is supporting the scientific partners in order to help the technical activities concerning the installation of monitoring systems.

Thus, several meetings will be carried out (see Table 7) to define the activities with the scientific partners and the local stakeholders, and to explain these to the local community.

The strategies to collaborate with the local partners will be based on the ARCH co-creation approach and on the mutual sharing of needs and feedback.

Furthermore, with the support of ICLEI, the Municipality of Camerino will organise online meetings with some other towns (keystone cities), that are involved in European research project concerning urban resilience strategies, in order to share best practices and expertise concerning the cultural heritage management and the strategies to increase the urban resilience of the municipal area against natural hazards.

### 4.4. Checking and reporting on progress

Several meetings will be carried out both with the scientific partners and the local partners – and with the inhabitants. The number of meetings will be a possible indicator to monitor the sharing of the objectives and the needs with the involved partners and local community.

Another way to monitor the progress of the local partnership will be the amount of feedback received from local partners and/or the number of corrective actions to the activities.

The preliminary planning of the meetings with the local stakeholders (see Table 7) will be refined after the collection of the availabilities from the local partners in the proposed dates. The COVID-19 pandemic continues to make longer term planning difficult.

The meetings will be organised by different areas of interest and for each one the interested local partners will be involved.

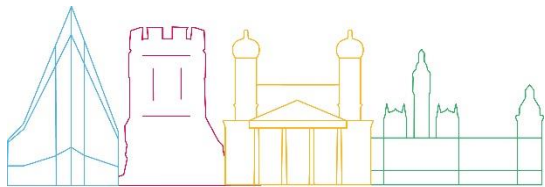
For each meeting the agenda will be defined and it will be sent to the attendees; finally, the minutes will be carried out and uploaded in Confluence in order to inform the ARCH consortium's partners. During the online consultations, according to the above calendar of activities, the ARCH Local Partnerships self-assessment tool will be updated and shared.

Finally, information about public meetings and news will be published online in order to share the ongoing activities and results with the inhabitants and the local associations.



Annex 1: Stakeholder analysis table

Activity	Sector	Organisation	Relationship with municipality (if any)	Information (what useful information can they provide?)	Impacts (how, if at all, are they impacted by the issue?)
Public body (regional level)		Special Office for Reconstruction Marche Region (USR)	The Special Office for Reconstruction Marche Region (USR) offers support and technical options that aims to ensure that the reconstruction activity is effective and based on principles of economy and efficiency. <a href="http://www.regione.marche.it/Regione-Utile/Ricostruzione-Marche/Ufficio-speciale-ricostruzione-Marche">http://www.regione.marche.it/Regione-Utile/Ricostruzione-Marche/Ufficio-speciale-ricostruzione-Marche</a>	The USR carries out, in cooperation with the Municipality, the urban planning connected to the reconstruction, also setting up urban planning instruments and the relative financial plans for the historical centres.	The technical solutions for reconstruction developed by the project would be an added value with which to integrate interventions on damaged buildings.
Public body (national level)		Ministry for Cultural Heritage and Activities and Tourism (MiBACT)	Public body hierarchically over-ordained to the Municipality in the field of culture and tourism. It is the highest public body, which manage the cultural heritage (its principal aim is to guarantee the protection and the valorisation of the Italian cultural heritage). <a href="http://www.beniculturali.it/mibac/export/MiBAC/index.html#&amp;panel1-1">http://www.beniculturali.it/mibac/export/MiBAC/index.html#&amp;panel1-1</a>	It provides information on culture-related national legislation, it provides grants, and it creates regional law and strategic documents.	The results of the technical analysis would be very useful to the public body for planning future projects
Public body (regional level)		Superintendence of Architectural and Landscape Heritage of Marche Region	Body superordinate to the Municipality in the protection and enhancement of historical and cultural artistic assets. The reconstruction / modification activities that the Municipality wants to carry out, which insist on buildings with artistic, historical and cultural restrictions, must have the clearance of the Superintendence. <a href="http://sabapmarche.beniculturali.it/">http://sabapmarche.beniculturali.it/</a>	They are in possession of very detailed information concerning the historical artistic and cultural buildings of the whole regional territory, including those of the Municipality of Camerino.	The results of the technical analysis would be very useful to the public body for planning future projects.
Public body (local level)		Archdiocese of Camerino and San Severino Marche	Public body that values and protects religious movable and immovable cultural asset and organizes exhibitions of works of high artistic and religious value. <a href="http://www.arcidiocesicamerino.it/">http://www.arcidiocesicamerino.it/</a>	It can provide useful information about cultural buildings and works that are in its property.	The results of the technical analyses would be very useful to the public body for planning a better protection plan for religious asset.
Public body (local level)		Civic and Diocesan Museum	It is the body which manage all Archdiocese of Camerino's works and pictures. <a href="http://www.arcidiocesicamerino.it/index.php?option=com_content&amp;view=article&amp;id=21&amp;Itemid=204">http://www.arcidiocesicamerino.it/index.php?option=com_content&amp;view=article&amp;id=21&amp;Itemid=204</a>	It can provide useful information about works and pictures managed.	The results of the technical analyses would be very useful to the public body for planning a better protection plan for religious asset.
Public body (local level)		Permanent Consultation for Development	It aims to individuate best strategies in order to promote local cultural, social and economic development. The Municipality of Camerino is one of its members. <a href="https://www.unicam.it/ateneo/organizzazione/consulta-territorio">https://www.unicam.it/ateneo/organizzazione/consulta-territorio</a>	They are in possession of very detailed information concerning the historical artistic and cultural buildings of the whole regional territory.	Thanks to the results, they will be able to plan future actions to keep their facilities operational in the case of natural disaster.
Public body (local level)		Camerino High Schools	<a href="https://liceicamerino.edu.it/">https://liceicamerino.edu.it/</a>	They participated to a national project PON FSE "Enhancement of cultural, artistic and landscape heritage", whose results could have interesting links with ARCH.	The results will be useful to educate young people about how to behave in the event of a natural disaster.
Public body – (Regional level)		Marche Region	Marche Region is an institutional body with administrative and legislative powers, taking into account many relevant features: geographic, historic cultural features <a href="https://www.regione.marche.it/Temi">https://www.regione.marche.it/Temi</a>	Marche Region provides directives, laws, regulations and guidelines for different sectors, in particular for building engineering, hydrogeological plans and cultural heritage	Cooperation with Marche Region can transfer results from the project to the regional policy level
Public body (national level)		National Civil Protection Department	It has a guiding role, in agreement with regional and local governments, of projects and activities for the prevention, forecast and monitoring of risks and intervention procedures that are common to the whole system. <a href="http://www.protezionecivile.gov.it/home">http://www.protezionecivile.gov.it/home</a>	The Department coordinates the response to natural disasters, catastrophes or other events (event C type) that intensity and extent, should be faced with extraordinary powers and means. In agreement with regional governments and local authorities, working in the drafting of legislation on the prevention of risks and regulatory measures needed to cope with disaster and minimize damage to people and property.	The results of the technical analyses would be very useful to the public body for planning a better protection plan for the safety of population.
Spin-off of University of Camerino		GEOMORE (Geological modeling for risks and resources evaluation)	It carries out planning, forecasting and risk prevention analysis concerning geomorphological hazards <a href="http://www.geomore.it/">http://www.geomore.it/</a>	Information about: - prevention: it studies the causes of calamitous phenomena, it identifies risks as well as areas (of the territory) subject to the same risks; - planning: it develops hazards maps and gives its support to local administrations for their planning	The results of the technical analyses would be very useful to carried out future risk maps and scenarios.
Public body – regional level		Hydrographic District of central Italy	Hydrographic District of centre Italy is a non-economic public body, established by Legislative Decree 152/2006. It provide opinions and evaluations on the coherence of European, national, regional and local programmes with current governance frameworks, related to soil protection, desertification, water protection and management <a href="http://www.autoritadistrettoac.it">http://www.autoritadistrettoac.it</a>	Information related to different risks, in particular about water and hazards. The Hydrographic District has information constantly updated about hydro-geological plans.	They are a public body with the task to concur on regulations and directives with availability to achieve data and technologies (satellite data, drones, climate data, etc)
Private body – National Association		ANIDIS (National association for earthquake engineering)	ANIDIS is a national association with the aim to: promote, encourage and spread in Italy the culture concerning seismic problems in the sectors: Structural Engineering, Geotechnics, Geology, Urban Planning, Architecture, Restoration, Civil Protection and Environmental Protection; establish and maintain national and international contacts between experts on seismic issues; to collaborate with Authorities and Institutions in the drafting of rules and regulations concerning seismic engineering. <a href="http://www.anidis.it/home/">http://www.anidis.it/home/</a>	Anidis collect many experiences about risks and hazards, in particular for seismic events, with an interdisciplinary approach. Anidis can provide information for the professional management and communication of results	They would be very useful to improve dissemination actions and to give feedback and references.



Activity	Sector	Organisation	Relationship with municipality (if any)	Information (what useful information can they provide?)	Impacts (how, if at all, are they impacted by the issue?)
Private body - (national level)		Cerher (Centre for the resilience of heritage sites)	CERHER is a centre for integration for the promotion of resilience of art cities at natural disasters in Umbria, Marche, and Tuscany. Cerher supports the recommendations contained within the Sendai Framework 2015-2030 and supports guidelines established by Charter of Rome on the Resilience of Art Cities to Natural Catastrophes 2016 <a href="http://www.cerher.org">http://www.cerher.org</a>	Information for the management, conservation and enhancement of historic areas, buildings and movable cultural heritage	Expertise and knowledge from CERHER would be useful for the objective: Guidelines for the managing and securing of artefacts and artwork after seismic events
Public body – (Regional level)		ABAMC Institute for Conservation of Marche Region	Institute for Conservation of Marche Region is part of the ABAMC (Macerata Art Academy). It is a regional institutions with expertise on conservation and restoration of artworks and movable cultural heritage. <a href="https://www.abamc.it/istituto-di-restauro-delle-marche">https://www.abamc.it/istituto-di-restauro-delle-marche</a>	It can provide knowledge and detailed information on criteria and methods for the conservation and management of movable cultural heritage.	Criteria and methods from ABAMC will be useful for the database system with information about exhibition and preservations criteria, major vulnerabilities and traceability measures of the cultural heritage goods in the old town of Camerino.
Private – Citizen committee (local level)		Concentrico	Technical and legal support for the practices and projects that the Municipality will have to develop in securing the buildings and in the future phase of reconstruction of the City. <a href="https://www.concentrico.info/drupal/">https://www.concentrico.info/drupal/</a>	Information for the preservation and reconstruction of the historic centre of Camerino, dialoguing with the citizens to inform them about administrative procedures and monitor the reconstruction phase.	The results of the technical analysis would be very useful for the development of new social and information initiatives aimed at the population and professional workers
Private – Social citizen Association (local level)		IoNonCrollo	They organize social and cultural events in order to maintain and improve the collective relationships between the population. They raise funds (through events and the promotion of local products) for the construction of two buildings aimed at the whole community, which will be donated to the Municipality of Camerino. <a href="https://www.iononcrollo.org/">https://www.iononcrollo.org/</a>	They have information on how the perception of the territory and the relationships between citizens have changed and evolved during and after the seismic events in central Italy.	The results of the technical analysis would be very useful for the development of new social and information initiatives aimed at the population.
Public body - (local level)		Order of Architects of Macerata Province	This public body includes all the Architects of a sub-regional area (provincial) that comprises the Municipality of Camerino. These professionals will have an active role in the reconstruction phase. <a href="https://www.architettimacerata.it/">https://www.architettimacerata.it/</a>	Information about the post-earthquake set of rules and related procedures for the reconstruction of the historic centre of Camerino	The results of the technical analysis would be very useful to them for planning future projects about the civic and cultural asset of the cities.
Public body - (National level)		Carabinieri Comand for cultural heritage	The Carabinieri Command for cultural heritage is a part of the Ministry for Cultural Heritage and Activities and Tourism and plays a role regarding the safety and protection of the national cultural heritage. The organizational chart foreseen, at central level, a Staff Office and an Operational Department (split into three Sections: Archaeology, Antique, Modern Art and Counterfeiting) and on a territorial level: 12 Branches with regional jurisdiction (Ancona for Marche Region) <a href="http://www.carabinieri.it/cittadino/tutela/patrimonio-culturale/introduzione">http://www.carabinieri.it/cittadino/tutela/patrimonio-culturale/introduzione</a>	The main activities carried out by the unit include combating theft, illegal excavations of archaeological sites, as well as trafficking and counterfeiting of stolen property. Equal attention is paid to inspecting premises of antique dealers and to tracing and, possibly, returning stolen or illegally exported art pieces. Investigators manage such tasks by consulting the “database of stolen works of art”, a comprehensive list available to civilians and to foreign police forces alike.	They can provide useful information on methods and practices to monitoring and tracing movable cultural heritage
Private – Social citizen Association (local level)		Panta Rei	Panta rei is a citizen association in Camerino with the aim to spread civics and social values. The association is in contact with the municipality to spread and enhance public events visibility.	The association promotes events, publications, articles about the Camerino lifestyle.	The results of the technical analysis would be very useful for the development of new social and information initiatives aimed at the population



## Annex 2: Work plan matrix

Overall aim: Mitigate the impact of natural hazards on small old town with an integrated approach, developing knowledge and tools for monitoring and preserving cultural heritage and preparing it for future disasters									
Objective 1: Improve predictive models and risk assessment methods to lead future actions for current post-earthquake reconstruction, to mitigate effects of future events, raising awareness to natural hazards.									
Strategy	Indicator	Action within the strategy	Responsibility (lead/support)	Stakeholders involved (indicate whether local partner or other stakeholder)	Related plan, policy or strategy (existing or future)	Link to ARCH scientific partners' tasks (if known)	Implementation period	Status (for monitoring purposes)	Notes
Provide risk analysis tools and post-event scenarios based on information collected after recent events and including outcomes from actions related to Objective 2/3/4. Outcomes will be used both to improve the awareness of inhabitants and to promote coordination between actors, stakeholders and institutions.	At least, accessibility to simplified maps for post event scenarios through online database	Knowledge from past events. Reconnaissance of damages from the earthquake 2016 into the Old Town and tools to share the collected data	Lead: Municipality of Camerino Support: UNICAM	USR Marche Region (Special Office for Reconstruction)	Revision of the PRG (general master plan). New detailed urban plan of the Old Town. New strategic plan for reconstruction and development.		Nov 2019 - May 2020	Jan 2020: status control on complete survey data Apr 2020: status control on methods and tools for sharing collected data	
		Prediction models. Development of methodologies and tools for the risk assessment and post-event scenario prediction, based on available data, including data from monitoring.	Lead: UNICAM Support: Municipality of Camerino	National Civil Protection Reluis (Net of Earthquake Engineering Lab Consortium) Reluis (Net of Earthquake Engineering Lab Consortium) ANIDIS (National Associations for Earthquake Engineering)			Apr 2020 - Dec 2020	May 2020: status control on implementation Oct 2020: status control on implementation	
		Tools for planning. Synthetic documents (maps, indices) and guidelines to support the decision-making process concerning risk mitigation actions and criteria for post-event reconstruction.	Lead: UNICAM Support: Municipality of Camerino	Permanent Consultant of development Local Committee CONCENTRICO Local Private Association IoNonCrollo Marche Region			Oct 2020 - Mar 2021	Dec 2020: status control on implementation Feb 2021: proof	
		Communication. Effective communication actions, including a digital open database, oriented to improve inhabitant awareness about effective risk and potential preparedness actions	Lead: Municipality of Camerino Support: UNICAM, INGV	National Civil Protection Permanent Consultant of development Local Committee CONCENTRICO Local Private Association IoNonCrollo Italian Ministry of Cultural Heritage and Activities and Tourism (MiBACT) Superintendence of Archaeology, Fine Arts and Landscape (SABAP) Marche Region Government			Jul 2020 - Apr 2021	Oct 2020: status control on implementation Jan 2021: end of reviews from stakeholders and local partners Mar 2021: proof	
Objective 2: Increasing the knowledge on the geological-structural setting of the “Camerino hill” and the geomorphological processes determining the hydrogeological hazard scenarios for the historical centre									
Strategy	Indicator	Action within the strategy	Responsibility (lead/support)	Stakeholders involved (indicate whether local partner or other stakeholder)	Related plan, policy or strategy (existing or future)	Link to ARCH scientific partners' tasks (if known)	Implementation period	Status (for monitoring purposes)	Notes



Organize, analyze and integrate the knowledge relating to the natural context, intended as the "basement" of the built-up system (i.e. geological bedrock) and as a set of geomorphological processes (landslides, floods, extreme climatic events) which can determine hazard conditions. The objective will be achieved in synergy with the actions and strategies of Objective 1	The reconstruction plan of Camerino takes geomorphological risks into account. GIS-based map of geomorphological processes and geological cross-sections showing the relationships between subsoil and built-up area	Collection, organization and analysis of subsoil geological data, with particular care to the presence of natural and anthropic cavities	Lead: UNICAM Support: Municipality of Camerino	GEOMORE s.r.l.	Third level seismic micro-zoning plan of the Municipality of Camerino. Plan Hydrogeological Asset (PAI) of the Marche Region. GIS platform of the Municipality of Camerino. Revision of the PRG (General Master Plan) of the Municipality of Camerino.		Jan 2020 - Dec 2020	Oct 2020: status control on complete data collection	
		Survey, analysis and modelling of geomorphological processes able of generating potential hazard conditions	Lead: UNICAM Support: Municipality of Camerino	Hydrographic District of central Italy Civil Protection Agency of the Marche Region			Apr 2020 - Jun 2021	Nov 2020: status control on surveys performed Apr 2021: status control on surveys performed	
		Providing, also through the execution of indirect investigations (geophysical prospects) along significant transects, indications and parameters useful for a correct definition of the local seismic response	Lead: UNICAM Support: INGV	GEOMORE s.r.l.			Jul 2020 - Aug 2021	Jan 2021_ status control on surveys performed Jun 2021_ status control on geophysical prospect analyses	
		Implementation of the GIS platform of the Municipality of Camerino with all the georeferenced data coming from the previous actions	Lead: UNICAM Support: Municipality of Camerino, INGV	GEOMORE s.r.l.			Jan 2020 - Sept 2021	Jan 2021: status control on data cataloguing and classification Jul 2021: status control on complete data collection	

**Objective 3: Increasing the knowledge of historical buildings vulnerability with reference to construction materials and techniques**

Strategy	Indicator	Action within the strategy	Responsibility (lead/support)	Stakeholders involved (indicate whether local partner or other stakeholder)	Related plan, policy or strategy (existing or future)	Link to ARCH scientific partners' tasks (if known)	Implementation period	Status (for monitoring purposes)	Notes
Implement and develop the assessments on construction materials and techniques of historic buildings and their relationship with seismic effects	At least: 50% of urban blocks into the historic target area, directly evaluated with: damage assessment sheets, vulnerability indexes and masonry evaluation indexes (quality of materials, their assembly, mortar)	Acquisition and classification of data on historical buildings: 1) Identification of historical-cultural buildings of interest and building aggregates sample in relation to the urban context analysed; 2) Recognition of recurring aggregative systems and collection of characteristic data in terms of materials, construction techniques, structural behaviour through an analytical cataloguing and/or comparison with already coded data; 3) Classification of the main construction techniques through data to evaluate the masonry and other system of historic buildings through quality index; 4) Identification of significant parameters for the construction of summary databases to be correlated to GIS platforms	Lead: UNICAM Support: INGV; ENEA; Municipality of Camerino	MIBACT (Ministry for Cultural Heritage and Activities, and Tourism). National Civil Protection. National Civil Protection Reluis (Net of Earthquake Engineering Lab Consortium). ANIDIS (National Associations for Earthquake Engineering).	Document on constraints for architectural, archaeological, artistic and landscape heritage (VIR-SIGEC - CARIS). Beweb constraints website - portal of the cultural heritage catholic-church. PRG (General master plan). Strategic Plan for the reconstruction of the municipalities of the Marche crater. Municipal reconstruction plans for individual aggregates (PdR).		Mar 2020 - Feb 2021	Sept 2020: Analysis of the preliminary outcomes of data acquisition and classification on historical buildings. Dec 2020: Analysis of the preliminary outcomes of data acquisition and classification on historical buildings.	

