



Realising European ReSILience for Critical INfraStructure



RESILENS

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Plan for Coordination and Collaboration with Related projects

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EXECUTIVE SUMMARY

Description of the work

The Deliverable 6.2 "Plan for coordination and collaboration with related projects" is intended to support the RESILENS consortium partners in establishing and maintaining an effective and efficient collaborative relationship with relevant EC FP7 and Horizon 2020 funded projects in the domain of urban and critical infrastructure resilience management.

Objectives

This deliverable sets out how the RESILENS consortium will accomplish its aims of facilitating collaboration and cooperation with relevant related EC projects. The objectives of this deliverable include:

- Identify the means by which contact and cooperation with projects, programmes and policy makers relevant to the RESILENS project, in particular within FP7, Horizon 2020 and other EC funded programmes and intra-organisation initiatives, will be established.
- Propose approaches on how such collaboration actions could be accomplished.
- Describe how the results of the cooperation of other projects will be tracked.

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1.0 Introduction

1.1 RESILENS project and collaboration with other projects

The primary aim of the RESILENS project is to develop a user-friendly, citizen centric European Resilience Management Guideline which is founded on the principles of risk management and vulnerability reduction and which will, through its uptake and interactive qualities, lead to clear, coherent and effective crises and disaster resilience management for Critical Infrastructure (CI). This in turn will contribute to more resilient and secure economic and societal systems and take the form of a RESILENS Decision Support Platform (RES-DSP) to Technology Readiness Level (TRL) 5 or above. An important project aim is to build on, and advance the findings of the European Programme for Critical Infrastructure Protection (EPCIP), the demonstration project DRIVER (Driving Innovation in Crisis Management) and relevant 7th Framework programme projects.

As described in the RESILENS description of work (and as required by the European Commission), to ensure that the RESILENS project does not overlap with activities proposed under the current Prevention, Preparedness and Consequence Management of Terrorism and other Security-related Risks (CIPS) programme and EPCIP programme, the RESILENS project will develop and continue to strengthen close collaboration with the major EC demonstration project DRIVER and other projects, both in the EU and internationally.

The RESILENS project will collaborate to draw lessons from the findings of relevant projects funded under CIPS, particularly in the following areas:

- Utilising the developed common framework for the effective protection of CI at EU level;
- Measures for the exchange and dissemination of information, experience and best practices between bodies responsible for the protection of CI and wider society;
- Methods for improving relationships between CI public authorities, private sector actors and wider society including enhanced capacity to share good practices;
- Methods, techniques and instruments for operational or training use in CI;
- Methods for the improvement of mutual knowledge of the Member States' protection systems, risk assessment methodologies and practices.

The RESILENS project will mainly be guided by the EPCIPS principles particularly those relating to complementarity and stakeholder cooperation, but also on proportionality and the sector-by-sector basis.

This deliverable also documents the consortium's approach to Task 6.3 which runs throughout the full duration of the project (M1-M36). Specifically this task is concerned with establishing contact and cooperation with further projects, programmes, initiatives and

policy makers relevant to this project and related initiatives within FP7, Horizon 2020 and other EC funded programmes and intra-organisation initiatives.

The project will draw on the fact that some of the consortium partners have been involved in a range of EC funded projects (as coordinators and partners) which are of relevance to the RESILENS Project. Projects which have been considered to be of primary relevance to the RESILENS objectives and will contribute to the expected collaborative benefits are the ongoing (and recently completed) H2020 and FP 7 research projects in urban and infrastructure resilience management. This is expected to include projects such as DRIVER, RESOUTE, SMR, DARWIN, IMPROVER, INTACT, SNOWBALL, HARMONISE, RAIN, CRISYS, COBACORE, VITRUV, DESURBS, BESECURE.

This deliverable will highlight and summarise the approaches which will be applied by the RESILENS project to collaborate with such relevant projects. A brief introduction to the objectives of the DRIVER project and other relevant projects are being considered for further collaboration and will be initially presented in the following section.