		Data acquisition on building materials: 1) Identification and geo-localization of materials sampling (mortars and stone / brick). 2) Description of sampling methods and analytical methods 3) Data collection-database ranges by type of analysis (basic analysis, in-depth analysis, measurements and direct observations).	Lead: UNICAM Support: ENEA, INGV	MIBACT (Ministry for Cultural Heritage and Activities, and Tourism)			Jun 2020 - Feb 2021	Sept 2020: Analysis of the preliminary outcomes from data acquisition on building materials. Dec 2020: Analysis of the preliminary outcomes from data acquisition on building materials.	
		Data processing from sampling: 1) Compilation of mortar sample data sheets to identify binder, aggregate, binder / aggregate ratio and correlation of mortar characteristics(chemical-physical-mechanical data) with the type of masonry and the damage detected after the earthquake. 2) Definition of the quality index for mortars	Lead: UNICAM Support: ENEA; Municipality of Camerino,	MIBACT (Ministry for Cultural Heritage and Activities, and Tourism)			Dec 2020 - Jul 2021	Mar 2021: Preliminary processing of data sampling. June 2021: Preliminary processing of data sampling.	
		Communication. Effective communication actions, including a digital open database, oriented to improve inhabitant awareness about effective risk and potential preparedness actions	Lead: UNICAM Support: Municipality of Camerino, INGV	Permanent Consultant of development. Local Committee CONCENTRICO. Local Private Association lo Non Crollo. Italian Ministry of Cultural Heritage and Activities and Tourism (MiBACT). Superintendence of Archaeology, Fine Arts and Landscape (SABAP). Marche Region			Dec 2020 - Sept 2021	Apr 2021: Status control on implementation. Jul 2021: End of reviews from stakeholders and local partners.	
<b>Objective 4: Monitoring of cultural heritage with a significant value in order to provide alerts and real-time information about damage due to natural hazards and degradation due to environmental conditions</b>									
Strategy	Indicator	Action within the strategy	Responsibility (lead/support)	Stakeholders involved (indicate whether local partner or other stakeholder)	Related plan, policy or strategy (existing or future)	Link to ARCH scientific partners' tasks (if known)	Implementation period	Status (for monitoring purposes)	Notes
Provide guidelines for alert and safeguard monitoring systems for natural hazards based on real-time data collection. Two case studies will be considered for the implementation: Ducal Palace and Santa Maria in Via. Monitored parameters will include both mechanical quantities and environmental quantities in order to discern between variations of mechanical response due to environmental changes and variations of the mechanical response due to damage or progressive degradation. The actual implementation of the designed monitoring system	All the monitoring stations are designed and installed in the two case studies: Santa Maria in Via Church and Ducal Palace. Data collection begins and is made accessible through remote connection	Design of a dedicated monitoring-alert system based on real-time continuous acquisition of selected mechanical and environmental parameters to safeguard cultural heritage with specific reference to seismic hazard	Lead: UNICAM Support: INGV; ENEA; Municipality of Camerino	Archdiocese of Camerino and Camerino Civic Museum. Superintendence of Architectural and Landscape Heritage of Marche Region (SABAP)			Aug 2020 - Feb 2021	Nov 2020: Analysis of the monitoring schemes for the two case studies (Ducal Palace and S. Maria in Via)	
		Installation and evaluation of a permanent monitoring-alert system in the Ducal Palace case study, to support the decision making about retrofit and preservation actions, including collection of information for improving the efficiency of emergency actions (e.g. rescue of artworks)	Lead: UNICAM Support: INGV; ENEA	Superintendence of Architectural and Landscape Heritage of Marche Region (SABAP)			Dec 2020 - Jun 2021	Mar 2021: Analysis of the preliminary outcomes of the monitoring system installed in Ducal Palace	
		Installation and evaluation of a permanent monitoring-alert system in	Lead: UNICAM Support: INGV; ENEA	Archdiocese of Camerino and Camerino Civic			Feb 2020 - Jul 2021	May 2021: Analysis of the preliminary outcomes of the	

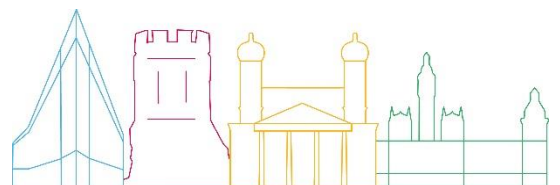
will highlight possible difficulties and critical aspects that must be considered in this kind of application in cultural heritage threatened by seismic hazard		the Santa Maria in Via case study, to support the decision making about retrofit and preservation actions, including collection of information for improving the efficiency of emergency actions (e.g. rescue of artworks)		Museum. Superintendence of Architectural and Landscape Heritage of Marche Region (SABAP)				monitoring system installed in Santa Maria in Via	
<b>Objective 5: Guidelines for the managing and securing of artefacts and artwork after seismic events</b>									
Strategy	Indicator	Action within the strategy	Responsibility (lead/support)	Stakeholders involved (indicate whether local partner or other stakeholder)	Related plan, policy or strategy (existing or future)	Link to ARCH scientific partners' tasks (if known)	Implementation period	Status (for monitoring purposes)	Notes
Definition of guidelines and procedures necessary for managing and securing of art craft and artwork exposed to climate and seismic hazard	Five monitoring indoor environmental stations (for temperature, moisture and lighting measures) are installed. One VOC's monitoring station is installed One bioluminometer device. Conservation assessment sheets of artworks.	Mapping of cultural heritage goods into the Old Town, providing a database system with information about exhibition and preservations criteria, major vulnerabilities and traceability measures	Lead: Municipality of Camerino Support: UNICAM; ENEA, INGV	Archdiocese of Camerino and Camerino Civic Museum. Superintendence of Architectural and Landscape Heritage of Marche Region (SABAP)	Project for the creation of a Centre of excellence on diagnostics. Legislative Decree 22 January 2004, n. 42 (Code of cultural heritage and landscape). Circular 31/2012 Annexes Legislative Decree 165/2001 (MIBACT		Apr 2020 - Nov 2020	Oct 2020: heritage mapping	
		Analysis of suitable and effective sites for the recovery in case of disasters. Identification of the critical issues and estimation of the desired ones to ensure safety in the event of natural disasters (transport, storage conditions, emergency deposit characteristics)	Lead: Municipality of Camerino Support: UNICAM; ENEA	Archdiocese of Camerino and Camerino Civic Museum. Superintendence of Architectural and Landscape Heritage of Marche Region (SABAP). Italian Ministry of Cultural Heritage and Activities and Tourism (MiBACT).	guidelines and procedures for the management of the safeguarding of cultural heritage following emergency events). Memorandum of understanding between Mibact and the Fire Brigade of 7 March 2012. Circular no. 24/2012 (The Ministry's General Secretariat coordinates the activities of the crisis units activated at the Mibac Regional Departments on the occasion of emergency events).		Aug 2020 - Mar 2021	Feb 2021: Site analysis	
		Assessment model for the historic-economic-social value of the existing cultural heritage giving priority ranks	Lead: Municipality of Camerino Support: UNICAM; ENEA, INGV	Camerino High Schools. Camerino Civic Museum. Architectural and Landscape Heritage of Marche Region (SABAP).	guidelines and procedures for the management of the safeguarding of cultural heritage following emergency events). Circular no. 24/2012 (The Ministry's General Secretariat coordinates the activities of the crisis units activated at the Mibac Regional Departments on the occasion of emergency events). circular n. 38/2012 (Procedure for the management of the emergency activities of the UCCR-MiBACT Crisis Unit). DDG 30/11/2016 Rep 651 (Methodological and technical guidelines for the reconstruction of the cultural heritage damaged by the earthquake of 24 August 2016).		Dec 2020 - Jun 2021	May 2021: evaluation model	



# Local partnership and work plan for Hamburg

ARCH D3.2

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Author(s)	Uta K. Mense (FHH) Bernd Paulowitz (FHH) Jannik Leenen (FHH)
Co-Author(s)	Eleanor Chapman (ICLEI)
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## Contact

[arch@iais.fraunhofer.de](mailto:arch@iais.fraunhofer.de)

[www.savingculturalheritage.eu](http://www.savingculturalheritage.eu)



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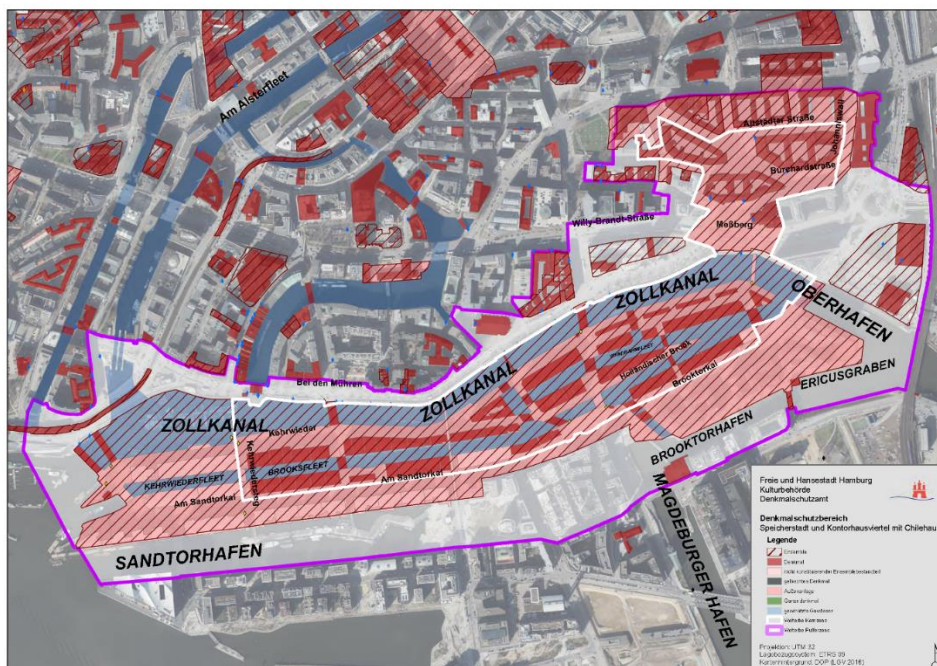
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# Local work plan: Hamburg

## 1. Where are we?

### 1.1. Target historic areas

The historic area in focus for the Free and Hanseatic City of Hamburg is the UNESCO World Heritage Site 'Speicherstadt and Kontorhaus District with Chilehaus'. The following description of this area is based in large part on the Nomination Dossier (2014) and Management Plan therein (2013)<sup>1</sup>, produced by the City of Hamburg as part of the World Heritage nomination process. Speicherstadt, located next to the Hamburg city centre, is a former warehouse complex established at the turn of the century for processing and storage of imported goods received at the port of Hamburg. The adjacent Kontorhausviertel is a dense urban area, consisting mainly of eight large office complexes established between the 1920s and the 1950s to house the offices of companies involved in shipping and other activities connected to the port.



**Figure 1: Location of World Heritage Site - perimeter indicated in purple. Source: Heritage Preservation Department, City of Hamburg**

<sup>1</sup>Heritage Preservation Department, City of Hamburg (Ed.): UNESCO World Heritage Management Plan: The Speicherstadt and Kontorhaus District with Chilehaus (2013), <http://whc.unesco.org/en/list/1467> and <http://welterbe.hamburg>, and hendrik Bäßler verlag, Berlin, 2017.



Speicherstadt was originally developed on a group of narrow islands in the Elbe River between 1885 and 1927 (partly rebuilt 1949-1967, post-World War II) and is one of the world's largest unified historic port warehouse complexes, at a footprint of 300,000 m<sup>2</sup>. Formerly a residential district, some 1000 houses were demolished to make way for the new warehouse complex and over 20,000 people evicted. The entire complex was constructed on pinewood foundation piles which, despite restoration and partial rebuilding over time of the structures they support, remain the original historic fabric. Since 2008, the area is part of the newly developed HafenCity district. The World Heritage Site is owned by a combination of public and private entities.

Speicherstadt's public spaces are defined by its infrastructure: the canals, which historically served to transport goods around the port on barges (with the Speicherstadt itself being separated from the city centre by the 45-metre-wide Customs Canal, its continuation to the west, known as the Binnenhafen; and to the east the Oberhafen); its cobbled streets, almost all of which were built at the time of development and mostly run parallel to the canals, and arched iron bridges. Speicherstadt is remarkable in having largely retained its historical function and architectural integrity for over a century, despite some damage sustained during World War II (and subsequent rebuilding) and a trend over the last two decades to re-purpose the warehouses for other uses. This continuity can be partly credited to the continuous ownership of the complex by the Hamburg Port and Warehouse Association (HHLA). Much of the warehouses' original technical equipment used for handling goods remains intact and some is still in use (e.g. winch mechanisms), while 12 of the 14 bridges are in their original condition.

Hazards of particular relevance to Speicherstadt and the Kontorhausviertel include tidal changes, storm surges and extreme precipitation (and related flooding from these), extreme heat, and bacterial attack.

## 1.2. Governance framework for cultural heritage management, disaster risk reduction and climate adaptation

This section lists only selected, highly relevant regulations, plans and strategies. For a more comprehensive list, see the *Hamburg City Baseline Report* (2020).

### 1.2.1. Key cultural heritage legal provisions and management

Name of document	Level	Year of publication	Link (if available)
UNESCO World Heritage Convention	International	1972	whc.unesco.org
Heritage Protection Act	Federal State / Regional	2013	<a href="http://www.landesrecht-hamburg.de/jportal/portal/page/bshaprod.psml?showdoccase=1&amp;doc.id=jlr-DSchGHA2013rahmen&amp;doc.part=X&amp;doc.origin=bs&amp;st=lr">http://www.landesrecht-hamburg.de/jportal/portal/page/bshaprod.psml?showdoccase=1&amp;doc.id=jlr-DSchGHA2013rahmen&amp;doc.part=X&amp;doc.origin=bs&amp;st=lr</a>



Name of document	Level	Year of publication	Link (if available)
Management Plan: The Speicherstadt and Kontorhaus District with Chilehaus	Federal State / regional	2013	<a href="http://www.Hamburg.de/welterbe">www.Hamburg.de/welterbe</a>
Hamburg 2010 City Centre Concept	Federal State / regional	2010 (updated 2014)	<a href="https://www.hamburg.de/contentblob/4374074/264f74889d6ecd358e255a71abb42fd6/data/download-innenstadtkonzept-2014.pdf">https://www.hamburg.de/contentblob/4374074/264f74889d6ecd358e255a71abb42fd6/data/download-innenstadtkonzept-2014.pdf</a>
Speicherstadt Development Concept	Federal State / regional	2012	<a href="https://www.hamburg.de/contentblob/4056088/42fc628d89757fee90432b0b23cb224c/data/download-konzept.pdf">https://www.hamburg.de/contentblob/4056088/42fc628d89757fee90432b0b23cb224c/data/download-konzept.pdf</a>

**Table 1: Key cultural heritage legal provisions and management documents, Adapted from: ARCH City Baseline Report: Hamburg (2020).**

. The Speicherstadt heritage ensemble was listed under the Hamburg Heritage Protection Act in 1991, while the Kontorhaus district was listed under the Act in 1983 and 2003. The Act is legally binding and in 2013 was revised to include a duty to comply with the World Heritage Convention. The competent authority for compliance with the Act is the Department for Heritage Preservation at the Regional Ministry of Culture and Media in Hamburg, which is advised by a Heritage Council of experts, citizens, and institutions.

Of particular importance to guide the future protection of the whole area and its architectural, historical and social heritage value, as well as the area's sustainable development, is the Management Plan, developed and adopted by the City of Hamburg in 2013. The plan aims, following the phrasing of the World Heritage Council, at safeguarding the 'Outstanding Universal Value', authenticity, and integrity of the property; protecting the entire area, including a buffer zone. Future management of the Speicherstadt in particular is also supported by the 2012 'Speicherstadt Development Concept'. Of course, general administrative regulations play as well a key role, as outlined in the Management Plan (as well as Hamburg's *City Baseline Report*).

The long-term and sustainable safeguarding of Speicherstadt and the Kontorhaus district will require:

- 1) preserving the historic buildings, the characteristic appearance of the Speicherstadt and Kontorhaus ensembles, both in their own right and within the townscape;
- 2) maintaining or improving the quality of life of the residents of Hamburg by safeguarding a unique testimony to Hamburg's cultural and historical development, which played a key role in establishing its identity; and
- 3) raising awareness and disseminating information about their heritage significance.

### 1.2.2. Key relevant provisions for disaster risk reduction

This section lists a selection of relevant guidelines, regulations, plans and strategies. For a more comprehensive list, see the *Hamburg City Baseline Report* (2020).

Name of document	Level	Year of publication	Link (if available)
Managing Disaster Risks for World Heritage	International	2010	<a href="https://whc.unesco.org/en/managing-disaster-risks/">https://whc.unesco.org/en/managing-disaster-risks/</a>
Hamburg Disaster Protection Act	Regional	1978 / 2020	<a href="http://www.landesrecht-hamburg.de/jportal/portal/page/bshaprod.psml?showdoccase=1&amp;st=lr&amp;doc.id=jlr-KatSchGHArahmen&amp;doc.part=X&amp;doc.origin=bs">http://www.landesrecht-hamburg.de/jportal/portal/page/bshaprod.psml?showdoccase=1&amp;st=lr&amp;doc.id=jlr-KatSchGHArahmen&amp;doc.part=X&amp;doc.origin=bs</a>
Hamburg Water Act	Regional	2005 / 2012	<a href="http://www.landesrecht-hamburg.de/jportal/portal/page/bshaprod.psml?showdoccase=1&amp;doc.id=jlr-WasGHA2005rahmen&amp;doc.part=X&amp;doc.origin=bs&amp;st=lr">http://www.landesrecht-hamburg.de/jportal/portal/page/bshaprod.psml?showdoccase=1&amp;doc.id=jlr-WasGHA2005rahmen&amp;doc.part=X&amp;doc.origin=bs&amp;st=lr</a>
Hamburg Dyke Regulation	Regional	2003	<a href="http://www.landesrecht-hamburg.de/jportal/portal/page/bshaprod.psml?showdoccase=1&amp;doc.id=jlr-DeichOHA2003rahmen&amp;doc.part=X&amp;doc.origin=bs&amp;st=lr">http://www.landesrecht-hamburg.de/jportal/portal/page/bshaprod.psml?showdoccase=1&amp;doc.id=jlr-DeichOHA2003rahmen&amp;doc.part=X&amp;doc.origin=bs&amp;st=lr</a>
Hamburg Polder Regulation	Regional	1977	<a href="http://www.landesrecht-hamburg.de/jportal/portal/page/bshaprod.psml?showdoccase=1&amp;doc.id=jlr-PolderOHArahmen&amp;doc.part=X&amp;doc.origin=bs&amp;st=lr">http://www.landesrecht-hamburg.de/jportal/portal/page/bshaprod.psml?showdoccase=1&amp;doc.id=jlr-PolderOHArahmen&amp;doc.part=X&amp;doc.origin=bs&amp;st=lr</a>
Flood Protection Ordinance HafenCity	Local	2002	<a href="http://www.landesrecht-hamburg.de/jportal/portal/page/bshaprod.psml?showdoccase=1&amp;doc.id=jlr-FISchuVHArahmen&amp;doc.part=X&amp;doc.origin=bs&amp;st=lr">http://www.landesrecht-hamburg.de/jportal/portal/page/bshaprod.psml?showdoccase=1&amp;doc.id=jlr-FISchuVHArahmen&amp;doc.part=X&amp;doc.origin=bs&amp;st=lr</a>
Storm surge protection in the Hamburg harbour	Local	2018	<a href="https://www.hamburg-port-authority.de/fileadmin/user_upload/Broschuere_Sturmflutschutz_Ansicht.pdf">https://www.hamburg-port-authority.de/fileadmin/user_upload/Broschuere_Sturmflutschutz_Ansicht.pdf</a>

**Table 2: Key Documents on Disaster Risk Reduction at local level, Adapted from: ARCH City Baseline Report: Hamburg (2020).**

### 1.3. Expected impacts of climate change and environmental hazards

The tables below list the key climatic hazards and other hazards relevant to Speicherstadt and the Kontorhausviertel, and go on to characterise the diversity of impacts (potential or already experienced) arising from these. Both are derived from preliminary reflection and investigation undertaken by the authors of this report, in collaboration with research staff from Fraunhofer and ENEA.