1.2 DRIVER

The establishment of a close collaboration with the major EC demonstration project DRIVER was stipulated in the call supporting the RESILENS project, in order to avoid duplication of efforts and to facilitate cross-project contributions.

The DRIVER project will focus on an augmentation rather than a replacement of crisis management (CM) capabilities, and aims at producing a comprehensive, well-balanced and cost-effective portfolio of CM tools exploiting high potential research and technical development activities from the last decade, not least in FP7 and FP6 projects.

To maximise impact beyond the scope of the project and of the DRIVER consortium it is necessary to:

- develop the sustainability of the European Test-bed;
- to exploit the DRIVER Portfolio of Tools;
- to realise a European CM community, which shares a common CM understanding and is increasingly willing to share capabilities and collaborate in CM innovation.

The DRIVER project has three main objectives including;

1. The development of a pan-European test-bed (An assembly of virtually connected, distributed operational or training facilities dedicated to experimentation plus test-bed tools (modelling and simulation, data recording, data analysis), methods

(experiment design, campaign planning, analysis, evaluation), people (cf. DRIVER community), and ideas. This will enable the testing and iterative refinement of new crisis management solutions.

2. The development of a DRIVER Portfolio of Emerging Solutions that: improves Crisis Management at Member State and EU level (Solutions for civil resilience; provides solutions for professional response; develops methods and infrastructure for individual and organisational learning; and that realises organisational, policy & legal tools & standards, societal aspects/tools.
3. The development of a more shared understanding of Crisis Management across Europe including all stakeholders in Crisis Management who are concerned by societal and technological innovation in Crisis Management.

This project began on the 1st of May 2014 and was submitted on the 26th May 2015. This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration.

1.3 Other related ongoing EU projects in the Resilience domain

Other relevant ongoing EU projects are described in Table 1 below.

Table 1 Relevant ongoing EU projects

Acronym	Project Summary	Website
HARMONISE: <i>A Holistic Approach to Resilience and Systematic Actions to Make Large Scale Built Infrastructure Secure;</i>	HARMONISE will result in resilience enhancement methods for large scale urban built infrastructure. It will see the development of a concept to improve the security and resilience of this infrastructure, encompassing the design and planning phases of such projects	http://harmonise.eu/
DRIVER: <i>Driving Innovation in Crisis Management for European Resilience;</i>	DRIVER will develop a pan-European test-bed and create a greater shared understanding of resilience.	http://driver-project.eu/
TURAS: <i>Transitioning Towards Urban Resilience and Sustainability;</i>	The "TURAS" initiative brings urban communities and businesses together with local authorities and researchers to collaborate on developing practical new solutions for more sustainable and resilient European cities.	http://www.turas-cities.org/
emBRACE: <i>Building Resilience Amongst Communities in Europe;</i>	The primary aim of the emBRACE project is to build resilience to disasters amongst communities in Europe.	http://www.embrace-eu.org/
InCREO: <i>Increasing Resilience through Earth</i>	The objective of IncREO is to provide actor's responsible for civil protection and disaster management with EO-based	http://www.increo-fp7.eu/