Hazard Types	Hazard sub-type
Extreme precipitation	Heavy rain
Storm surges	Convective storms, rainstorm
Extreme heat	Heatwave, drought
Sea-level rise	Coastal flooding, saline intrusion
Flooding	Coastal flooding and flash flooding
Pests and plagues	Bacteria, fungi

**Table 3: Hazard Types identified for Speicherstadt and Kontorhausviertel. Adapted from: ARCH City Baseline Report: Hamburg (2020).**

		Impacts				
Exposed Elements		<i>Physical</i>	<i>Functional</i>	<i>Societal</i>	<i>Economic</i>	<i>Intangible</i>
<b>Natural Environment</b>	Ecosystem	Increase in existing pests /diseases.				
		Coastal erosion. Physical damage to banks and quay walls.				
		Evapotranspiration & eutrophication of canal water				
<b>Buildings and infrastructure</b>	Buildings and foundations, quay walls, public spaces between buildings	Physical damage			Direct economic loss due to physical damage	Loss of traditional lifting practices and associated heritage value
	Road, railroad, canal	Physical damage	Loss/ disruption of service	Loss of access to key services	Direct economic loss due to physical damage and loss of revenue from tourism sector	
	Electricity and communication network	Physical damage	Loss/ Disruption of service	Loss of access to key services		
	Offices and Warehouses	Physical Damage	Loss/ Disruption of service	Loss of access to services	Direct economic loss & LoR*	
	Museums	Physical Damage	Loss/ Disruption of service	Loss of access to services	Tourism Sector: direct economic loss & LoR	Loss of traditional attraction
	Boats & Jetties	Physical Damage	Loss/ Disruption of service		Tourism Sector: direct economic loss & LoR	Loss of Traditional leisure activity
	Warehouse Equipment	Damage to traditional lifting equipment				
<b>Human and Social Aspects</b>	People (visiting or working in the historic area)	Illness (e.g. heatstroke), injury or mortality		Loss of tourism, loss/disruption of livelihood and/or income	Loss of revenue (e.g. from tourism sector)	

**Table 4: Physical, Functional, Societal, Economic and Intangible impacts identified for the different exposed elements in the Speicherstadt and Kontorhausviertel. Adapted from: ARCH Baseline Report: Hamburg (2020).**

In general, the impacts of hazards on Speicherstadt and the Kontorhausviertel are understood only at a relatively general level, and there is scope to better document and monitor these hazards with a view to improving the protection of this significant heritage place.

Of the hazards relevant to Speicherstadt and the Kontorhausviertel, flooding due to storm surges is to some extent addressed in the Management Plan, although without specific reference to the role of climate change in potentially increasing the frequency or severity of floods – while others (such as heat stress) are not explicitly addressed at all. There is potential to improve the general understanding within the city administration and among its stakeholders of the impacts arising from these hazards on this historic area (e.g. through data collection and modelling), with a view to also improving their protection. These efforts need to be integrated with the administration's own existing extensive data management processes.

#### **1.4. Resilience of historic areas and the larger urban system**

A preliminary assessment of Speicherstadt and the Kontorhausviertel was conducted in February 2020 using the preliminary version of the UNDRR Disaster Resilience Scorecard for Cities. As the Scorecard is aimed at the city scale, not all questions were immediately applicable at the level of historic areas or single heritage assets. In addition, only Hamburg staff from the heritage department contributed to the assessment, meaning that first-hand knowledge on climate adaptation and disaster risk management planning was not available. The results, therefore, are highly contingent and likely reflect the knowledge of the limited number of respondents within a geographically limited area, rather than the actual situation of the whole city of Hamburg. Nonetheless, these contingent results are briefly described below.

Full scores were obtained in Essentials 02, 04, and 05 (see City Baseline Report for full results). This suggests a good understanding of current and future risks, with substantial information about disaster scenarios available and shared among different stakeholders. In addition, the city administration follows a strict zoning plan that considers risks scenarios and enforces building codes and standards.

Essential 03 also scored highly, with dedicated budget allocations already available for disaster risk management and high insurance coverage in the Speicherstadt across all sectors, because the Hamburger Hafen und Logistik AG, as owner of the warehouse district, requires insurance coverage as part of its rental contracts. Little was known about private sector incentives for resilience.

There was not enough information available during the preliminary assessment to fully score Essentials 07, 08, and 09, which concern societal capacity for responding to risks, protection of critical infrastructure, and disaster risk response. The low scores that resulted for these sections likely indicate insufficient knowledge of respondents.

## 2. Who are we?

### 2.1. Existing capacity

The ARCH project is located within the Free and Hanseatic City of Hamburg at the Ministry of Culture and Media in the Department for Heritage Preservation. The Department for Heritage Preservation has two main areas of work: maintaining an inventory of places and objects of cultural heritage significance (including the ongoing identification of existing assets that may need heritage protection) and their practical preservation (e.g. management of change). In addition, it is home to the World Heritage Coordination Office.

The responsibilities of the World Heritage Coordination Office relate exclusively to the UNESCO World Heritage Site 'Speicherstadt and Kontorhaus District with Chilehaus' described earlier. Beyond the Department for Heritage Preservation and the Ministry of Culture and Media, the Office is also in regular contact with all other authorities, departments, commercial enterprises, owners and tradespeople active in the inscribed World Heritage area.

Within the World Heritage Coordination Office, there is a team of three: the appointed World Heritage Coordinator, a heritage expert and a communications expert.

### 2.2. Capacity gaps

In principle, the World Heritage Coordination Office does not carry out any independent investigations; rather this is done primarily in consultation with the Practical Heritage Preservation unit and other participants through third-party funded projects or invitations to tender. As a consequence, the World Heritage Coordination Office is not able to independently and continuously collect data such as information on changes to built fabric, visitor movement (numbers and length of stay), or the impacts of climate change in the World Heritage area. There is no capacity within the Heritage Preservation Department to carry out continuous, in-depth, long-term monitoring of such data for this area. Such monitoring would be particularly desirable for the future protection and sustainable development of the World Heritage area, in order to develop appropriate corresponding recommendations and fulfil in the long-term the monitoring (reporting) mandate issued by UNESCO.

Possible methods that can contribute to achieving this goal, such as 3D modelling of selected buildings, integrated into the overall digital strategy<sup>2</sup> of the City of Hamburg; or analysing visitor flows to the World Heritage Site (e.g. as per a study of the Domplatz square, conducted by the City Science Lab of HafenCity University Hamburg<sup>3</sup>) cannot be implemented by the Heritage Preservation Department alone. It is hoped that, in close cooperation with the ARCH scientific partners and local stakeholders, this will be made possible.

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<sup>2</sup> Digitalisation strategy Hamburg: <https://static.hamburg.de/fhh/epaper/digitalstrategie/#0>

<sup>3</sup> Information on the City Science Lab, HafenCity University Hamburg: <https://www.hcu-hamburg.de/en/research/citysciencelab/>

## 2.3. Stakeholder analysis process and results

The day-to-day work of the World Heritage Coordinator consists largely of multidisciplinary networking with authorities, stakeholders from the private sector and from civil society, meaning it was relatively easy to form an initial picture of possible stakeholders. In addition, through producing the *City Baseline Report*, several more research institutions and departments were identified which could be relevant for the implementation of the ARCH project. These were then ‘mapped’ after some reflection on their likely interest, their influence, the information they can provide and any relevant impacts (interpreted as potential benefits they might derive from the project) – see Annex 1. From a long-list of stakeholders, a total of 23 were identified as potential ‘local partners’, as follows:

- District of Hamburg Mitte
- Ministry for Urban Planning and Housing (BSW)
- Ministry for Environment, Climate, Energy and Agriculture (BUKEA)
- Ministry for Economy and Innovation (BWI)
- Hafencity University
- Hamburg Harbour and Logistics AG (HHLA)
- Agency for Geoinformation (LGV)
- Agency for Property Management and Real Estate (LIG)
- Agency of Roads, Bridges and Waters (LSBG)
- Stiftung Historische Museen Hamburg (SHMH)
- Hamburg Tourismus GmbH (HHT)
- Senatskanzlei Hamburg
- IG Kulturquartier Speicherstadt und HafenCity
- IG Kontorhausviertel
- Air Observation Network
- Lichtkunst Speicherstadt e.V.
- ICOMOS
- UNESCO
- Institute for Hygiene and Environment
- GERICS (Climate Service Centre Germany)
- University of Hamburg Hydrology and Water Resource Management
- City Participatory Workshop
- Hamburg Port Authority

The Hamburg project team hopes to receive expertise and local support, suggestions and feedback on ideas and plans from the group of stakeholders identified above.

Shortly before the nationwide lockdown due to the Covid-19 pandemic (beginning in March 2020), it was possible to conduct a workshop with companies and owners who are strongly involved in the focus area. Depending on the project's main focus in future, this group was to be expanded in the coming weeks and months. These further steps were abruptly interrupted by pandemic-related upheavals in the working environment and the work of the project team also came to a temporary standstill.

From May 2020, stakeholder engagement has resumed, including preliminary digital/telephone exchange, followed by personal meetings between the staff of the World Heritage Coordination Office and staff of potential stakeholder departments. It became apparent that several meetings with different people were often necessary to identify the right contact person. In extensive administrative structures such as those in the City of Hamburg, these steps can take a long time, which is difficult to calculate in project development. This is particularly true when seeking cooperation with innovative bodies that have yet to be established within the existing structures themselves.

Most potential local partners have so far shown a high level of interest in cooperation in line with the themes of the project and objectives defined by the Hamburg project team. However, in several cases individuals have limited time available and care will need to be taken in involving them in a targeted and meaningful manner, avoiding potential disappointment or fatigue with the process.

## 2.4. Existing groups and initiatives

The World Heritage Coordination Office is part of several theme-based inter-ministerial working groups within Hamburg, such as the regeneration of public spaces within the Kontorhausviertel led by the BSW, and the implementation of the Speicherstadt Development Concept led by the Agency for Property Management and Real Estate - LIG (Landesbetrieb Immobilienmanagement und Grundvermögen). The World Heritage Coordination Office is leading the working group on the development of a Heritage Preservation Plan for the Kontorhausviertel as well as a group implementing activities connected with the World Heritage Information Centre.

In connection with the World Heritage Site in Hamburg, various interest groups and associations have been founded that are multidisciplinary in their efforts to preserve and communicate the UNESCO World Heritage Site. These are:

<b>Interest group Kontorhausviertel</b>	Association of tradespeople and private individuals who are committed to the Kontorhausviertel.
<b>Interest group Kulturquartier Speicherstadt and HafenCity</b>	A community consisting of 11 cultural institutions and museums located in the Speicherstadt. They are actively involved in making the Speicherstadt more attractive for guests and visitors.



<b>Light Art Association</b>	An association with around 50 members, many of them companies and cultural institutions located in the Speicherstadt. Has developed and operates the Speicherstadt on its own initiative every night.
<b>SHMH (Foundation of Historic Museums Hamburg)</b>	Play an important role in the dissemination of information about the World Heritage Site.
<b>BID-initiative</b>	Newly formed (06-2020) State-driven working-group for the inner-city (but dealing with a larger area).
<b>Hamburg Tourism</b>	Official tourism information point, run as a private limited company. Plays an important role in disseminating information about the World Heritage Site.

**Table 5: Interest groups and associations dealing with the UNESCO World Heritage Site**

## 2.5. Our local partnership

Our local partnership partly builds on already established cooperative relationships, by managing and working in the same focus areas (see above). However, there is also an opportunity to create new relationships with other institutions. The ideal composition of the local partnership should be based on specific strategies and actions as described below in Part 4 in general terms, and in more detail in the local work plan matrix (Annex 2). The aim is to work together with our potential local partners in groups that will focus on key strategies, keeping the workload for our local partners manageable and goal-oriented.

# 3. Where are we going?

## 3.1. Our overall aim

The overall aim of this work plan is to integrate climate change adaptation into management of the World Heritage site Speicherstadt and Kontorhausviertel, including improved monitoring of impacts on built fabric, as well as on visitors and the local community, and increased community awareness.

### 3.2. Objectives

The following have been identified as priority objectives by the local team in Hamburg and associated research partners within the ARCH project:

- 1) Expand and improve digital data management for buildings within Speicherstadt and Kontorhausviertel (e.g. using Building Information Modelling [BIM])
- 2) Integrate climate change and related hazards within the future revised Management Plan and associated periodic reporting to UNESCO in the years to come
- 3) Raise awareness in local community and among visitors of the relevance of climate change to Speicherstadt and Kontorhausviertel.

## 4. How will we get there?

### 4.1. Work plan

The work plan matrix (Annex 2), contains detailed information on strategies, indicators, actions, stakeholders involved and timing in regard to the city case of Hamburg. A 'match-making event' with ARCH scientific partners is scheduled for mid-November 2020, where activities to support the defined local strategies and actions will be more concretely defined. Depending on the outcome of the event, changes may be made to this work plan. This work plan and the matrix at Annex 2 are considered 'living' documents which will be adapted if necessary.

*A total of seven strategies have been defined for the local work plan, as follows:.*

*Strategy 1: Perform Pilot-project: BIM (Building Information Modelling, an extended and interconnected 3D model of existing (heritage) construction)*

*Strategy 2: Obtain Proof of Concept on data exchange between DAFIS, LGV and BIM*

*Strategy 3: Revision of the WHS Management Plan in regard to climate change impacts*

*Strategy 4: Integrate Management Plan structure with UNESCO-PERIODIC REPORTING structure and relevant themes (2018-24 - Europe 22-24)*

*Strategy 5: Perform risk analysis and identify resilience options*

*Strategy 6: Develop dissemination tools (including strategy, exhibition concept and supporting materials)*

*Strategy 7: Participation in / Organisation of Cultural activities and events (physical/virtual)*

The following table links each of these strategies with a tentative group of partners from among the list of 23 at Part 2.3 above.

Local partner	Strategy 1	Strategy 2	Strategy 3	Strategy 4	Strategy 5	Strategy 6	Strategy 7
District of Hamburg Mitte			X		X		
Ministry for Urban Planning and Housing (BSW)		X					
Ministry for Environment, Climate, Energy and Agriculture (BUKEA)	X		X		X	X	X
Ministry for Economy and Innovation (BWI)						X	X
Hafencity University					X		
Hamburg Harbour and Logistics AG (HHLA)	X						
Agency for Geoinformation (LGV)	X	X					
Agency for Property Management and Real Estate (LIG)	X						
Agency of Roads, Bridges and Waters (LSBG)	X	X					
Stiftung Historische Museen Hamburg (SHMH)						X	X
Hamburg Tourismus GmbH (HHT)			X			X	X
Senatskanzlei Hamburg						X	X
IG Kulturquartier Speicherstadt und HafenCity			X			X	X
IG Kontorhausviertel			X			X	X
Air Observation Network					X		
Lichtkunst Speicherstadt e.V.			X				
ICOMOS				X			
UNESCO				X			
Institute for Hygiene and Environment	X				X		
GERICS (Climate Service Centre Germany)	X		X		X	X	X
University of Hamburg Hydrology and Water Resource Management	X		X		X		
City Participatory Workshop						X	X
Hamburg Port Authority					X		

**Table 6: List with local partners for the city case Hamburg.**

## 4.2. Activities to develop and implement your work plan

The following table shows events that will happen over the course of the project. This calendar of activities is considered a living document where adaptations and changes can be made as plans become clearer (e.g. in discussion with local partners in the near future) and according to the progress of the project.

Year	Milestone type	Objective	When	Target audience	Public or invitation only
2020	Local launch event	Kickoff event with local stakeholders at Hamburg's climate week	End-September	local partners, citizens, tourists	public
2020	Baseline Report published	Establish a baseline upon which the work plan is developed	October	Research partners, potentially other stakeholders	Invitation
2020	Local Work Plan published	Inform partners, stakeholders and community about the objective of the project and actions that will be implemented	November	Public	Public
2020-2022	Stakeholder meeting (online/phone)	Meet with local stakeholders to work out needs, possibilities, co-operation details	Regularly, every 2-8 weeks depending on the current stage of the issue. To be discussed with stakeholders.	Stakeholders	Invitation
2020	Match-making event	Meet with research partners to discuss and develop data generation on site in Hamburg	Mid-November	Research partners	Invitation

Year	Milestone type	Objective	When	Target audience	Public or invitation only
2021	Strategy meeting	Discuss strategy for BIM and other platforms in regard to data exchange	Tbd.	Local stakeholders	Invitation
2021	Local event 1	Launch event on national UNESCO world-heritage day to raise awareness	5 + 6 June 2021	Public	Public
2021	Workshop	Training of local stakeholders on information systems and measuring results (T3.4.2)	Second half of the year	Research partners + local stakeholders	Invitation
2021	Local event 2	Awareness/ arts and culture event	Second half of the year	Public	Public
2021-2022	Workshops	Mutual learning workshops 1-4 with keystone cities (T 3.6)	Early 2021-mid 2022	Project partners	Invitation
2021	Workshop	Keystone co-creation workshop	Late 2021	Project partners	Invitation
2022	Launch dissemination strategy	Developed dissemination tools, present brochure, info-material	Tbd.	Public	Public
2022	Workshop	Transfer resilience options from Valencia/ Bratislava to Hamburg (T3.4.5)	First half of year	Project partners	Invitation

Year	Milestone type	Objective	When	Target audience	Public or invitation only
2022	Workshop	Transfer resilience pathway results to Hamburg (T3.4.5)	Mid-year	Project partners	Invitation
2022	Local event 3	Awareness/ arts and culture event	Tbd.	Public	Public
2022	Local final event	Inform stakeholders of project outcome (T3.2)	Mid 2022	Stakeholders	Invitation

**Table 7: List of activities to develop and implement the local work plan.**

### 4.3. Strategy to collaborate with local partners

After the initial difficulties in continuing to work due to the global pandemic, the Hamburg team has moved with its local partners quickly into a new, mainly digital, world of professional cooperation. As the pandemic is likely to affect co-creative collaboration in the ARCH project to a great extent over the remaining project period, we currently assume that digital meetings and working methods will be continued to be used extensively. Hopefully, this will compensate for the lack of physical exchange and ensure that information reaches the right partners.

With the help of software such as the Miro programme, which enables collaboration online, these processes should take place in the smallest possible working groups, depending on the task at hand. Ideally, such methods can also be used in between the scientific project partners and local partners. This assumes that communication in English does not present a barrier too high for the local project partners. Here, we see the World Heritage Coordination Office as the central point of contact to ensure that information is exchanged with local partners. The frequency of online meetings can vary depending on the state of work. In any case, the aim of the Hamburg team is to organise the cooperation with the local partners as efficiently as possible.

### 4.4. Checking and reporting on progress

Progress will be monitored and reported regularly, using a set of tools and documents provided by ICLEI.

In line with the *Guideline on ARCH co-creation approach* (D3.1), meetings with local partners will be documented, using ARCH specific templates. By sharing agendas and minutes with attendees and the ARCH partners (via e-mail and online project management platform Confluence) a steady flow of information can be established. If meetings are held in German

language, minutes will most likely be taken in German. If so, the Hamburg team will provide a short summary in English. This way, everyone involved can follow up on these meetings and project partners can understand local processes better. The ARCH self-assessment table will be used to monitor stakeholder engagement. By using the self-assessment tool, the project team is able to reflect on the past interaction with stakeholders while implementing learnings for future meetings.

In regard to the implementation of local actions, the work plan matrix (Annex 2) will be updated regularly to document the local project progress. It is considered a living document where strategies and actions are not only reported but can also be adapted if necessary.

Additionally, the ARCH foundation cities will continue to consult each other on local progress. With the regular 'cities call', a steady exchange of knowledge and information has been established. This interaction with those who are in similar situations is a valuable tool for learning and reporting.

## 5. Bibliography

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## **Annex 1: Stakeholder analysis table**

STAKEHOLDER ANALYSIS TABLE & MATRIX – Hamburg (full)

Sector	Organization	Relationship with municipality (if any)	Information (what useful information can they provide?)	Impacts (how, if at all, are they impacted by the issue?)
Public	Heritage Preservation Department <b>High interest / High influence</b>	Department of the Ministry of Culture and Media; one of the ministries of Hamburg as a federal city state ( <a href="https://www.hamburg.de/bkm/englisch/">https://www.hamburg.de/bkm/englisch/</a> ) , ( <a href="https://www.hamburg.de/pressearchiv-fhh/4544520/unesco-worldheritage-hamburg/">https://www.hamburg.de/pressearchiv-fhh/4544520/unesco-worldheritage-hamburg/</a> )	Local project coordinator holds various historic and current information on the site	As a test-case the project may have a long-term effect on the general work approach concerning heritage management.
Public	Agency for Property Management and Real Estate (LIG) <b>High interest / High influence</b>	Municipal enterprise ( <a href="https://immobilien-lig.hamburg.de/immobilienmanagement/13889212/kai-mauersanierung-speicherstadt/">https://immobilien-lig.hamburg.de/immobilienmanagement/13889212/kai-mauersanierung-speicherstadt/</a> )	As the management agency of the public space (of our targeted site) the success of the project depends on their support. They can give important advice on the use of public space and are indispensable for the project implementation (for example the installation of monitoring tools).	Project results may have an impact on future management issues, especially concerning the project area.
Public	City Participatory Workshop (Stadtwerkstatt) <b>High interest / High influence</b>	Part of the Ministry of Urban Development and Housing; one of the ministries of Hamburg as a federal city state ( <a href="https://www.hamburg.de/stadtwerkstatt/">https://www.hamburg.de/stadtwerkstatt/</a> )	Local experts for any kind of participatory processes and co-creation; also on digital interacting between experts and inhabitants at the site as well as online. For further information in German:  <a href="https://www.hamburg.de/dipas/">https://www.hamburg.de/dipas/</a>	
Public	Agency for Geoinformation and Surveying (LGV) <b>High interest / High influence</b>	Municipal enterprise of the Ministry of Urban Development and Housing  ( <a href="https://www.hamburg.de/bsw/whoware/">https://www.hamburg.de/bsw/whoware/</a> )	The agency provides any information about the local spatial information system and 3D-modelling issues.	The project may produce some work load for the agency. The usage of their service and data may lead to a higher visibility of their work.
Public limited company	Hamburger Hafen und Logistik AG (HHLA) <b>High interest / High influence</b>	Public limited company for logistics and municipal enterprise for waterfront real estate (Warehouse district “Speicherstadt”)  ( <a href="https://hhla.de/">https://hhla.de/</a> )	HHLA provides all kind of data on the warehouses as it is the owner of the warehouses themselves. They are also maintaining an archive with a lot of historic plan material concerning the construction and renovation of the buildings. They are also holding existing and planned monitoring tools and data for the buildings.	They would benefit of an improved monitoring tool that helps sustain the buildings.

Sector	Organization	Relationship with municipality (if any)	Information (what useful information can they provide?)	Impacts (how, if at all, are they impacted by the issue?)
Public	Clever Cities – EU Horizon 2020 Project and Klimaleitstelle <b>High interest / Low influence</b>	Ministry of Environment and Energy; one of the ministries of Hamburg as a federal city state  <a href="https://www.hamburg.de/harburg/horizon-2020-clever-cities/">(https://www.hamburg.de/harburg/horizon-2020-clever-cities/)</a>  <a href="https://www.hamburg.de/klima/4358412/leitstelle-klima-hh/">(https://www.hamburg.de/klima/4358412/leitstelle-klima-hh/ )</a>	As another smart city Horizon 2020-project they may deliver additional information for the scientific partners within the ARCH project. Also other bodies of the ministry, especially the office for climate change can be of high interest with specific knowledge concerning climate change measures in Hamburg.	They may be impacted by the collection of important information for scientific project-partners, and preparation of common activities, events, and co-creation processes.
Public	Institute for Hygiene and Environment <b>High interest / Low influence</b>	Municipal institute belonging to the Ministry of Health and Consumer Protection; one of the ministries of the federal city state Hamburg  <a href="http://luft.hamburg.de/">(http://luft.hamburg.de/ )</a>	They provide information about health care and protection in public spaces, and deal with risk management aspects for inhabitants.	They may be impacted by helping to evaluate co-creation processes.
Public	Air Observatory Network (Luftmessnetz) <b>High interest / Low influence</b>	Municipal institute of the Ministry of Environment and Energy of the city state Hamburg  <a href="https://www.hamburg.de/luftreinhaltung/">(https://www.hamburg.de/luftreinhaltung/ )</a>	They provide a broad range of data referring to air quality, temperature, speed of wind, ozone concentration, and more.	They may be impacted by evaluating data.
Public science centre	GERICS – Climate Service Centre Germany (Helmholtzzentrum, Geesthacht) <b>High interest / Low influence</b>	Independent science centre  <a href="https://www.gerics.de/index.php.de"> (https://www.gerics.de/index.php.de )</a>	They focus on climate change related research topics and communication strategies. Especially concerning influences on the river Elbe in the harbour region of Hamburg and influences on cultural heritage preservation aspects in general.	They may be impacted by common events (online as well as face to face), and their evaluation.

Sector	Organization	Relationship with municipality (if any)	Information (what useful information can they provide?)	Impacts (how, if at all, are they impacted by the issue?)
Public	BIM control centres <b>High interest / Low influence</b>	Municipal coordination and control centres regarding geoinformation, civil engineering, building construction.  ( <a href="https://bim.hamburg.de/bim-leitstellen/">https://bim.hamburg.de/bim-leitstellen/</a> )	They deal with digitalization and modelling issues In all aspects, and they possess information and knowledge relevant to the BIM modelling strategy of Hamburg.	They have to be strongly involved which would mean an increased workload for the centres.
Public	Light Art Association (Licht Kunst Verein) <b>High interest / Low influence</b>	Independent association for illumination projects within the warehouse district.  ( <a href="https://www.lichtkunst-speicherstadt.de/">https://www.lichtkunst-speicherstadt.de/</a> )	The association may be able to support a communication strategy in the open space area of the warehouse district, which is especially important during the COVID19-pandemic.	They may affect the public opinion on climate change and resilience related issues.
Public, Culture	IG Kulturquartier Speicherstadt und HafenCity <b>High interest / Low influence</b>	Interest group of eleven museums situated in the area of the warehouse district and new developed HafenCity.  ( <a href="https://www.hamburg.de/welterbe/4511062/igkulturquartier/">https://www.hamburg.de/welterbe/4511062/igkulturquartier/</a> )	The interest group may support the public dissemination and co-creation process.	Their participation in shared events (online or at the site) means some partial workload on the organization.
Public	ICOMOS national <b>High interest / Low influence</b>	No relationship with municipality, but advisory body for all UNESCO heritage sites.  ( <a href="https://www.icomos.de/">https://www.icomos.de/</a> )		Nothing known by now; maybe participation in some online or podium discussion in combination with other related heritage sites in Augsburg and Regensburg.

Sector	Organization	Relationship with municipality (if any)	Information (what useful information can they provide?)	Impacts (how, if at all, are they impacted by the issue?)
Public	University of Hamburg Hydrology and Water Resource Management <b>High interest / Low influence</b>	Independent from municipality but holds strong relationships with different departments of the regional ministries.  ( <a href="https://www.geo.uni-hamburg.de/geographie/mitarbeiterverzeichnis/goenner.html">https://www.geo.uni-hamburg.de/geographie/mitarbeiterverzeichnis/goenner.html</a> )	They are dealing with ARCH relevant aspects like hydrology, modelling, risk management, storm surges, and climate change.	Maybe some students work related with the ARCH project can arise from the connection.
Public	Agency of Roads, Bridges and Waters <b>High interest / High influence</b>	Municipal enterprise of the Ministry of Economy, Transport and Innovation; One of the ministries of Hamburg as a federal city state ( <a href="https://lsbg.hamburg.de/">https://lsbg.hamburg.de/</a> )	They provide various information on data about the waterways. Apart from that we can exchange with another smart city EU-project dealing with water resource management which is managed by the agency.	They should be kept informed about the project. They might be impacted by results of the ARCH project concerning risk management at our city study-case.
Public - owner	Bezirksamt Hamburg-Mitte <b>Low interest / High influence</b>	The district office is the responsible administrator of the city owned area our project focusses on.  ( <a href="https://www.hamburg.de/hamburg-mitte/">https://www.hamburg.de/hamburg-mitte/</a> )		If we can convey the benefit the ARCH project to them, they might become a strong and important supporter. They have to be kept updated and informed about the project anyway.
Public - private	ReGe Hamburg – Projekt-Realisierungsgesellschaft mbH <b>Low interest / Low influence</b>	Municipal enterprise ( <a href="https://www.rege.hamburg/">https://www.rege.hamburg/</a> )	They are leading all restoration activities concerning the quay walls of the warehouse district. Therefore they are providing several kinds of information related to the civil engineering of the area.	We might be depending on their cooperation and/or support for installing monitoring tools.

Sector	Organization	Relationship with municipality (if any)	Information (what useful information can they provide?)	Impacts (how, if at all, are they impacted by the issue?)
Public agency	Hamburg Port Authority Low interest / Low influence	Harbour management of the main harbour district of the city of Hamburg  ( <a href="https://www.hamburg-port-authority.de/de/">https://www.hamburg-port-authority.de/de/</a> )	They are managing the waterways within the Speicherstadt, which officially doesn't belong to the harbour area any more. They provide all kinds of information on current and ancient quay walls, waterways and their management and maintenance.	They may be impacted by the ARCH project in case we are focusing on research about the quay wall structure.
Public	IG Kontorhausviertel Low interest / Low influence	Association to enhance awareness for the Kontorhausviertel by cultural and other activities.  ( <a href="http://www.kontorhausviertel.com/">http://www.kontorhausviertel.com/</a> )		They may affect the public opinion on climate change and resilience issues towards our heritage.
Public	Ministry for Urban Planning and Housing (BSW) High interest / high influence	One of the ministries of Hamburg as a federal city state.  <a href="https://www.hamburg.de/bsw/">https://www.hamburg.de/bsw/</a>	They collect urban data and provide information about the local spatial information system. Central ministry in regard to urban development.	To provide data and help identifying additional needs beyond existing measurements. May create additional workload for them.
Public	Ministry for Economy and Innovation (BWI) Low interest / high influence	One of the ministries of Hamburg as a federal city state.  <a href="https://www.hamburg.de/bwi/">https://www.hamburg.de/bwi/</a>	They support innovative processes and can provide support in regard to awareness strategies.	Only potentially impacted by now.



Sector	Organization	Relationship with municipality (if any)	Information (what useful information can they provide?)	Impacts (how, if at all, are they impacted by the issue?)
Public	HafenCity University <b>High interest / high influence</b>	Independent from municipality but holds strong relationships with different departments of the regional ministries.  <a href="https://www.hcu-hamburg.de/">https://www.hcu-hamburg.de/</a>	Can provide expert knowledge on BIM modelling.	Maybe some students work related with the ARCH project can arise from the connection.
Public	Stiftung Historische Museen Hamburg (SHMH) <b>High interest / Low influence</b>	Foundation of historic museums in Hamburg <a href="https://shmh.de/en">https://shmh.de/en</a>	They may support the public dissemination and co-creation process.	Their participation in shared events (online or on site) means some partial workload on the organization.
Private	Hamburg Tourismus GmbH (HHT) <b>High interest / Low influence</b>	Official tourism information point, run as a private limited company with strong relations to regional ministries.  <a href="https://www.hamburg-travel.com/">https://www.hamburg-travel.com/</a>	They can provide information on tourism behaviour.	Project results may have an impact on tourism issues, especially concerning the project area.
Public	Senatskanzlei Hamburg <b>High interest / high influence</b>	Coordinates the work of the senate and ministries in Hamburg.  <a href="https://www.hamburg.de/senatskanzlei">https://www.hamburg.de/senatskanzlei</a>	Can provide guidance and support, provide networks and connect us with other ministries.	Are responsible for EU projects in Hamburg and are being assessed upon their success.

Sector	Organization	Relationship with municipality (if any)	Information (what useful information can they provide?)	Impacts (how, if at all, are they impacted by the issue?)
Public	UNESCO High interest / Low influence	No relationship with municipality.  <a href="https://worldheritagegermany.com/">https://worldheritagegermany.com/</a>		Nothing known by now; maybe participation in some online or podium discussion in combination with other related heritage sites.

## **Annex 2: Work plan matrix**

ARCH D3.2 Local partnership and work plan

Work plan matrix - Hamburg

For abbreviations see index of abbreviations at the bottom of this matrix

Overall aim: to integrate climate change adaptation into management of the World Heritage site Speicherstadt and Kontorhausviertel, including improved monitoring of impacts on built fabric, as well as on visitors and the local community, and increased community awareness.									
Objective 1: Expand and improve digital data management for buildings within Speicherstadt and Kontorhausviertel (e.g. using Building Information Modelling [BIM])									
Strategy	Indicator	Action within the strategy	Responsibility (lead/support)	Possible stakeholders to involve (indicate whether local partner or other stakeholder)	Related plan, policy or strategy (existing or future)	Link to ARCH scientific partners' tasks (if known)	Implementation period	Status (for monitoring purposes)	Notes
Perform Pilot-project: BIM (Building Information Modeling, an extended and interconnected 3D model of existing (heritage) construction)	Digital BIM-model of one existing historic bridge / one historic warehouse within or close to the World Heritage Site was created.  The model documents both, the outside and the interior (from foundation to roof) of the structure and includes data relevant to climate-change.	Inform research partners on BIM-strategy for the city of Hamburg and clarify requirements.	Lead: Heritage Preservation Department  Support: LSBG, (HHLA)	LSBG HHLA LGV LIG BUKEA  Institute for Hygiene and Environment GERICS University of Hamburg Hydrology and Water Resource Management	BIM Strategy Hamburg as part of the digital strategy for the city of Hamburg  UNESCO World Heritage management plan  ICOMOS periodic reporting	Most likely ENEA, RFSAT, Fraunhofer? Tbd	2021-2022	Mid October 2020:  Ongoing conversation with local stakeholders.  Planning of match-making event for mid November to engage ARCH research partners	/
		Select of a bridge/warehouse for data collection and further use - upon agreement with owner(s).							
		Define process for data acquisition (time frame, on-site measurements, tools, technical issues)							
		Construct the BIM model							
		Implement and evaluate the BIM model							
Obtain Proof of Concept on data exchange between DAFIS, LGV and BIM	Exemplary data set of historic area/ historic building exchanged between DAFIS, LGV and BIM	Collect technical requirements of each data base and coordinate cooperation across partners	Lead: Heritage Preservation Department Support: LGV	LSBG LGV BSW  Responsible for DAFIS: Heritage Preservation Department	BIM Strategy Hamburg as part of the Digitalstrategy for the city of Hamburg	ENEA tbd	June 2021-March 2022	/	/
		Select data set (possible use of same structure as analysed in the first strategy of this objective)							
		Allow ARCH partners to explore and give feedback							
		Define, describe and implement exchange of dataset across the data models							
	Methodology for exchanging data (Proof of concept ) described and documented	Document process, judgement on usability and usefulness							

Objective 2: Integrate climate change and related hazards within the future revised Management Plan and associated periodic reporting to UNESCO in the years to come									
Strategy	Indicator	Action within the strategy	Responsibility (lead/support)	Possible stakeholders to involve (indicate whether local partner or other stakeholder)	Related plan, policy or strategy (existing or future)	Link to ARCH scientific partners' tasks (if known)	Implementation period	Status (for monitoring purposes)	Notes
Revision of the WHS Management Plan in regard to climate change impacts	Identified gaps in the Management Plan	Introduce research partners to the management plan and the extent to which climate change and monitoring is currently addressed	Lead: Heritage Preservation Department	District authority of Hamburg Mitte Lichtkunstverein IG Kulturquartier Speicherstadt und HafenCity IG Kontorhausviertel Hamburg Tourismus AG Innenstadt BUKEA GERICS University of Hamburg	WHS Management Plan  UNESCO periodic reporting	tbd	First half of 2021	/	/
		Analyse the Management Plan (by research partners)							
	Developed recommendations to fill the gaps	Consult research partners on data to improve future mangement							
	Transferred knowledge to local stakeholders as potentially responsible for proposed future actions/ future monitoring/ collaboration	Identify and engage with stakeholders							
		Convince stakeholders of the need to adress the topic							
Integrate the UNESCO-PERIODIC REPORTING structure and relevant themes (2018-24 - Europe 22-24) into Management Plan structure with	Identified Management Plan - themes/issues common with UNESCO periodic reporting questionnaire	Provide transferrable outcome from the reviewed Management Plan		ICOMOS UNESCO					
Perform risk analysis and identify resilience options	Identified relevant data that describes climate change impacts on the WHS	Identify and gather relevant data (e.g. heat, heavy rain falls, weather conditions like CO2 / UV-concentration)	Lead: Heritage Preservation Department	District authority of Hamburg Mitte Air Observation Network BUKEA Institute for Hygiene and Environment University of Hamburg GERICS HPA	Climate Plan Hamburg	tbd (Tecnalia, ...)	2021-2022	/	/
		Identify impacts of climate change on visitors/tourists and people living or working in the WHS or in its close vicinity.							
		Identify relevant data on tourism flows							
		HCU		/					
Objective 3: Raise awareness in local community and among visitors of the relevance of climate change to Speicherstadt and Kontorhausviertel.									
Strategy	Indicator	Action within the strategy	Responsibility (lead/support)	Possible stakeholders to involve (indicate whether local partner or other stakeholder)	Related plan, policy or strategy (existing or future)	Link to ARCH scientific partners' tasks (if known)	Implementation period	Status (for monitoring purposes)	Notes
Develop dissemination tools (including strategy, exhibition concept and supporting materials)	Developed and implemented a communication/dissemination strategy, building on the framework outlined in the Management Plan.	Set up communication timings	Lead: Heritage Preservation Department	SHMH Hamburg Tourismus GmbH (HHT) Senatskanzlei Hamburg Cultural Quarter Association (IG Kulturquartier) Local businesses BUKEA BWI IG Kontorhausviertel	tbd	ICLEI as project partner responsible for communication can be involved	2021	/	
		Create topics and content to be published							
		Define communication strategy according to the progress of Covid-19 pandemic							
	Produced posters/banner/roll-ups to inform about ARCH project and the relevance of climate change to Speicherstadt and Kontorhausviertel	Translate scientific knowledge into information that is relevant and interesting to local community/visitors							
	Produced 1 brochure outlining relevance of climate change to Speicherstadt and Kontorhausviertel								
	Created 1 exhibition concept for new a World Heritage Centre, reflecting on relevance of climate change to WHS (implemented in 2023)	Identify interesting and relevant content and topics for local community/visitors							
Participation in / Organisation of Cultural activities and events (physical/virtual)	Implemented/taken part in 3 cultural events within the World Heritage Site. Implement the effect of climate change on WHS. Ideally together with BUKEA (environmental department)	Develop variable event concepts that might offer arts & culture, information on climate change in relation to the WHS, WHS related topics	Lead: Heritage Preservation Department				2021-2022	/	
		Engage with the public, local stakeholders and ARCH project partners							
		Contingency planning in case face-to-face events are not possible due to Covid-19 (digital events)							

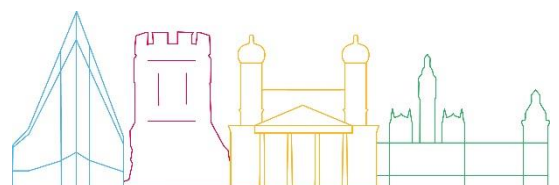
Index of abbreviations	German	English
AG	Arbeitsgemeinschaft	Work Group
BIM	Building Information Modelling	/
BSW	Behörde für Stadtentwicklung und Wohnen	Agency for Urban Planning and Housing
BUKEA	Behörde für Umwelt, Klima, Energie und Agrarwirtschaft	Agency for Environment, Climate, Energy and Agriculture
BWI	Behörde für Wirtschaft und Innovation	Agency for Economy and Innovation
DAFIS	Denkmalschutzamt Fachinformationssystem	Information system of the Heritage Preservation Department
GERICS	/	Climate Service Center Germany at Helmholtz Centrum Geesthacht
HCU	Hafencity Universität	Hafencity University
HHLA	Hamburger Hafen und Logistik AG	Hamburg Harbour and Logistics AG
HPA	/	Hamburg Port Authority
ICOMOS	/	International Council on Monuments and Sites
IG	Interessengemeinschaft	Community of interests
LGV	Landesbetrieb Geoinformation und Vermessung	Agency for Geoinformation
LIG	Landesbetrieb Immobilienmanagement und Grundvermögen	Agency for Property Managment and Real Estate
LSBG	Landesbetrieb Straßen, Brücken und Gewässer	Agency of Roads, Bridges and Waters
SHMH	Historic Museums of Hamburg Trust	Stiftung Historische Museen Hamburg
WHS	Welterbestätte	World Heritage Site



# Local partnership and work plan for Valencia

ARCH D3.2

30 October 2020





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## Contact

[arch@iais.fraunhofer.de](mailto:arch@iais.fraunhofer.de)

[www.savingculturalheritage.eu](http://www.savingculturalheritage.eu)



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## Executive Summary

For the **City of Valencia**, this document presents the process and current state regarding the development of a local partnership and work plan focused on the challenges and priorities related to the two ARCH Project focus areas: the Huerta and the Albufera.