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<i>Observation;</i>	solutions contributing to an improved preparedness and mitigation planning for areas highly vulnerable to natural disasters and already noticeable climate change trends.	
<i>POP-ALERT: Population Alerting: Linking Emergencies, Resilience and Training;</i>	POP-alert aims to create a framework to facilitate the assessment of the population's capacity to absorb and make use of different Crisis Management strategies and technologies developed at the EU level.	http://www.pop-alert.eu/
<i>IMPROVER: Improved risk evaluation and implementation of resilience concepts to critical infrastructure;</i>	The overall objective of IMPROVER is to improve European critical infrastructure resilience to crises and disasters through the implementation of combinations of societal, organisational and technological resilience concepts to real life examples of pan-European significance, including cross-border examples.	http://cordis.europa.eu/project/rcn/196889_it.html
<i>CIPRNET: Critical Infrastructure Preparedness and Resilience Research Network;</i>	CIPRNet builds a long-lasting virtual centre of shared and integrated knowledge and expertise in CIP. This virtual centre shall provide durable support from research to end users.	www.ciprnet.eu/summary.html
<i>STREST: Harmonized approach to stress tests for critical infrastructures against natural hazards;</i>	The core objective is to design a stress test framework and specific applications to address the vulnerability, resilience and interdependencies of CIs	http://www.strest-eu.org/opencms/opencms/
<i>PRACTICE: Preparedness and Resilience Against CBRN Terrorism using Integrated Concepts and Equipment;</i>	PRACTICE will develop a new toolbox. The toolbox will be a web-based database with a catalogue of existing and innovative components provided and developed during the PRACTICE project by the partners and the members of the Supplier Platform, validated by the Users.	http://www.practice-fp7-security.eu/#&panel1-2
<i>RIBS: Resilient Infrastructure and Building Security;</i>	The project's core objective is a set of protection measurement techniques that can be used to assess the level of protection offered by candidate security products proposed to be implemented in buildings and infrastructures.	http://www.cege.ucl.ac.uk/HIRG/Pages/RIBS.aspx
<i>MOVE: Methods for the Improvement of Vulnerability Assessment in Europe;</i>	Through a generic framework, data analysis and applicability tests MOVE will result in a standard approach to vulnerability assessment in Europe.	http://www.move-fp7.eu/index.php?module=main

INTACT: Impact of extreme weather on critical infrastructure;	Develop a methodological framework for CI vulnerability assessment and an analysis of CI protection measures. Develop methodology and tools for risk management, and indicate gaps in risk modelling and data availability and seek for approaches and alternatives to close gaps.	http://www.intact-project.eu/
SNOWBALL	Provide decision support to public authorities and decision makers in the light of cascading effects simulations.	http://snowball-project.eu/
RAIN: <i>Risk Analysis Of Infrastructure Networks In Response To Extreme Weather;</i>	The RAIN project will develop an operational analysis framework which considers the impact of individual hazards on specific infrastructure systems and the coupled interdependencies of critical infrastructure through robust risk and uncertainty modelling.	http://rain-project.eu/
COBACORE: <i>Community Based Comprehensive Recovery;</i>	The project is creating an integrated and interactive workspace platform; a collaborative environment which will give an overview of the post-crisis situation.	http://www.cobacore.eu/
VITRUV: <i>Vulnerability Identification Tools for Resilience Enhancements of Urban Environments;</i>	VITRUV's aim to build the tools that will support urban planners to consistently integrate security issues into the considerations made in the various phases of the planning process.	http://www.vitruv-project.eu/project.html
BESECURE: <i>Best Practice Enhancers for Security in Urban Regions;</i>	BESECURE works towards the creation of a resource database that supports local policy makers to assess the impact of their practices, and improve their decision making.	http://www.besecure-project.eu/
RESOLUTE: Resilience management guidelines and operationalisation applied to urban transport environment.	The project aims to identify adaptable concepts and methods for the operationalization and evaluation of Critical Infrastructure (CI) resilience of Urban Transport System (UTS), through the implementation of the RESOLUTE Collaborative Resilience Assessment and Management Support System (CRAMSS).	
SMR: Smart Mature Resilience	SMR will develop and validate resilience management guidelines, using three pilot projects covering different CI security sectors, as well as climate change and social dynamics.	
DARWIN: Expecting the unexpected and know how to respond	DARWIN primarily aims to develop European resilience management guidelines. To enable dynamic, user-friendly guidelines the project will adapt innovative tools, test and validate the guidelines, and establish knowledge about how organisations can implement guidelines to improve resilience.	