Both areas are cultural landscapes, with relevant historic, cultural, natural and agricultural heritage value. They have a shared history and common challenges, as well as a complex governance framework. A clear need to better understand and demonstrate in detail the impacts of possible climate change scenarios on the Huerta and the Albufera was identified in the previous deliverable D3.3 City baseline, along with the necessity to design the corresponding detailed resilience strategies. Furthermore, it was deemed appropriate to gain a better understanding of the way in which both areas help to mitigate the effects of climate change in the city of Valencia. These three areas of work, framed within the overall aim of improving the resilience of the Huerta and the Albufera and demonstrating how they support the city of Valencia in adapting to climate change, have been validated by project partners during the past months, and have therefore been incorporated as objectives for local work in Valencia in this plan.

After a stakeholder analysis was developed (Annex 1), local actors were identified and approached, through a process of collaboration which was inevitably affected by the COVID-19 crisis. Key stakeholders were invited to join the ARCH local partnership in Valencia by means of two online consultations, which have taken place since the Local Launch Event developed in July 23, 2020. Eight specific strategies to advance towards ARCH local objectives have been defined in the work plan matrix (Annex 2), considering as well other specificities of local work. Those strategies have led to the establishment of six different working groups, which currently structure the ARCH Valencia local partnership. The results of the first online consultation have also been used to assess the preliminary potential actions previously identified for the Valencia case by the ARCH partners. Those actions which were considered of interest by the majority of relevant stakeholders have also been included in the work plan matrix, and will be prioritised in ARCH local work in Valencia. Additionally, this document summarises the main planned milestones in relation to local work in Valencia in the framework of the ARCH project, as well as the main activities which will be developed as part of the monitoring and reporting process, both at the ARCH consortium level and in relation to local partners.

# Local work plan: Valencia

## 1. Where are we?

### 1.1. Target historic areas

The ARCH project focus areas in Valencia are two large cultural landscapes: the Huerta and the Albufera, which partly overlap with one another. The Huerta is one of six remaining irrigated peri-urban farmlands of that type in Europe. It is officially valued as “historic, cultural, natural and agricultural heritage of the Valencian people” [1], while its social and public functions are also recognised by regional law (Article 4, Law 5/2018 [2]) in relation to human welfare, sustainable development and climate change mitigation, among others. Its cultural heritage value has been formally recognised under several designations, such as the 2009 registration of the irrigators’ tribunal of the plain of Valencia on the UNESCO representative list of the intangible cultural heritage of humanity. The Albufera is a wetland of international importance under the Ramsar Agreement, with different natural, semi-natural and agricultural ecosystems, including the large coastal lagoon after which the whole area is known. Its cultural value has also led to relevant designations concerning tangible and intangible heritage, for instance in relation to traditional activities pursued in the area, such as traditional fishing and lateen sailing [3]. Both areas have a shared history and common challenges, as recognised by the Food and Agriculture Organization of the United Nations (FAO) which added the Huerta and part of the Albufera Natural Park to its Globally Important Agricultural Heritage Systems (GIAHS) list in 2019 as one single designated site [4]. Although the Valencia City Council developed a *Sustainable Energy and Climate Action Plan (SECAP)* in 2019 [5] based on previous works such as a vulnerability analysis (VA) [6] [7], no detailed information regarding the expected impacts of climate change on the Huerta and the Albufera could be found within those studies, beyond some brief generic information in relation to the expected impacts on agriculture or potential threats from sea level rise, as well as a brief list of existing and potential impacts in the wetland.

### 1.2. Governance framework for cultural heritage management, disaster risk reduction and climate adaptation

The most relevant current local plan regarding climate change adaptation is the aforementioned *SECAP*. Other key climate change adaptation documents are the regional *Climate Change Strategy 2020-2030* [8] as well as the *National Adaptation to Climate Change Plan* [9], recently reviewed.

Each of the ARCH target areas has several relevant management instruments, such as the *Huerta Regional Land Use Plan* [1] or the comprehensive regional legislative package, which constitutes the current Albufera Natural Park management scheme [10]. Document 5 of the *Huerta Regional Land Use Plan* is an inventory of protected cultural items in the whole Huerta area, including some items located in the Albufera agricultural areas as well. Several levels of protection are defined, with their corresponding norms. The last revision of the Valencia

masterplan, still pending approval, included a Catalogue of Protected Goods and Areas, whose rural section [11] lists, maps and sets norms relative to the most important heritage items catalogued in both the Huerta and Albufera areas of Valencia. The *Albufera Management Plan* [12] also includes specific rules in relation to cultural heritage (e.g. in Chapter XII). Local and regional stakeholders are also involved in the governance process through various supra-local structures, which are mentioned later in Part 2.4 'Existing groups and initiatives'.

Several regional or local disaster risk reduction documents also deserve to be mentioned, such as the regional *Flood Risk Prevention Plan* (PATRICOVA, [13]) or the local specific operating procedure regarding wildfires in the Devesa del Saler forest within the Albufera area [14].

### 1.3. Expected impacts of climate change and environmental hazards

Both areas are significantly threatened by climate change and other hazards. Local communities, such as farmers, fisher folk, and other residents in the existing population nuclei in both areas, are also increasingly affected. Furthermore, expected impacts might lead to the loss of the historical and cultural value of the Huerta and the Albufera, as well as their ability to provide other ecosystem services, and therefore affecting Valencia's citizens in general.

Many threats have been identified in Valencia's *City Baseline Report* [15] as common to the Huerta and the Albufera, such as those related to changes in precipitation, wind, lightning or extreme temperatures. Water scarcity and, on the other side, flooding, might also affect both sites, as well as salt water intrusion. Changes in the presence and prevalence of diseases transmitted by vectors, water and air, as well as in insect infestation risk, are also considered potential hazards regarding the Huerta and the Albufera. Furthermore, the Albufera faces additional specific hazards, such as increasing wild fire risk or potential damage due to wave action, as already seen in some recent storms.

### 1.4. Resilience of historic areas and the larger urban system

The preliminary resilience assessment of the city of Valencia, included within Valencia's *City Baseline Report* [15] identified significant room for improvement in most resilience essential aspects considered at city level. Within the same document, a clear need to better understand and demonstrate in detail the impacts of possible climate change scenarios on the Huerta and the Albufera was identified, as well as the necessity to design detailed resilience strategies in order to cope with these identified impacts. In a cross-cutting manner, additional efforts are needed for gaining a deeper understanding in relation to the multiple interactions among the ARCH target areas, which are considered key elements of Valencia's green and blue infrastructure, and its own resilience. Further work within the ARCH project has confirmed the potential interest of such an approach, aiming at acknowledging and exploring how the Huerta and the Albufera help to mitigate the effects of climate change in the urban environment of Valencia.

## 2. Who are we?

### 2.1. Existing capacity

Valencia's core team consists of two agricultural engineers working on the agri-food area within Las Naves (the municipality's centre for social and urban innovation): Project Manager Lidia García and Research and Development (R&D) Officer Emilio Servera. Several other members from Las Naves staff provide ad-hoc support whenever needed in their different areas of expertise, such as Maite Nácher (communication focal point), Julián Torralba (R&D Financial Manager) and Las Naves's Communication and Production teams.

### 2.2. Capacity gaps

For the time being, the main capacity gaps identified in the context of the ARCH project are related to the size and character of the historic areas selected in Valencia. As both sites under scrutiny are peri-urban cultural landscapes, their characteristics differ from the rest of the ARCH cities' sites: namely due to their agricultural and natural character as well as their complexity and size. These make it harder to accommodate their specific needs within the project's framework. Discussions so far suggest that modelling at the catchment scale as well as other key identified areas for building resilience are likely beyond the scope of the project and the whole consortium.

As mentioned in the *City Baseline Report*, some of these limitations have already been faced in the past by other organisations, and therefore, the knowledge in the field of the Huerta and Albufera's climate change adaptation remains limited. While some ongoing identified projects, such as the current review of the basin hydrological plan, might generate new relevant knowledge for building resilience in the pilot areas, it remains uncertain whether this will be available within the project's timeframe.

### 2.3. Stakeholder analysis process and results

With a view to establishing a local partnership to support the work outlined later in Parts 3 and 4, an initial list of stakeholders was developed by Las Naves, based on knowledge from previous projects and other existing contact networks. That preliminary list was analysed by ARCH partners Tecnalia and ICLEI, who provided valuable feedback, including some suggestions regarding additional local stakeholders who could also be of interest. Additionally, the Las Naves team developed some preliminary contacts, in order to gather information regarding other stakeholders who could also be invited to take part in the local partnership. The knowledge gathered in the *City Baseline Report* in relation to the governance of the Huerta and the Albufera was also taken into account. A consolidated list of more than sixty stakeholders representing 63 different organisations was then produced, based on all the gathered information. Within the stakeholder analysis table attached (Annex 1), no reference to the specific strategies listed in the work plan matrix (Annex 2) is provided yet, since it was decided the stakeholders themselves should decide to which (if any) work strategies they wanted to contribute once they were informed. The approach followed was to classify

stakeholders in relation to their potential historic area(s) of primary interest (Huerta/Albufera/Both), in order to invite a balanced group of stakeholders to take part in the local activities. This was decided based on the principles of the *Guideline on ARCH co-creation approach* [16], paying special attention to flexibility, which was established as a key criterion to communicate with local stakeholders amidst COVID-19. All invited stakeholders were free to decide the specific strategies to which they were interested in contributing, irrespective of how they had been initially classified.

The COVID-19 crisis affected the whole process in several ways. For instance, it was not possible to make preliminary contact with some of the stakeholders in order to assess their potential interest in taking part in the project. The whole process also took longer than expected, due to the added difficulties for project related work since March 2020, when the health crisis in Spain became life-changing. Finally, it also became apparent that due to the extreme impact this health crisis has had and will continue having in the personal and professional lives of Spaniards, it could become harder to find potential local partners who could find time to contribute to the project.

## 2.4. Existing groups and initiatives

The Las Naves core team previously took part in another European project (AELCLIC, “Adaptation of European Landscapes to Climate Change” [17], co-funded by EIT Climate-KIC), which worked during 2019 in the Huerta area between Valencia and Alboraya in order to create a local network of stakeholders able to co-define the contents of a potential ‘Landscape Adaptation Plan to Climate Change’ (LACAP). The experience and contacts produced during that project have proven valuable during the current process.

Both the Huerta and the Albufera each have some kind of Council or Board that have been approached. The Huerta Council (“Consell de l’Horta”), created after the passing of the Huerta Law (Law 5/2018), started working on February 2020, and is currently made up of members from the regional, provincial and local authorities of Valencia, as already identified in the *City Baseline Report*. The Albufera Natural Park Management Board (“Junta Rectora”) is also a consolidated group, where the main Albufera stakeholders are present in order to develop some specific functions established in the protected area regulatory framework (for instance, in [18] and [12]). The Las Naves core team can’t be part of those groups due to their regulatory foundation, although both groups have been contacted in order to be able to count on their feedback and participation. Due to the coronavirus pandemic, they are experiencing serious difficulties that affect the performance of their functions, which has added extra difficulties to the stakeholder engagement process.

Some additional relevant working groups have been identified and approached. On one side, the Valencia City Council is promoting a local Nature-Based Solutions roadmap (mainly focused on climate change adaptation in the city), to be developed through a participatory process which started with a workshop in March, 2020 [19]. The ARCH core team contacted the coordinating group of the roadmap development, to indicate their availability to take part in that initiative if deemed appropriate. However, the participatory process is currently on hold due to COVID-19, and therefore, it’s not possible to know if the ARCH team will be finally involved in it. On the other hand, Visit València (a non-profit foundation in which the València



City Council is involved) is developing a Sustainable Tourism Strategy [20], which will also be based on the participation of key local stakeholders. The Las Naves team has already taken part in some of the initial meetings, and formally expressed interest (following an established mechanism) in being involved in the working groups which will be established. Visit València also kindly provided contact details of some local stakeholders which are already involved in relevant local initiatives in relation to sustainable and nature tourism.

## 2.5. Our local partnership

The local partnership in Valencia currently consists of six different working groups (WGs), constituted in order to contribute to the specific strategies defined in the Work plan matrix (Annex 2), as shown in the following table:

Working Group	Strategies
<b>WG1</b>	Assessing resilience in the Huerta / Building resilience in the Huerta
<b>WG2</b>	Assessing resilience in the Albufera / Building resilience in the Albufera
<b>WG3</b>	Exploring the influence of the Huerta and the Albufera on Valencia's urban resilience
<b>WG4</b>	Development of an Action Plan on responsible tourism
<b>WG5</b>	Systematisation and management of the local knowledge on climate change and agriculture
<b>WG6</b>	Development and implementation of a climate adaptation awareness raising campaign

**Table 1: Valencia's working groups**

The above-mentioned strategies, and thus the 6 WGs, were identified based on specificities of local work in the ARCH Grant Agreement and on previous technical work developed in the past months. WG1 will work in relation to two different strategies ("Assessing resilience in the Huerta" and "Building resilience in the Huerta"). It was decided to join both of them in a single working group since the involved stakeholders were presumably going to be the same. The same applies to WG2 in relation to the work to be developed regarding the Albufera target area. The strategy related to the "Development of an Action Plan on responsible tourism" might need to be refined at a later stage since, as already mentioned, a Sustainable Tourism Strategy at city level is currently under its early stages of development. The Sustainable Tourism Strategy is being developed, among others, by the "Visit València" Foundation, partly managed by the city council, and currently a member of the ARCH Valencia local partnership. The ARCH Grant Agreement stressed the need to coordinate the Action Plan development with the city's Tourism Department.

Mapped stakeholders (see Annex 1) were invited to join the local partnership, as well as to indicate in which strategies they would be interested in engaging, in order to assign them to specific working groups to be established (please see Section 4 and Annex 2 for details). As



at October 22, 2020, stakeholders belonging to 31 different organisations had agreed to become local partners. Figure 1 shows how these organisations are distributed by sector, while Table 2 summarises the specific working groups which they engaged.

Two stakeholders signed up for some of the WGs but didn't agree to become members of the ARCH Valencia local partnership. Therefore, their organisations are not included in Figure 1 nor Table 2. However, they are accounted for in Figure 2, which shows the total number of stakeholders per working group.

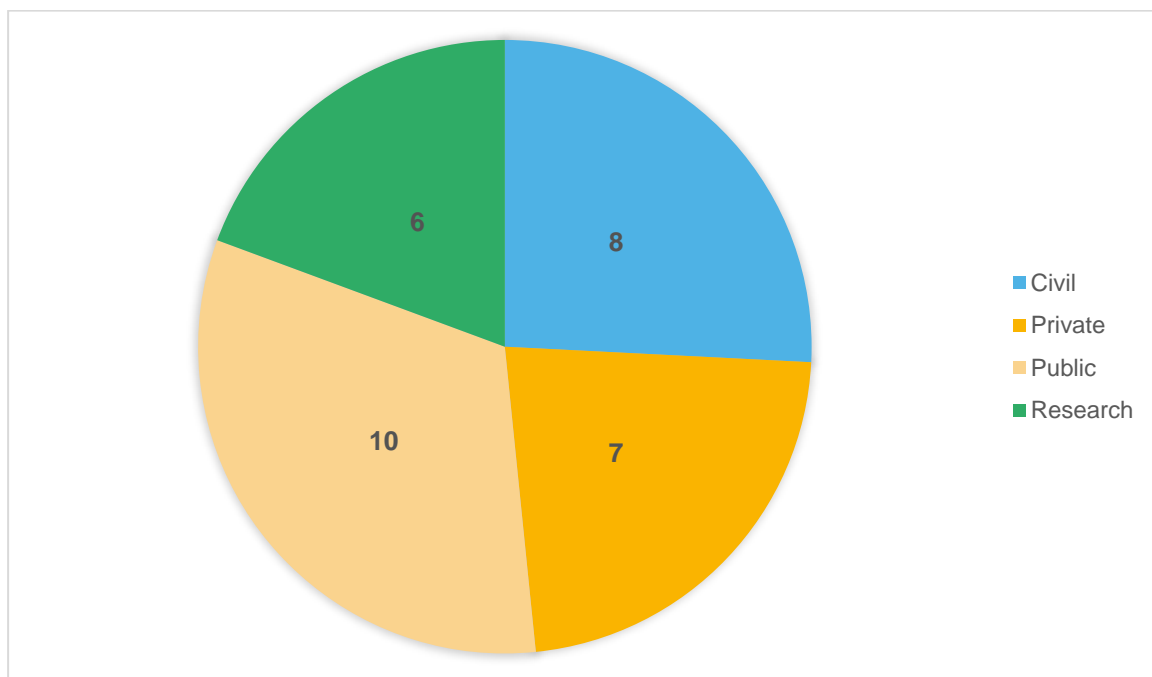
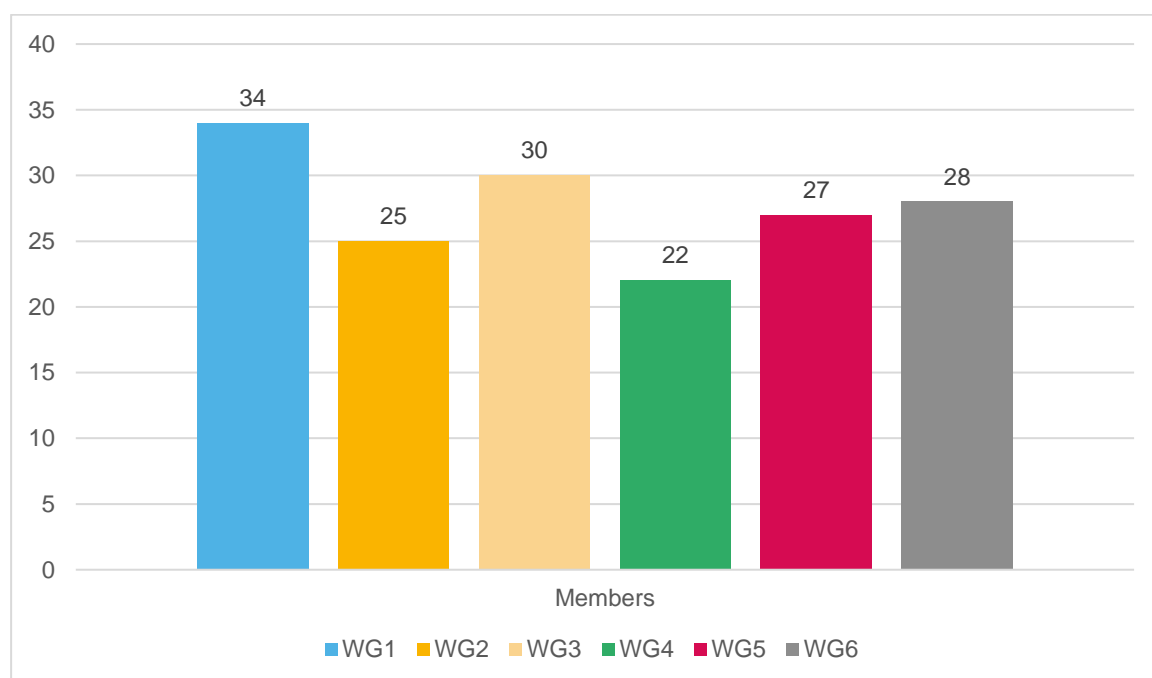


Figure 1: ARCH Valencia local partnership. Type of stakeholder (by sector) (October 22, 2020)