2.0 Plan for coordination and collaboration

2.1 Establishing contact with related projects

As one of the major objectives of RESILENS is to: *'Build on and advance the findings of the European Programme for Critical Infrastructure Protection (EPCIP), the EU demonstration project, DRIVER (DRiving InnoVation in crisis management for European Resilience), and relevant Seventh Framework Programme projects'* it is also important to acknowledge ongoing related projects and the need to coordinate and collaborate with these to avoid potential duplication and to maximise impact. In line with Task 6.3 set out within the description of work, RESILENS will:

- Establish contact and cooperation with further projects, programmes, initiatives and policy makers relevant to this project and particularly related initiatives within FP7, Horizon 2020 and other EC funded programmes and intra-organisation initiatives.
- Coordinate with other related projects as facilitated by the partners and their wider networks to access members of different organisations with different interests and focus points.
- Track the results of cooperation with other projects as an item for discussion on the agenda at each GA meeting. FAC will maintain oversight of progress on liaising with other projects, and will seek to ensure that all opportunities for collaboration are harnessed.
- Develop an in-depth sustainability strategy to increase uptake of risk assessments, the ERMG, Resilience Management Matrix and Audit Tools and the E-learning Hub. This task will also raise awareness of the ERMG and associated tools among a wide variety of relevant users at all levels (private, public, wider society).
- Consider methods to incorporate the RESILENS outcomes with policy and statutory documents at a range of spatial scales.
- Contribute to future policy based on the knowledge and awareness generated in the project through interaction with specific interest bodies.

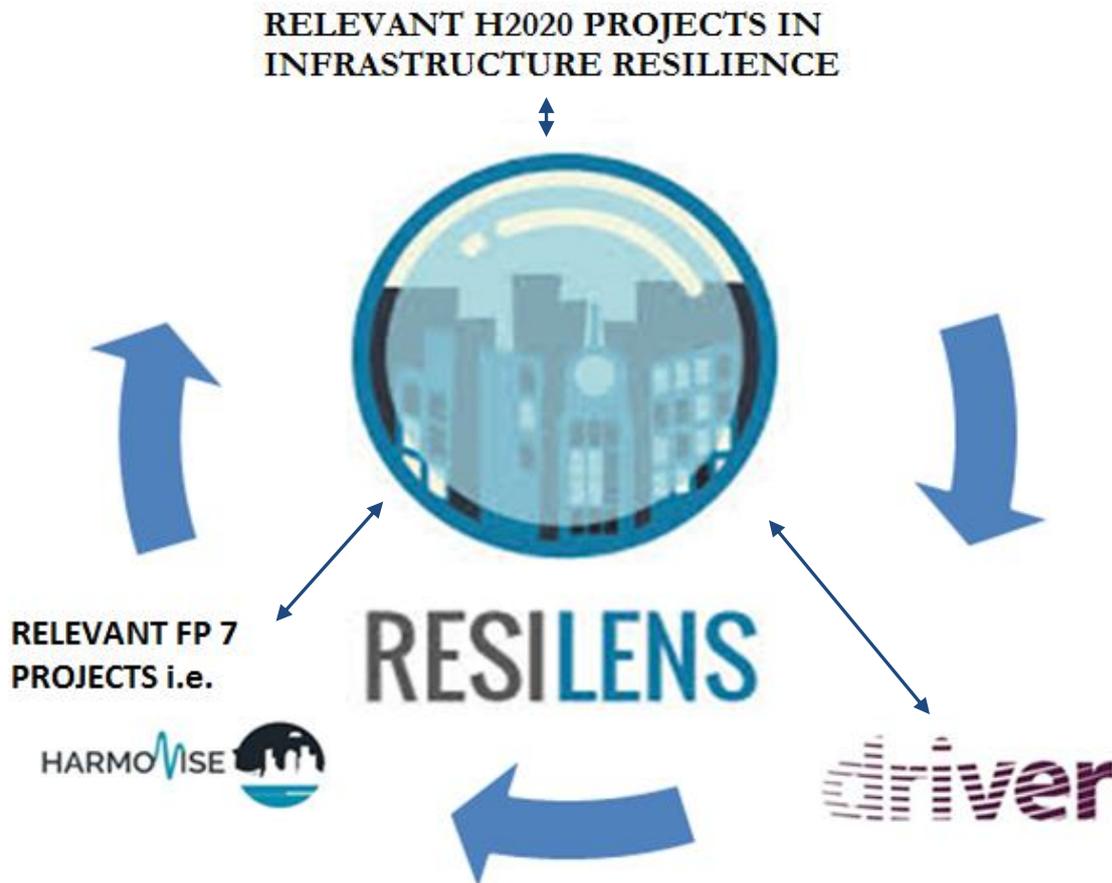


Figure 1: RESILENS interconnectivity with other European projects

FAC, as leader of Task 6.3 'Coordination/collaboration with related projects and initiatives' will be required to organise, manage and delegate responsibility for consortium members to make contact with related projects. Initially contact can be made by telephone or email with formal correspondence by way of an invitation to coordinate and collaborate.

2.2 Possible collaboration approaches

Collaboration within research related projects has far reaching benefits. Collaboration provides a seamless link between universities and research institutions, industry, commerce, government and the public services.

Specific driving factors for establishing inter-project collaboration include:

- the growth of the knowledge economy and attempts to strengthen the economic and social contribution of research;
- a shift towards more applied research in collaboration with other knowledge creators and users;

- greater concentration of research activity and partnership in the use of equipment and expertise;
- the growth of the directed mode of funding based on priority areas and problem oriented project funding; and, the shift towards lifelong learning.
- assists the integration of a whole systems analysis approach and the incorporation of wider ideas in the resilience management domain to be considered within the project.

Collaboration occurs at various levels including individuals, groups, departments, institutions, sectors and countries. Some collaboration is formal, much more is informal.

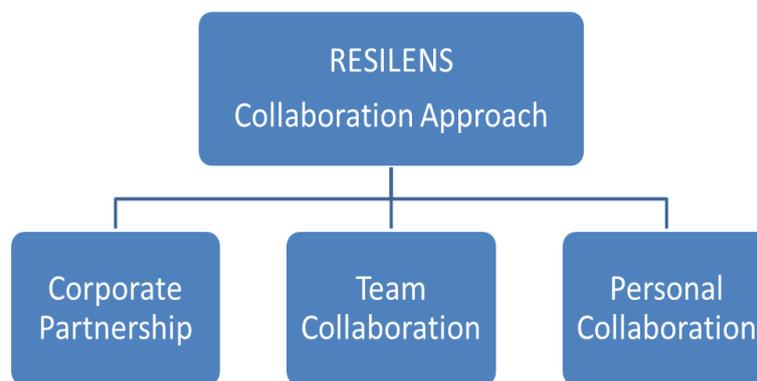


Figure 2: RESILENS Collaboration Approach

There are three possible approaches to collaboration to be adopted in the RESILENS project:

- Corporate partnership - (wide access to external resources and influencers). This will deal with the relevant project on an entire project basis, i.e. management of the RESILENS project collaborating with the management of a selected project.
- Team collaboration – (research problem and people focused). This will involve a specific WP or task team collaborating with contributors to a specific WP in another project working in an identified task where overlaps with the RESILENS project have been identified. This collaboration may also come in the form of a RESILENS task team working closely with specific members of a relevant project where technical expertise on a subject or exchange of ideas may be obtained from the collaboration efforts.
- Personal collaboration – (research problem and people focused).

RESILENS will look to achieve a combination of the above approaches as it looks to engage with a range of stakeholders, projects, Critical Infrastructure and government organisations.

The RESILENS consortium members are encouraged to develop collaboration approaches under any of the above listed categories which they feel will be beneficial to achieving the project outputs.