**Figure 2: ARCH Valencia WGs. Number of members per working group (October 22, 2020)**

Local partner organisation	Sector	WG1	WG2	WG3	WG4	WG5	WG6
Centro de Estudios Rurales y de Agricultura Internacional (CERAI)	Civil	Yes	No	No	Yes	Yes	No
Colegio Oficial de Ingenieros Técnicos Agrícolas y Graduados de Valencia y Castellón (COITAVC)	Civil	Yes	Yes	Yes	Yes	Yes	Yes
Fundación Global Nature	Civil	Yes	Yes	Yes	No	Yes	Yes
Acció Ecologista – Agró	Civil	Yes	Yes	Yes	Yes	No	Yes
Fundació Assut	Civil	Yes	Yes	Yes	Yes	Yes	Yes
Sociedad Española de Ornitología (SEO/BirdLife)	Civil	Yes	Yes	Yes	Yes	Yes	Yes
Colegio Oficial de Ingenieros Agrónomos de Levante (COIAL)	Civil	Yes	Yes	Yes	Yes	Yes	Yes
Justicia Alimentaria	Civil	Yes	No	Yes	No	No	Yes
Green Urban Data	Private	Yes	Yes	Yes	Yes	Yes	Yes
Horta Viva	Private	Yes	No	Yes	Yes	No	No
Descubre L'Horta	Private	Yes	No	Yes	Yes	Yes	Yes
Terra i Xufa, S.L.	Private	Yes	No	No	No	Yes	No
Global Omnium	Private	Yes	Yes	Yes	Yes	Yes	Yes

Local partner organisation	Sector	WG1	WG2	WG3	WG4	WG5	WG6
Valencia Birding	Private	Yes	Yes	Yes	Yes	No	Yes
Turiart Tours	Private	Yes	Yes	Yes	Yes	Yes	Yes
Ajuntament de València / Secció d'Agricultura i Horta	Public	Yes	Yes	Yes	Yes	Yes	Yes
Fundació Visit València	Public	Yes	Yes	Yes	Yes	Yes	Yes
Conselleria d'Agricultura, Desenvolupament Rural, Emergència Climàtica i Transició Ecològica / D.G. Canvi Climàtic	Public	Yes	Yes	Yes	Yes	Yes	Yes
Consorci del Consell de l'Horta de València	Public	Yes	No	Yes	Yes	Yes	Yes
Parador de Turismo y Campo de Golf de El Saler	Public	Yes	Yes	Yes	Yes	Yes	Yes
Ajuntament de València / OAM Parques y Jardines y Escuela Municipal de Jardinería y Paisaje de València	Public	Yes	No	Yes	No	Yes	No
Ajuntament de València / Servicio de Energías Renovables y Cambio Climático	Public	Yes	Yes	Yes	No	Yes	Yes
Ministerio para la Transición Ecológica y el Reto Demográfico / Demarcación de Costas en Valencia	Public	Yes	Yes	Yes	Yes	Yes	Yes
València Clima i Energia	Public	Yes	Yes	Yes	Yes	Yes	Yes
Conselleria de Política Territorial, Obres Públiques i Mobilitat / D.G. Política Territorial i Paisatge	Public	Yes	Yes	Yes	No	Yes	Yes
Universitat Politècnica de València / Centro Valenciano de Estudios sobre el Riego	Research	Yes	Yes	No	No	Yes	Yes
Conselleria d'Agricultura, Desenvolupament Rural, Emergència Climàtica i Transició Ecològica / Instituto Valenciano de Investigaciones Agrarias (IVIA)	Research	Yes	No	Yes	No	Yes	Yes
Universitat Politècnica de València / Centro de Investigación en Arquitectura, Patrimonio y Gestión para el desarrollo Sostenible	Research	Yes	Yes	Yes	Yes	No	Yes
Universitat Politècnica de València / Instituto Universitario de Ciencia y Tecnología Animal	Research	Yes	Yes	No	No	Yes	Yes

Local partner organisation	Sector	WG1	WG2	WG3	WG4	WG5	WG6
Universitat Politècnica de València / Centro de Investigación Acuicultura y Medio Ambiente	Research	Yes	Yes	Yes	No	No	Yes
Universitat de València / Unidad de Cambio Global	Research	Yes	Yes	Yes	Yes	Yes	Yes

**Table 2: ARCH Valencia local partnership composition (October 22, 2020).**

## 3. Where are we going?

### 3.1. Our overall aim

To improve the resilience of the Huerta and the Albufera and to demonstrate how they support the city of Valencia in adapting to climate change.

### 3.2. Objectives

The following first draft of objectives for local work in Valencia has been agreed by project partners, and is included in the Valencia needs / support matrix (an evolving document that was drafted at a 'virtual visit' to Valencia for ARCH scientific partners, organised by the Las Naves core team in March/April 2020):

1. To acknowledge and explore how the Huerta and the Albufera help to mitigate the effects of climate change in the urban environment of Valencia.
2. To understand and demonstrate in detail the impacts of possible climate change scenarios on the Huerta and the Albufera.
3. To design detailed resilience strategies for the Huerta and the Albufera in order to cope with identified impacts.

## 4. How will we get there?

### 4.1. Work plan

The work plan matrix is attached to this document as Annex 2, where relevant strategies, actions, and indicators can be found. The stakeholders involved in each strategy are referenced based on the WG nomenclature which can be found in Table 1 above. The work plan matrix might be updated during the project since, for instance, it is still unclear if it will be possible to develop every action which has been initially selected as a priority by local stakeholders (according to the procedure described below).

## 4.2. Activities to develop and implement your work plan

The following table summarises the main activities to be developed in relation to the local work in Valencia in the framework of the ARCH project.

Year	Milestone type	Objective	When	Target audience	Public or invitation only
2020	Local Launch Event	Kick-off meeting with local stakeholders	July 23	All potential local partners	Invitation
2020	First online consultation	Creation of the local partnership and obtaining input/feedback to be included in the local workplan.	July 23 – September 13	All potential local partners	Invitation
2020 – 2022	Local Working Groups online consultation	Allow new partners to join the local partnership over the whole duration of the project.	Since September 14 2020 to the end of the project.	All potential local partners	Invitation
2020	First local work plan published	Inform local partners and community about activities to be developed in Valencia within the ARCH project. Creation of specific local working groups.	November	Public	Public
2021-2022	Review local work plan and update (if needed)	Monitor local work plan to confirm its validity and to potentially reflect relevant local developments and potential changes to priorities	Every 6 months	Public	Public

Year	Milestone type	Objective	When	Target audience	Public or invitation only
2020-2022	Regular local working group meetings	Monitor and advance local work plan	To be agreed within each established working group, according to local needs <sup>1</sup>	Members of local working groups	Invitation
2020	Local ARCH Dashboard launched <sup>2</sup>	Inform local partners and community about local work plan progress	December	Public	Public
2021	Workshop 1, Task 3.4.3 Co-create the Impact and Risk Assessment	DSS CIPCast customisation	To be agreed with scientific partners	End users to be identified	Invitation
2021	Workshop 1, Task 3.4.4 Co-create Resilience Options and Pathways	Identifying resilience options	To be agreed with scientific partners	End users to be identified	Invitation
2022	Workshop 2, Task 3.4.4 Co-create Resilience Options and Pathways	Validate and adjust pathway approach	To be agreed with scientific partners	End users to be identified	Invitation
2021 - 2022	Other Stakeholder workshops	Define user needs for other Tasks/Deliverables	To be agreed with scientific partners	End users to be identified	Invitation

<sup>1</sup> At the time of writing, it was not yet possible to yet define a schedule for future meetings with WGs. Likely this will differ between WGs depending on stakeholders' interests and capacity, and WG members may potentially be consulted on whether certain tasks require meetings, or whether input may rather be gathered via an online questionnaire, for instance, when suitable.

<sup>2</sup> For further details see section on "Checking and reporting on progress"

Year	Milestone type	Objective	When	Target audience	Public or invitation only
2022	Action Plan on responsible tourism developed	Attract tourists interested in the heritage assets of the city and increase their awareness about climate change impacts	To be agreed	Public	Public
2022	Systematised access to local knowledge on climate change and agriculture	Improve access to already available knowledge from city and other actors regarding local mitigation and adaptation to climate change and agriculture	To be agreed	Public	Public
2022	Climate adaptation awareness raising campaign developed and implemented	Increase stakeholders' and citizens' awareness	To be agreed	Public	Public

**Table 3: Calendar of activities**

### 4.3. Strategy to collaborate with local partners

With continued uncertainty surrounding local work due to the restrictions caused by the COVID-19 pandemic, it was decided to prioritise online activities in the short-to-medium term. Work procedures will be tailored to the needs and priorities of each specific local WG, and will be adjusted to local conditions as the project develops. Being extra kind and comprehensive, making things easy and interesting, as well as leaving the doors open are considered as some of the guiding principles in the relationship with local stakeholders, in order to facilitate engagement.

The process of collaboration with local stakeholders formally began with the **Local Launch Event**, which took place on July 23, 2020 with support from Tecnalía and ICLEI. The initially mapped stakeholders were invited to an online, private session, broadcast via YouTube and also available later as an on-demand video, where the ARCH project and the local team members were presented. The city case objectives and potential actions were introduced, as well as the ARCH co-creation framework and the first online consultation. The main contents



from the *ARCH Guideline on co-creation approach* (D3.1, [16]) were presented as the basis for the vision, principles and practical framework for working together during the course of the project.

During the session, it was also explained that local stakeholders who wanted to take part in the local partnership should fill a multi-language online form (**First online consultation**), which allowed stakeholders to answer in either of the two official languages in Valencia (Spanish and Valencian), and remained open until September 13, 2020. During the period from the local launch event to the end of the first online consultation, some additional stakeholders were also invited to take part in the local partnership based on suggestions by already engaged local partners. These newly invited stakeholders were provided with the links to watch the on-demand Local Launch Event video on YouTube and to fill the first online consultation if they were interested in taking part in the project.

The online form used in the first online consultation was designed to allow local partners to indicate the local strategies to which they were interested in contributing, and in turn to provide a basis for the WGs described above, providing invited local stakeholders the opportunity to take part in every local ARCH activity, or just in some of them, based on their interests and availability. They could also provide some feedback on the preliminary potential actions identified for the Valencia case based on previous work by the ARCH partners. In particular, stakeholders were able to select those actions which they considered useful in order to develop each relevant strategy of their interest.

By the end of the first online consultation, 21 local stakeholders had filled it and agreed to take part in some of the 6 established WGs. Only 20 of them are formally considered members of the local partnership, since one stakeholder was only interested in taking part in some of the actions but didn't want to be engaged as a local partner. Table 4 shows the number of members of each WG as at September 14, 2020 (after the first online consultation ended).

Working Group	Number of members
WG1	21
WG2	15
WG3	17
WG4	15
WG5	17
WG6	17

**Table 4: Number of members per working group. September 14, 2020**

The following tables indicate the priorities for the local work, established according to the answers received in the first online consultation. For each WG, the preliminary potential actions identified for the Valencia case (based on previous work by the ARCH partners) are ranked based on the number of WG members who considered them of interest. Those actions which

were chosen by at least half of the WG members are highlighted in bold and included in Annex 2, within the relevant strategy. Such actions will be prioritised in ARCH local work in Valencia, although it is still unclear if it will be possible to develop all of them. Future updates of the work plan might consequently redefine the scope of each proposed strategy. Annex 2 also shows some additional actions within each strategy (shown in italics) which are not included in the following tables, since stakeholders were not consulted on them as part of the first online consultation. The development of such actions was already clear based on the ARCH grant agreement, and therefore there was no reason for stakeholder consultation about them. Nonetheless, each of these actions has been assigned to a WG based on logical thematic links, and interested stakeholders will be given the opportunity to take part in the related co-creation activities.

Action	Number of times chosen
<b>Climate change vulnerability and risk assessment</b>	<b>18</b>
<b>Systematic generation of monitoring and assessment indicators based on satellite imagery (temperature, land use, status of vegetation, etc)</b>	<b>17</b>
<b>Calculation of expected changes in relevant agro-climatic indices under regional climate change scenarios</b>	<b>14</b>
<b>Systematic generation of monitoring and assessment indicators based on sensor data (weather, air quality, etc)</b>	<b>12</b>
<b>Surface-water run-off modelling in the Huerta</b>	<b>11</b>
Detailed crop status monitoring of a small Huerta area, based on UAV multi-spectral imaging	8
Systematic generation of monitoring and assessment indicators based on elevation data (morphology, slope, etc)	5
3D modelling for analysis of crops and structures of a small Huerta area, based on UAV data	4

**Table 5: Local priorities for WG1**



Action	Number of times chosen
Design of environmental awareness materials and activities, tourism-oriented, in relation to the potential climate change impacts on the Huerta and the Albufera	12
Development of innovative nature tourism products for the Huerta and the Albufera	11
Nature tourism sector climate change vulnerability and risk assessment (due to temperature rise) in the Huerta and the Albufera	10

Table 8: Local priorities for WG4

Action	Number of times chosen
Development of information exchange and communication activities in relation to climate change and agriculture, based on existing platforms (such as AdapteCCa)	14
Development of information exchange and communication activities in relation to climate change and agriculture, based on the development of new platforms	11

Table 9: Local priorities for WG5

Action	Number of times chosen
Design of other training and awareness raising resources related to climate change adaptation	15
Organisation and development of training and awareness raising activities, with active involvement by other interested stakeholders	15
Design of other communication resources related to climate change adaptation	12
Involvement in training and awareness raising activities organised by other stakeholders	12
Writing science communication pieces related to climate change adaptation	11

Table 10: Local priorities for WG6

The stakeholders who filled the First Online Consultation were also given the opportunity to propose additional actions which could be developed within the framework of each WG (beyond those preliminary options identified for the Valencia case by the ARCH partners). Some proposals were made, and their suitability will be assessed by the corresponding ARCH research partners and, if deemed appropriate, subject to later validation by the whole relevant WG.

An additional multi-language online questionnaire (**Local Working Groups online consultation**) was set up after the first online consultation ended. The objective of this questionnaire was to allow invited stakeholders who had not answered the initial questionnaire within the specified time limit to be able to indicate during the course of the project their interest in joining the local partnership, and the specific WGs to which they would like to contribute. This questionnaire was set up as a simplified version of the first online consultation, without opportunities to provide feedback on the potential actions identified for the Valencia case based on previous work by the ARCH partners.

Until October 22, 2020, 13 additional stakeholders had filled this questionnaire. Only 12 of them are considered members of the local partnership, since one stakeholder was only interested in taking part in some of the activities and did not want to be formally engaged as a local partner.

The local partnership at the time of writing is therefore formed by 32 stakeholders from 31 different organisations, as shown in Table 2, plus two additional stakeholders interested in collaborating with 5 of the established working groups without being formally considered as members of the local partnership.

The Informed Consent Form annexed to ARCH D1.3 “Data Management Plan” was also translated and adapted into a Yes/No question format in order to be included in both questionnaires. An open question was also added to both questionnaires specifically related to potential ways through which contact and work with local partners could be improved, taking into account the health crisis in Spain since March 2020. This question was designed to allow stakeholders to make any kind of suggestion as to how local work should develop during the next months. Suggestions received in that regard until October 22, 2020 included for instance specific additional stakeholders which could be approached, or a general recommendation regarding the already identified need to coordinate local ARCH work with other projects and working groups currently active.

A specific e-mail address ([arch@lasnaves.com](mailto:arch@lasnaves.com)) was also created and presented in the Local Launch Event and online questionnaires, as an additional way of contacting the Las Naves ARCH team, for any kind of suggestion, comment or question.

#### 4.4. Checking and reporting on progress

Monitoring and reporting will be carried out following two different but complementary approaches:

1. At the ARCH consortium level, the internally established procedures will be followed, including the use of the ARCH Local Partnerships self-assessment tool (a checklist), which will be filled and shared internally at least once per year. Minutes and documentation will be shared via online project management platform Confluence, as well as an attendance list if possible, whose format will be adapted to ongoing circumstances, (which will also determine the ways in which local activities can be carried out). Collaboration with other partners will continue, for instance through the already well-established internal channels, such as the monthly calls with all pilot cities.
2. In relation to local partners, as established for instance in the *Guideline on ARCH co-creation approach*, meeting agendas and minutes will be shared with them, in principle via email. Besides other mechanisms which could be established following ARCH internal procedures, a Local Dashboard will be set up by the Las Naves team in the form of a public website. It will be used as a user-friendly information and engagement tool, as it will allow to easily visualise and track the trends and status of the key indicators established in the Work Plan Matrix (Annex 2). The possibility to use the Local Dashboard as an access hub for information generated at local level will also be assessed. In order to increase transparency and dissemination, public access to the Local Dashboard will be granted. To increase cooperation and engagement, besides some aspects already mentioned in the previous section, the use of novel tools such as online apps and web maps will be prioritised if possible. Online meetings will be recorded and made available later as video on demand for those members of the respective working group who are unable to attend live, whenever possible.

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## **Annex 1: Stakeholder analysis table**

## STAKEHOLDER ANALYSIS TABLE

(Local partners as at October 22, 2020 highlighted in bold)

Activity	To be determined. Potential target historic areas of primary interest: Huerta and Albufera			
Sector	Organisation	Relationship with municipality (if any)	Information (what useful information can they provide?)	Impacts (how, if at all, are they impacted by the issue?)
Public	Ajuntament de València / Área de Ecología Urbana, Emergencia Climática y Transición Energética	City council “Urban Ecology, Climate Emergency and Energy Transition” Area	Coordination with other relevant initiatives in relation to climate change and urban ecology.	Besides being in charge of measures related to climate change, this wide-ranging area of the municipality has also responsibilities on the Albufera area, water management, beaches or air quality, among others, all of them facing significant impacts due to climate change.
Public	<b>Ajuntament de València / Servicio de Energías Renovables y Cambio Climático</b>	<b>City council “Climate emergency and renewable energy” Service, part of the “Urban Ecology, Climate Emergency and Energy Transition” Area.</b>	<b>Coordination with other relevant initiatives in relation to climate change.</b>	<b>Due to the broad scope of responsibilities held by the whole Area, due consideration has been given to its particular department in charge of climate change measures.</b>
Public	<b>Ajuntament de València / Secció d'Agricultura i Horta</b>	<b>City council “Agriculture and Huerta” section, part of the “Innovative Development of</b>	<b>Coordination with other relevant initiatives in relation to agriculture and Huerta.</b>	<b>They are aware of the whole range of impacts that climate change and other hazards have and will continue having on agriculture and on the Huerta long-term sustainability.</b>

<b>Activity</b>	To be determined. Potential target historic areas of primary interest: Huerta and Albufera			
<b>Sector</b>	<b>Organisation</b>	<b>Relationship with municipality (if any)</b>	<b>Information (what useful information can they provide?)</b>	<b>Impacts (how, if at all, are they impacted by the issue?)</b>
		<b>Economic Sectors and Employment” Area.</b>		
Public	Ajuntament de València / OAM Consell Agrari Municipal de València	“Valencia Local Agriculture Council”, autonomous body part of the city council organizational structure.	Coordination with other relevant initiatives in relation to agriculture and Huerta.	They are aware of the whole range of impacts that climate change and other hazards have and will continue having on agriculture and on the Huerta long-term sustainability.
<b>Public</b>	<b>Ajuntament de València / OAM Parques y Jardines y Escuela Municipal de Jardinería y Paisaje de València</b>	<b>Autonomous Body, Part of the city council organizational structure, in charge of Parks and gardens, and the local School of gardening.</b>	<b>Coordination with other relevant initiatives in relation to urban greenery. The project might support their area of intervention in relation to urban adaptation through green spaces.</b>	<b>They are aware of the whole range of impacts that climate change and other hazards have and will continue having on Valencia parks and gardens, and the role those green areas have in relation to urban adaptation to climate change.</b>
Public	Ajuntament de València / Servicio de Patrimonio Histórico y Artístico	City council “Historic and Artistic Heritage”, part of the “Education, Culture and Sports” Area.	Coordination with other relevant initiatives in relation to local heritage.	Climate Change and other natural hazards will increasingly impact heritage resources for which they are responsible.
Public	Ajuntament de València / Museu d’història de València	City council history museum, within the “Historic and Artistic Heritage”, part of the	Coordination with other relevant initiatives in relation to local heritage.	Climate Change and other natural hazards will increasingly impact heritage resources for which they are responsible.

<b>Activity</b>	To be determined. Potential target historic areas of primary interest: Huerta and Albufera			
<b>Sector</b>	<b>Organisation</b>	<b>Relationship with municipality (if any)</b>	<b>Information (what useful information can they provide?)</b>	<b>Impacts (how, if at all, are they impacted by the issue?)</b>
		“Education, Culture and Sports” Area.		
Public	Ajuntament de València / Delegación de igualdad y políticas inclusivas	City council “Equality and Inclusive Policies” Delegation within the “Welfare and Social Rights” Area.	Equality analysis, policies, and solutions.	Climate Change and other natural hazards disproportionately affect women, some studies show.
Public	Ajuntament de València / Área de Protección Ciudadana	City council “Citizen's Protection” Area	Fire risk and other disaster reduction policies.	Climate Change increases the risk of some of the disasters under their responsibility. They're in charge of fire prevention risk in the Devesa forest in the Albufera area.
Public	València Clima i Energia	Foundation part of the city council organizational structure.	Coordination with other relevant initiatives in relation to climate change.	Resilience and adaptation are within their core areas of work.
Public	Fundació Visit València	Foundation part of the city council organizational structure.	Local initiatives regarding nature tourism and the environmental impacts of tourism. In charge of the Sustainable Tourism Strategy currently under development, and other actions related to the linkages between climate change and tourism.	They are in charge in promoting nature tourism in the city, which might be severely affected by climate change. They're also aware of the impacts that tourism has on climate change and other environmental issues, and are working towards mitigating them.
Public	Conselleria d'Agricultura,	“Climate Change” Directorate General	Regional initiatives regarding climate change. (Responsible of the development	As responsible body of regional climate change initiatives and actions which are aligned with

<b>Activity</b>	To be determined. Potential target historic areas of primary interest: Huerta and Albufera			
<b>Sector</b>	<b>Organisation</b>	<b>Relationship with municipality (if any)</b>	<b>Information (what useful information can they provide?)</b>	<b>Impacts (how, if at all, are they impacted by the issue?)</b>
	Desenvolupament Rural, Emergència Climàtica i Transició Ecològica / D.G. Canvi Climàtic	within the Regional Department on Agriculture, Rural Development, Climate Emergency and Ecological Transition.	of the Regional Climate Change Law and the coordination and monitoring of the implementation of the Regional Climate Change Strategy).	the ARCH project, the successful development of local action within ARCH might contribute to their own objectives.
Public	Conselleria de Política Territorial, Obres Públiques i Mobilitat / D.G. Política Territorial i Paisatge	“Territorial Policy and Landscape” Directorate General within the Regional Department on Territorial Policy, Public Works and Mobility.	Initiatives and priorities mainly related to the Huerta area and the coastline. (Responsible for the Huerta Land Use Plan and other relevant plans, such as the Coastal Green Infrastructure Plan (PATIVEL)).	Impacts by climate change are explicitly considered in their work, for instance in the Coastal Green Infrastructure Plan. They are commissioned by the regional government in the Valencian Climate Change Strategy to develop several research actions related to climate change inter linkages with land use and landscape, among other.
Public	Conselleria d'Agricultura, Desenvolupament Rural, Emergència Climàtica i Transició Ecològica / D.G. de Desenvolupament Rural	“Agriculture, Livestock and Fishing” Directorate General within the Regional Department on Agriculture, Rural Development, Climate Emergency and Ecological Transition	Regional initiatives regarding agriculture and rural development.	Some of the ARCH local actions might be relevant at advancing knowledge regarding the multiple climate change impacts on agriculture and the rural environment.

<b>Activity</b>	To be determined. Potential target historic areas of primary interest: Huerta and Albufera			
<b>Sector</b>	<b>Organisation</b>	<b>Relationship with municipality (if any)</b>	<b>Information (what useful information can they provide?)</b>	<b>Impacts (how, if at all, are they impacted by the issue?)</b>
Public	Conselleria d'Agricultura, Desenvolupament Rural, Emergència Climàtica i Transició Ecològica / Servei de Producció Ecològica, Innovació i Tecnologia	“Organic Farming, Innovation and Technology” Service within the Regional Department on Agriculture, Rural Development Climate Emergency and Ecological Transition	Regional initiatives regarding organic farming.	As responsible body of promoting organic farming, some of the ARCH local actions might be relevant at advancing knowledge regarding the interlinkages between organic farming and climate change mitigation and adaptation.
Public	Conselleria de Agricultura, Desarrollo Rural, Emergencia Climática y Transición Ecológica / Comité de Agricultura Ecológica de la Comunitat Valenciana (CAECV)	“Committee of Ecological Agriculture of the Valencian Community”, in charge of regional certification of organic agri-food products under the authority of the Regional Department on Agriculture, Rural Development, Climate Emergency and Ecological Transition.	Regional initiatives regarding organic farming.	Some of the ARCH local actions might be relevant at advancing knowledge regarding the interlinkages between organic farming and climate change mitigation and adaptation.

<b>Activity</b>	To be determined. Potential target historic areas of primary interest: Huerta and Albufera			
<b>Sector</b>	<b>Organisation</b>	<b>Relationship with municipality (if any)</b>	<b>Information (what useful information can they provide?)</b>	<b>Impacts (how, if at all, are they impacted by the issue?)</b>
Civil	Fundación Global Nature	Foundation involved in several projects in the municipality.	Relevant experience in relation to agriculture adaptation to climate change and other sustainability areas.	Working on conservation, agriculture, and other areas impacted by climate change.
Civil	Coordinadora de Organizaciones de Agricultores y Ganaderos (COAG)	Farmer union involved in several projects in the municipality.	Relevant experience in relation to the creation of resilience regarding agriculture.	Working on agriculture, one of the most vulnerable sectors to climate change.
Civil	Associació Valenciana d'Agricultors (AVA/ASAJA)	Farmer union involved in several projects in the municipality.	Relevant experience in relation to the creation of resilience regarding agriculture.	Working on agriculture, one of the most vulnerable sectors to climate change.
Civil	La Unió de Llauradors i Ramaders	Farmer union involved in several projects in the municipality.	Relevant experience in relation to the creation of resilience regarding agriculture.	Working on agriculture, one of the most vulnerable sectors to climate change.
Civil	Fundació Assut	Foundation involved in several projects in the Huerta and Albufera areas.	Relevant experience in relation to the creation of resilience regarding agriculture and natural ecosystems.	Extensive work on Huerta and Albufera, aware of climate change impacts on both areas and the need to adapt.
Civil	Tribunal de las Aguas	The Court of Waters (irrigators' tribunal of the plain of Valencia), a traditional institution solving	Water use and governance issues in the agricultural areas of the municipality.	Working on agriculture, one of the most vulnerable sectors to climate change, among others due to the future changes in water availability.

<b>Activity</b>	To be determined. Potential target historic areas of primary interest: Huerta and Albufera			
<b>Sector</b>	<b>Organisation</b>	<b>Relationship with municipality (if any)</b>	<b>Information (what useful information can they provide?)</b>	<b>Impacts (how, if at all, are they impacted by the issue?)</b>
		conflicts on the use of irrigation water in the plain of Valencia		
Civil	Colegio Oficial de Ingenieros Agrónomos de Levante (COIAL)	Professional association of Agricultural Engineers (long-cycle degree), working on Valencia and Balearic regions and its linked foundation	Relevant experience in relation to the creation of resilience regarding agriculture and natural ecosystems.	Working on agriculture, one of the most vulnerable sectors to climate change.
Civil	Colegio Oficial de Ingenieros Técnicos Agrícolas y Graduados de Valencia Y Castellón (COITAVC)	Professional association of Agricultural Engineers (short-cycle degree), working on part of the Valencia region.	Relevant experience in relation to the creation of resilience regarding agriculture and natural ecosystems.	Working on agriculture, one of the most vulnerable sectors to climate change.
Private	Global Omnium	Water management business group based on Valencia.	Relevant experience in relation to water management. Involved in local initiatives regarding nature tourism and the environmental impacts of tourism due to some of their areas of work as well as part of their corporate social responsibility strategy.	Potential climate change impacts on water management in the Mediterranean area are considered a key issue of concern.



<b>Activity</b>	To be determined. Potential target historic areas of primary interest: Huerta and Albufera			
<b>Sector</b>	<b>Organisation</b>	<b>Relationship with municipality (if any)</b>	<b>Information (what useful information can they provide?)</b>	<b>Impacts (how, if at all, are they impacted by the issue?)</b>
Private	Asociación de Guías de Birding de la Comunitat Valenciana	Professional association of birdwatching guides, working on the whole Valencia region.	Relevant information regarding sustainable tourism and other matters.	Potentially affected by climate change impacts on the natural environment and the nature tourism sector.
Private	Valencia Birding	Tourist company, based on Valencia, providing guided bird watching day-trips and holidays. Member of the professional association of birdwatching guides, working on the whole Valencia region.	Relevant information regarding sustainable tourism and other matters.	Potentially affected by climate change impacts on the natural environment and the nature tourism sector.
Private	Green Urban Data	Start-up based on València, supported by Col-lab (accelerator program by Las Naves) and involved in several projects with the municipality.	Remote sensing of environmental indicators, with a strong focus on climate change adaptation. Highly specialized on providing easy access to remote sensing data, especially in urban environments.	Their work is highly focused on climate change adaptation in urban environments.

<b>Activity</b>	To be determined. Potential target historic areas of primary interest: Huerta and Albufera			
<b>Sector</b>	<b>Organisation</b>	<b>Relationship with municipality (if any)</b>	<b>Information (what useful information can they provide?)</b>	<b>Impacts (how, if at all, are they impacted by the issue?)</b>
Private	Turiart Tours	Tourist company providing cultural tourism programs and guided tours across the Valencian region	Involved in local initiatives regarding nature tourism and the environmental impacts of tourism.	Potentially affected by climate change impacts on heritage, the natural environment, and the tourism sector.
Research	Universitat de València / Unidad de Cambio Global	Global Change research unit, based on one of the main Universities in Valencia.	Remote sensing specialists. Past work in the Albufera, and regarding the Urban Heat Island effect, among other relevant scientific issues.	Research unit specialized in remote sensing, studying some climate change impacts, inter alia.
Research	Universitat Politècnica de València / Cátedra Tierra Ciudadana	One of the key institutions promoting and supporting the Globally Important Agricultural Heritage System (GIAHS) proposal. Involved in additional initiatives with the municipality. University chair based on Valencia.	Focused on agriculture, food and rural development.	Involved in several initiatives regarding the Huerta and Albufera.

<b>Activity</b>	To be determined. Potential target historic areas of primary interest: Huerta and Albufera			
<b>Sector</b>	<b>Organisation</b>	<b>Relationship with municipality (if any)</b>	<b>Information (what useful information can they provide?)</b>	<b>Impacts (how, if at all, are they impacted by the issue?)</b>
Research	Universitat Politècnica de València / Cátedra Estructuras Agrarias	Focused on improving farming systems at regional level. University chair based on Valencia.	Improving resiliency for the agricultural areas under study.	Involved in several initiatives regarding agriculture.
Research	Universitat Politècnica de València / Cátedra Cambio Climático	University chair focused on climate change. Funded by the regional government, and based on Valencia.	Relevant information on climate change adaptation, including research at local and regional level.	The whole purpose of the chair is promoting training, awareness-raising and dissemination activities in relation to climate change. They're recognised as a relevant stakeholder in that regards in the Valencian Climate Change Strategy.
Research	Universitat Politècnica de València / Centro de Investigación en Arquitectura, Patrimonio y Gestión para el desarrollo Sostenible	Research Center on Architecture, Heritage and Management for Sustainable Development, based on Valencia.	Involved in several projects and initiatives in relation to nature tourism and heritage.	Relevant to their core research areas.
Research	Universitat Politècnica de València / Instituto Universitario de Ciencia y Tecnología Animal	Institute for Animal Science and Technology, based on Valencia.	Involved in several projects and initiatives in relation to climate change and agronomy.	Relevant to their core research areas. Researchers involved in several broad research initiatives in relation to climate change and agriculture.
Research	Conselleria d'Agricultura, Desenvolupament	Valencian Institute for Agricultural Research, an organ of	Relevant information on agricultural systems resilience. Relevant experience on dealing with agricultural issues such as	Focused, among other things, on promoting relevant research for the agri-food regional sector. They're commissioned by the regional

<b>Activity</b>	To be determined. Potential target historic areas of primary interest: Huerta and Albufera			
<b>Sector</b>	<b>Organisation</b>	<b>Relationship with municipality (if any)</b>	<b>Information (what useful information can they provide?)</b>	<b>Impacts (how, if at all, are they impacted by the issue?)</b>
	Rural, Emergència Climàtica i Transició Ecològica / Instituto Valenciano de Investigaciones Agrarias (IVIA)	the Regional Department on Agriculture, Rural Development, Climate Emergency and Ecological Transition.	salinization or drought on a local and regional scale.	government in the Valencian Climate Change Strategy to develop several research actions related to climate change adaptation in the Valencian agriculture.
Research	Conselleria d'Agricultura, Desenvolupament Rural, Emergència Climàtica i Transició Ecològica / Centro de Estudios Ambientales del Mediterráneo (CEAM)	"Mediterranean Center for Environmental Studies", which depends on the Regional Department on Agriculture, Rural Development, Climate Emergency and Ecological Transition	Information related to their research activities, mainly focused on the atmosphere, ecosystems, human activities, and their interactions.	Some of the ARCH local actions might be relevant at advancing knowledge regarding climate change mitigation and adaptation, which is one of their working areas.
Research	Conselleria d'Educació, Cultura i Esport / Institut Valencià de Conservació, Restauració i Investigació (IVCR+i)	"Conservation, Restoration and Research Valencian Institute", an organ of the Regional Department on Education, Culture and Sports	Coordination with other initiatives in relation to regional heritage, including some related to disaster risk prevention and mitigation.	Climate Change and other natural hazards will increasingly impact heritage resources for which they are responsible.

<b>Activity</b>	To be determined. Potential target historic area of primary interest: Huerta			
<b>Sector</b>	<b>Organisation</b>	<b>Relationship with municipality (if any)</b>	<b>Information (what useful information can they provide?)</b>	<b>Impacts (how, if at all, are they impacted by the issue?)</b>
Public	Consorti del Consell de l'Horta de València	Partnership made up of members from the regional and provincial governments, and the Municipality of Valencia. The rest of the municipalities part of the Huerta area will join later.	Initiatives and priorities regarding the Huerta area. Potential contact point for many Huerta stakeholders.	Working primarily on agriculture, one of the most vulnerable sectors to climate change. According to the regional Huerta Law, one of its main objectives is guaranteeing the survival and promoting the revitalisation of agricultural activities in the Huerta. Therefore, climate change and other climatic hazards need to be considered by them.
Civil	Per l'Horta	Grassroots organization heavily involved in the promotion of actions and policies in support of the Huerta in Valencia and its surrounding municipalities.	Initiatives and priorities regarding the Huerta area in particular and green infrastructure in general. Potential contact point for many Huerta stakeholders.	Supporting the Huerta is their core objective, and they're aware of the potential impacts in the area due to climate change, as well as its ability to contribute to the adaptation of the city of Valencia.
Civil	Justicia Alimentaria	Based on Valencia, involved in several projects with the municipality.	Association promoting food sovereignty and social awareness.	They're aware of the multiple linkages between their core areas of work and climate change.

<b>Activity</b>	To be determined. Potential target historic area of primary interest: Huerta			
<b>Sector</b>	<b>Organisation</b>	<b>Relationship with municipality (if any)</b>	<b>Information (what useful information can they provide?)</b>	<b>Impacts (how, if at all, are they impacted by the issue?)</b>
Civil	Centro de Estudios Rurales y de Agricultura Internacional (CERAI)	Based on Valencia, involved in several projects with the municipality.	Promotion of sustainable rural development, food sovereignty and agroecology.	They're aware of the multiple linkages between their core areas of work and climate change.
Private	Terra i Xufa, S.L.	Producers and traders of organic fruits and vegetables from the Huerta. Members of the MercaValencia management board (biggest agri-food centre in the region, established as a company whose majority owner is the Valencia city council)	Interested in sustainable development and agroecology. Assessment of the relevance and viability of the ARCH proposals from the producers' point of view.	They're aware of the multiple linkages between agriculture and climate change.
Private	Horta viva	Company promoting agrotourism and educational activities in the whole Huerta area.	Relevant information in relation to the planned activities related to sustainable tourism, among other.	Their work is based on the sustainability of agriculture and the Huerta landscape.
Private	Descubre L'Horta	Company promoting agrotourism and educational activities	Relevant information in relation to the planned activities related to sustainable tourism, among	Their work is based on the sustainability of agriculture and the Huerta landscape.

<b>Activity</b>	To be determined. Potential target historic area of primary interest: Huerta			
<b>Sector</b>	<b>Organisation</b>	<b>Relationship with municipality (if any)</b>	<b>Information (what useful information can they provide?)</b>	<b>Impacts (how, if at all, are they impacted by the issue?)</b>
		<b>in the whole Huerta area.</b>	<b>other. Involved in local initiatives regarding nature tourism and the environmental impacts of tourism.</b>	
Private	Consejo Regulador de la Denominación de Origen Chufa de Valencia	Regulating Board for the “Chufa de Valencia” designation of origin, including growers from València and other Huerta municipalities.	Contact point for information on traditional, local tigernut (“chufa”, one of the most important Huerta crops) varieties and affiliated production companies.	Working on agriculture, one of the most vulnerable sectors to climate change.
Research	Universitat de València / Càtedra L’Horta de València: territori metropolità	University chair funded by Las Naves. Involved in many initiatives with the municipality.	Relevant information in relation to the Huerta history and heritage, among other.	Their core area of research is the study of the Huerta.
Research	Universitat Politècnica de València / Centro de Investigación Acuicultura y Medio Ambiente	Research Center on Aquaculture and Environment. Based on Valencia, supported the Globally Important Agricultural Heritage System (GIAHS) proposal.	They have developed relevant research on the Huerta resiliency, and promoted several related projects such as AELCLIC.	They’re aware of the multiple linkages between their core areas of work and climate change.

<b>Activity</b>	To be determined. Potential target historic area of primary interest: Huerta			
<b>Sector</b>	<b>Organisation</b>	<b>Relationship with municipality (if any)</b>	<b>Information (what useful information can they provide?)</b>	<b>Impacts (how, if at all, are they impacted by the issue?)</b>
Research	Universitat Politècnica de València / Instituto de Ingeniería del Agua y Medio Ambiente	Institute for Water and Environmental Engineering. Based on Valencia, relevant work on the whole region.	They have developed relevant research on multiple aspects related to climate change adaptation in agriculture and natural areas, inter alia.	Climate change adaptation is one of their core areas of work.



<b>Activity</b>	To be determined. Potential target historic area of primary interest: Albufera			
<b>Sector</b>	<b>Organisation</b>	<b>Relationship with municipality (if any)</b>	<b>Information (what useful information can they provide?)</b>	<b>Impacts (how, if at all, are they impacted by the issue?)</b>
Public	Ajuntament de València / Servicio Devesa-Albufera	“Devesa-Albufera” Service, associated to the local “Urban Ecology, Climate Emergency and Energy Transition” Area.	Relevant information in relation to the Albufera area.	Due to the broad scope of responsibilities held by the whole Area, due consideration has been given to its particular department in charge of the Albufera area.
Public	Conselleria d'Agricultura, Desenvolupament Rural, Emergència Climàtica i Transició Ecològica / Parc Natural de l'Albufera	Albufera Natural Park associated staff within the Regional Department on Agriculture, Rural Development, Climate Emergency and Ecological Transition	Relevant information in relation to the Albufera area. The Natural Park management board might act as a potential contact point for many Albufera stakeholders.	They're aware of the multiple vulnerabilities in the area due to climate change and other hazards.
Public	Conselleria d'Agricultura, Desenvolupament Rural, Emergència Climàtica i Transició Ecològica / D.G. de Medi Natural i d'Avaluació Ambiental	Directorate General on “Natural Environment and Environmental Assessment”, within the Regional Department on Agriculture, Rural Development, Climate Emergency	Relevant information in relation to the Albufera area.	They're commissioned by the regional government in the Valencian Climate Change Strategy to develop several research actions related to climate change inter linkages with the Valencian natural ecosystems.

<b>Activity</b>	To be determined. Potential target historic area of primary interest: Albufera			
<b>Sector</b>	<b>Organisation</b>	<b>Relationship with municipality (if any)</b>	<b>Information (what useful information can they provide?)</b>	<b>Impacts (how, if at all, are they impacted by the issue?)</b>
		and Ecological Transition		
Public	Ministerio para la Transición Ecológica y el Reto Demográfico / Confederación Hidrográfica del Júcar	Jucar Basin Management Agency, autonomous body of the National Department on Ecological Transition and Demographic Challenge	Responsible for water management and activities taking place around water bodies. Currently updating the river basin management plan. In charge of a sensor network in the Albufera.	According to Spanish Laws, they must take into account climate change during the process of updating the basin management plan.
Public	Ministerio para la Transición Ecológica y el Reto Demográfico / Demarcación de Costas en Valencia	Valencia Province Coast Management Body (National Authority, depending on the National Department on Ecological Transition and Demographic Challenge).	Powers regarding activities in the coastal zone. Currently developing several projects around the Albufera coastline.	They're aware of the need to develop climate change adaptation actions in the coastline, and already involved in some projects related to the matter.
Public	Parador de Turismo y Campo de Golf de El Saler	Tourism facility located in the Devesa del Saler area within the municipality (in the Albufera Natural Park). It belongs to a public company	Relevant experience on sustainable tourism experiences in the Albufera area. Involved in local initiatives regarding nature tourism and the environmental impacts of tourism.	Well aware of the need to develop tourism activities in a sustainable way. They're located in the Devesa del Saler area, and would therefore be negatively affected by any impacts on the area due to climate change.

<b>Activity</b>	To be determined. Potential target historic area of primary interest: Albufera			
<b>Sector</b>	<b>Organisation</b>	<b>Relationship with municipality (if any)</b>	<b>Information (what useful information can they provide?)</b>	<b>Impacts (how, if at all, are they impacted by the issue?)</b>
		(Paradores de Turismo de España S.M.E.,S.A), owned by the State.		
Civil	Sociedad Española de Ornitología (SEO/BirdLife)	NGO involved in several projects in the Albufera area.	Relevant experience on conservation needs of the Albufera, and potential climate change impacts and resiliency strategies.	Conservation NGO involved in several initiatives regarding climate change.
Civil	Acció Ecologista – Agró	NGO involved in several projects in the Albufera area.	Relevant experience on conservation needs of the Albufera, and potential climate change impacts and resiliency strategies.	Conservation NGO involved in several initiatives regarding climate change.
Private	Consejo Regulador de la Denominación de Origen Arroz de Valencia	Regulating Board for the “Arroz de Valencia” designation of origin, including growers from València and other Albufera municipalities.	Contact point for information on traditional, local rice varieties and affiliated production companies.	Working on agriculture, one of the most vulnerable sectors to climate change.
Private	Comunidad de Pescadores de El Palmar	"El Palmar" Fishing Community, involved in several projects in the Albufera area.	Relevant information in relation to traditional fishing activities.	The eutrophication problems in the lake might get worsened due to climate change, negatively impacting their work.

<b>Activity</b>	To be determined. Potential target historic area of primary interest: Albufera			
<b>Sector</b>	<b>Organisation</b>	<b>Relationship with municipality (if any)</b>	<b>Information (what useful information can they provide?)</b>	<b>Impacts (how, if at all, are they impacted by the issue?)</b>
Private	Cooperativa Valenciana Unió Protectora d'El Perelló	Agricultural cooperative working on the Albufera area.	Relevant information in relation to traditional crop varieties in the Albufera area.	Working on agriculture, one of the most vulnerable sectors to climate change.
Private	Albufera Parc	Tourist company working on the Albufera area.	Relevant information in relation to sustainable tourism in the Albufera.	Their work is based on the sustainability of agriculture and the Albufera landscape.
Private	VisitAlbufera	Tourist company working on the Albufera area.	Relevant information in relation to sustainable tourism in the Albufera.	Their work is based on the sustainability of agriculture and the Albufera landscape.
Private	Mirador de la Albufera	Tourist company working on the Albufera area.	Relevant information in relation to sustainable tourism in the Albufera.	Their work is based on the sustainability of agriculture and the Albufera landscape.
Research	Universitat de València / Laboratorio de Limnología	Limnology Laboratory based on one of the main Universities in Valencia.	Relevant information in relation to eutrophication in the lake. Have been studying the wetland for decades.	The eutrophication problems in the lake, one of their core research areas, might get worsened due to climate change.
<b>Research</b>	<b>Universitat Politècnica de València / Centro Valenciano de Estudios sobre el Riego</b>	<b>Valencian Centre for Irrigation Studies, based on Valencia. Involved in several projects in the Albufera area.</b>	<b>Relevant research in relation to the soil and water salinization processes in the Albufera.</b>	<b>One of their core research areas is the study of the salinization trends in the Albufera soils and water.</b>

<b>Activity</b>	To be determined. Potential target historic area of primary interest: Albufera			
<b>Sector</b>	<b>Organisation</b>	<b>Relationship with municipality (if any)</b>	<b>Information (what useful information can they provide?)</b>	<b>Impacts (how, if at all, are they impacted by the issue?)</b>
Research	Universitat Politècnica de València / Grupo de Cartografía GeoAmbiental y Teledetección (CGAT)	Geo-Environmental Cartography and Remote Sensing Group, based on Valencia. Involved in several projects along the whole region coastline.	Specialized in coastline monitoring via satellite imagery.	Some of their core research areas are potentially relevant for resilience and impacts monitoring.
Research	Consejo de Cámaras de Comercio, industria, Servicios y Navegación de la Comunidad Valenciana	Valencian Chambers of Commerce, based on Valencia. Involved in several projects across the region.	Involved in the promotion of sustainable tourism in the Albufera via the Delta Lady Interreg Europe project.	They are working on developing innovative solutions for using natural and cultural resources to improve local economies. Climate change might suppose an added challenge.
Research	Instituto IMDEA Agua	Research Institute based on Madrid. Currently involved in a water quality monitoring project in the Albufera lagoon.	Experts on water quality monitoring.	Some of their core research areas are potentially relevant for resilience and impacts monitoring.

## **Annex 2: Work plan matrix**

ARCH D3.2 Local partnership and work plan: Valencia									
Work plan matrix									
Note: actions in <i>italics</i> derive from the ARCH grant agreement and were identified in 2018, prior to the project beginning. Other actions have been identified and prioritised in consultation with local stakeholders since the project began in 2019.									
Overall aim: To improve the resilience of the Huerta and the Albufera and to demonstrate how they support the city of Valencia in adapting to climate change.									
Objective 1: To acknowledge and explore how the Huerta and the Albufera help to mitigate the effects of climate change in the urban environment of Valencia									
Strategy	Action within the strategy	Indicator	Responsibility (lead/support)	Stakeholders involved (indicate whether local partner or other stakeholder)	Related plan, policy or strategy (existing or future)	Link to ARCH scientific partners' tasks (if known)	Implementation period	Status (for monitoring purposes)	Notes
Explore the influence of the Huerta and the Albufera in Valencia's urban resilience	Thermal modelling of the cooling effect of the Huerta and the Albufera in the city of Valencia	Maps of land use influence on temperature of the peri-urban area of Valencia generated and available via the ARCH Hub.	Lead: Tec. Support: LNV	WG3	Valencia Sustainable Energy and Climate Action Plan Valencia Green and Biodiversity Plan	T5.1 Hazard models for impact estimation	Delivered by M30	Not started	Data collection will be necessary from Valencia's stakeholders. Ideally within 2020 so that modelling can be run within first months of 2021
	Satellite imagery-based analysis of thermal differences between Valencia areas adjacent to the Huerta and the Albufera and the rest of the city	Accessibility to temperature satellite maps through the ARCH Hub on place	Lead: INGV. Support: LNV	WG3	Valencia Sustainable Energy and Climate Action Plan Valencia Green and Biodiversity Plan	T4.3 Information Management about Environmental Hazards	Delivered by M28	Not started	
	<i>Support reviews of management / climate change adaptation plans</i>	Management/Climate change adaptation plans review supported	Lead: FhG. Support: LNV, Tecnalia	WG3	Valencia Sustainable Energy and Climate Action Plan Valencia Green and Biodiversity Plan	T3.4 Co-create methods and tools for making historic areas more resilient T7.3 ARCH disaster risk management framework	Delivered by M36	Not started (support request pending)	It's not clear yet if any plan review will be supported.
	Definition of adaptation pathways	Resilience assessments, development of a few adaptation actions and pathway available via the ARCH Hub	Lead: Tec, SOG. Support: LNV	WG3	Valencia Sustainable Energy and Climate Action Plan Valencia Green and Biodiversity Plan	T3.4 Co-create methods and tools for making historic areas more resilient T6.4 Resilience pathway design T6.3 Inventory and categorisation of funding opportunities	Delivered by M36	Not started	Once it is validated and thermal modelling has started, co-creation may start around M27
Development and implementation of a climate adaptation awareness raising campaign	Design of other training and awareness raising resources related to climate change adaptation	At least 4 dissemination activities carried out every year (either by organisation of the activity or by collaboration in activities organised by other stakeholders and partners).	Lead: LNV. Support: ICLEI, TECNALIA	WG6	Valencia Sustainable Energy and Climate Action Plan Regional Climate Change Strategy 2020-2030	T3.5.5 City case Valencia	2020-2022	Not started	
	Organisation and development of training and awareness raising activities, with active involvement by other interested stakeholders	At least 4 dissemination activities carried out every year (either by organisation of the activity or by collaboration in activities organised by other stakeholders and partners).	Lead: LNV. Support: ICLEI, TECNALIA	WG6	Valencia Sustainable Energy and Climate Action Plan Regional Climate Change Strategy 2020-2030	T3.5.5 City case Valencia	2020-2022	Ongoing	
	Design of other communication resources related to climate change adaptation	At least 4 dissemination activities carried out every year (either by organisation of the activity or by collaboration in activities organised by other stakeholders and partners).	Lead: LNV. Support: ICLEI, TECNALIA	WG6	Valencia Sustainable Energy and Climate Action Plan Regional Climate Change Strategy 2020-2030	T3.5.5 City case Valencia	2020-2022	Not started	
	Involvement in training and awareness raising activities organised by other stakeholders	At least 4 dissemination activities carried out every year (either by organisation of the activity or by collaboration in activities organised by other stakeholders and partners).	Lead: LNV. Support: ICLEI, TECNALIA	WG6	Valencia Sustainable Energy and Climate Action Plan Regional Climate Change Strategy 2020-2030	T3.5.5 City case Valencia	2020-2022	Not started	
	Writing science communication pieces related to climate change adaptation	At least 4 dissemination activities carried out every year (either by organisation of the activity or by collaboration in activities organised by other stakeholders and partners).	Lead: LNV. Support: ICLEI, TECNALIA	WG6	Valencia Sustainable Energy and Climate Action Plan Regional Climate Change Strategy 2020-2030	T3.5.5 City case Valencia	2020-2022	Ongoing	
Objective 2: To understand and demonstrate in detail the impacts of possible climate change scenarios on the Huerta and the Albufera									
Strategy	Action within the strategy	Indicator	Responsibility (lead/support)	Stakeholders involved (indicate whether local partner or other stakeholder)	Related plan, policy or strategy (existing or future)	Link to ARCH scientific partners' tasks (if known)	Implementation period	Status (for monitoring purposes)	Notes
Assessing resilience in the Huerta	Climate change vulnerability and risk assessment	Indicator-based climate change vulnerability and risk assessment developed	Lead: ENEA; Support: FhG, Tec, UNICAM, LNV	WG1	Valencia Sustainable Energy and Climate Action Plan Regional Climate Change Strategy 2020-2030	T3.4.3 Co-create the Impact and Risk Assessment	Delivered by M33	Not started	
	Systematic generation of monitoring and assessment indicators based on satellite imagery (temperature, land use, status of vegetation, etc)	Systematic generation of monitoring and assessment indicators based on satellite imagery implemented and available via the ARCH Hub	Lead: INGV; Support: FhG, Tec, LNV, ENEA, RFSAT	WG1	Valencia Sustainable Energy and Climate Action Plan Regional Climate Change Strategy 2020-2030	T4.1 Sensing and Data Repositories T4.2 Information Management about Historic Areas T4.3 Information Management about Environmental Hazards	Delivered by M28	Not started	
	Systematic generation of monitoring and assessment indicators based on sensor data (weather, air quality, etc)	Systematic generation of monitoring and assessment indicators based on sensor data implemented and available via the ARCH Hub	Lead: RFSAT ; Support: FhG, Tec, LNV, ENEA, INGV	WG1	Valencia Sustainable Energy and Climate Action Plan Regional Climate Change Strategy 2020-2030	T4.1 Sensing and Data Repositories T4.2 Information Management about Historic Areas T4.3 Information Management about Environmental Hazards	Delivered by M28	Not started	
	Surface-water run-off modelling in the Huerta	Surface-water run-off modelling in the Huerta developed and available via the ARCH Hub.	Lead: Tec. Support: LNV	WG1	Valencia Sustainable Energy and Climate Action Plan Valencia Green and Biodiversity Plan	T5.1 Hazard models for impact estimation	Delivered by M30	Not started	
Assessing resilience in the Albufera	Climate change vulnerability and risk assessment	Indicator-based climate change vulnerability and risk assessment developed	Lead: ENEA; Support: FhG, Tec, UNICAM, LNV	WG2	Valencia Sustainable Energy and Climate Action Plan Regional Climate Change Strategy 2020-2030	T3.4.3 Co-create the Impact and Risk Assessment	Delivered by M33	Not started	
	Systematic generation of monitoring and assessment indicators based on satellite imagery (temperature, land use, status of vegetation, etc)	Systematic generation of monitoring and assessment indicators based on satellite imagery implemented and available via the ARCH Hub	Lead: INGV; Support: FhG, Tec, LNV, ENEA, RFSAT	WG2	Valencia Sustainable Energy and Climate Action Plan Regional Climate Change Strategy 2020-2030	Task 4.1 Sensing and Data Repositories Task 4.2 Information Management about Historic Areas Task 4.3 Information Management about Environmental Hazards	Delivered by M28	Not started	
	Systematic generation of monitoring and assessment indicators based on sensor data (weather, air quality, etc)	Systematic generation of monitoring and assessment indicators based on sensor data implemented and available via the ARCH Hub	Lead: RFSAT ; Support: FhG, Tec, LNV, ENEA, INGV	WG2	Valencia Sustainable Energy and Climate Action Plan Regional Climate Change Strategy 2020-2030	T4.1 Sensing and Data Repositories T4.2 Information Management about Historic Areas T4.3 Information Management about Environmental Hazards	Delivered by M28	Not started	
	Modelling of future changes in wildfire risk at the Devesa del Saler	Modelling of future changes in wildfire risk at the Devesa del Saler developed and available via the ARCH Hub	Lead: RFSAT ; Support: FhG, Tec, LNV, ENEA, INGV	WG2	Valencia Sustainable Energy and Climate Action Plan Regional Climate Change Strategy 2020-2030	T4.3 Information Management about Environmental Hazards	Delivered by M28	Not started	

Objective 3: To design detailed resilience strategies for the Huerta and the Albufera in order to cope with identified impacts									
Strategy	Action within the strategy	Indicator	Responsibility (lead/support)	Stakeholders involved (indicate whether local partner or other stakeholder)	Related plan, policy or strategy (existing or future)	Link to ARCH scientific partners' tasks (if known)	Implementation period	Status (for monitoring purposes)	Notes
Building resilience in the Huerta	<i>Assessment and identification of resilience strategies and funding opportunities for the Huerta</i>	Resilience assessments, development of a few adaptation actions and pathway available via the ARCH Hub	Lead: LNV Support: Tec, SOG, FhG.	WG1	Valencia Sustainable Energy and Climate Action Plan Huerta Land Use and Agriculture Development Plans Regional Climate Change Strategy 2020-2030	T3.4 Co-create methods and tools for making historic areas more resilient T6.4 Resilience pathway design T6.3 Inventory and categorisation of funding opportunities	Delivered by M36	Not started	
	<i>Support collection and access to data and information</i>	At least 10 local stakeholders registered as users in the ARCH Hub to access data and information via the ARCH RAD	Lead: FhG. Support: LNV, Tec	WG1		T7.3 ARCH disaster risk management framework T7.5 Interface specification and system architecture T7.6 System realisation T7.7 Continuous system integration and validation	Delivered by M36	Not started	
	Calculation of expected changes in relevant agro-climatic indices under regional climate change scenarios	Climate projections incorporated in relevant information for the agri-stakeholders and available via the ARCH Hub	Lead: Tec, LNV. Support: Relevant work by other partners.	WG1	Valencia Sustainable Energy and Climate Action Plan Regional Climate Change Strategy 2020-2030	T3.4.2 Co-create the Hazard and Object Information Management System T4.3 Information Management about Environmental Hazards	Delivered by M28	Not started	Selection of indices and output format by local stakeholders is required.
Building resilience in the Albufera	<i>Assessment and identification of resilience strategies and funding opportunities for the Albufera</i>	Resilience assessments, development of a few adaptation actions and pathway available via the ARCH Hub	Lead: LNV Support: Tec, SOG, FhG.	WG2	Valencia Sustainable Energy and Climate Action Plan Albufera Natural Park Management Plan Regional Climate Change Strategy 2020-2030	T3.4 Co-create methods and tools for making historic areas more resilient T6.4 Resilience pathway design T6.3 Inventory and categorisation of funding opportunities	Delivered by M36	Not started	
	<i>Support collection and access to data and information</i>	At least 10 local stakeholders registered as users in the ARCH Hub to access data and information via the ARCH RAD	Lead: FhG. Support: LNV, Tec	WG2		T7.3 ARCH disaster risk management framework T7.5 Interface specification and system architecture T7.6 System realisation T7.7 Continuous system integration and validation	Delivered by M36	Not started	
	Calculation of expected changes in relevant agro-climatic indices under regional climate change scenarios	Climate projections incorporated in relevant information for the agri-stakeholders and available via the ARCH Hub	Lead: Tec, LNV. Support: Relevant work by other partners.	WG2	Valencia Sustainable Energy and Climate Action Plan Regional Climate Change Strategy 2020-2030	T3.4.2 Co-create the Hazard and Object Information Management System T4.3 Information Management about Environmental Hazards	Delivered by M28	Not started	Selection of indices and output format by local stakeholders is required.
Development of an Action Plan on responsible tourism	Design of environmental awareness materials and activities, tourism-oriented, in relation to the potential climate change impacts on the Huerta and the Albufera	Environmental awareness materials and activities developed.	Lead: LNV. Support: Relevant work by other partners.	WG4	Sustainable Tourism Strategy	T3.5.5 City case Valencia	2020-2022	Preliminary contacts with key stakeholders	This strategy might need to be refined at a later stage since a Sustainable Tourism Strategy at city level is currently under its early stages of development.
	Development of innovative nature tourism products for the Huerta and the Albufera	Innovative nature tourism products developed.	Lead: LNV. Support: Relevant work by other partners.	WG4	Sustainable Tourism Strategy	T3.5.5 City case Valencia	2020-2022	Preliminary contacts with key stakeholders	This strategy might need to be refined at a later stage since a Sustainable Tourism Strategy at city level is currently under its early stages of development.
	Nature tourism sector climate change vulnerability and risk assessment (due to temperature rise) in the Huerta and the Albufera	Nature tourism sector climate change vulnerability and risk assessed.	Lead: LNV. Support: Relevant work by other partners.	WG4	Sustainable Tourism Strategy	T3.5.5 City case Valencia	2020-2022	Preliminary contacts with key stakeholders	This strategy might need to be refined at a later stage since a Sustainable Tourism Strategy at city level is currently under its early stages of development.
Systematisation and management of the local knowledge on climate change and agriculture	Development of information exchange and communication activities in relation to climate change and agriculture, based on existing platforms (such as AdapteCCa)	Access to at least 25 relevant local resources in relation to climate change and agriculture systematised via existing or new information hubs.	Lead: LNV. Support: Relevant work by other partners.	WG5		T3.5.5 City case Valencia	2020-2022	Not started	
	Development of information exchange and communication activities in relation to climate change and agriculture, based on the development of new platforms	Access to at least 25 relevant local resources in relation to climate change and agriculture systematised via existing or new information hubs.	Lead: LNV. Support: Relevant work by other partners.	WG5		T3.5.5 City case Valencia	2020-2022	Not started	