Of key importance here will be the identification of operational concepts and outputs (as well as expertise contributions) from related tasks in other projects which could be used and incorporated in the RESILENS decision platform to achieve the targeted TRL of 5 and over.

Additional avenues where anticipated inter-project collaboration can be fostered are highlighted in Section 3.0.

2.3 Aims of inter-project collaboration

Through inter-project collaboration the project can benefit in numerous ways. As the project will be developing a new approach built upon existing experience and systems, inter-project collaboration is vital for refining what the final RESILENS outputs as related to critical infrastructure management will look like. This will help to avoid issues such as duplication or scope slippage, especially with regards to the products of other research projects in the built infrastructure resilience domain.

RESILENS aims to engage in Inter-project collaboration to achieve the following:

- Wider geographical reach and access to new stakeholders groups who would not have previously been included in the scope of the project.
- More integrated or co-ordinated approach to stakeholder needs.
- Financial savings in terms of dissemination and integration of existing knowledge and expertise.
- Knowledge, good practice and information sharing.
- Sharing the risk in new and un-tested conceptual developments within the project and beyond.
- Capacity to replicate success more vastly and quickly.
- To build a stronger, united voice in the field of critical infrastructure research.
- Better co-ordination of project activities.
- Competitive advantage.
- Mutual support between organisations.

2.4 Management of the coordination/ collaboration initiative

The management of the RESILENS collaboration activities will be mainly carried out under Task 6.3 "Coordination/collaboration with related project and initiatives" in WP6 which covers communication, dissemination, education and training in the RESILENS project. This WP task, and hence the coordination activity will be led by FAC, with contributions from TCD, SfJE, MTRS, UoW and FhG.

To ensure that the RESILENS project maintains its strategic direction and to enhance the collaboration with other relevant projects, especially with the DRIVER project as stipulated in the call, RESILENS will be guided by the members of the Advisory Board which includes Mr. Willi Went who represents the DRIVER Partner University of Stuttgart. Mr Went is heavily involved in the DRIVER project where he is responsible for researching governance resilience and the overall civil resilience framework which includes a variety of subthemes. The RESILENS Advisory Board also includes Mt. Raymond Lane from Defence Forces Ireland who is a DRIVER End User.

For personal and task level collaborative approaches between RESILENS consortium members and other relevant project partners, the RESILENS task lead (FAC) is responsible for representing the consortium at collaboration meetings (where practicable) and is tasked with arranging and managing the coordination of the specific meeting.

3.0 Future Perspectives

3.1 Establishing and sustaining inter-project communication & collaboration

As a first step in establishing a formal collaboration with relevant EC FP7 and HORIZON 2020 projects working in the urban and built infrastructure resilience domain, the project coordinator (William Hynes, FAC) will partake in a co-ordination mechanism meeting facilitated by the Research programme Officer- Call coordinator (Patricio Ortiz de la Torre) which will take place in Brussels on the 15th of September, 2015.

The proposed meeting will serve as a coordination forum between the different projects funded under DRS-7 i.e. DRIVER, RESOLUTE, SMR, DARWIN, IMPROVER and RESILENS.

The meeting will serve as a means to:

- allow a presentation of the descriptions and goals of each project;
- promote discussions around the worldwide survey of resilience concepts;
- facilitate a presentation on the work of the DRIVER project, especially with regards to social resilience;
- initiate discussion at an EU policy level on the projects outputs (i.e. several sets of European resilience management guidelines etc) and on their possible convergence.

In addition to the targeted goals of this initial coordination meeting, the coordinator of the RESILENS project will aim to use the unique opportunity presented by this meeting to secure commitments from the other project coordinators or representative WP leaders on further collaboration. The ultimate aim will be to secure concrete plans for future collaborative workshops between projects.

3.2 Possible conferences/ workshop organisation/ other collaboration forum

1. The RESILENS project will seek to arrange at least one specifically targeted inter-project workshop annually, in collaboration with other relevant EU projects. This will serve as a good avenue to exchange details on the work progress in the different projects. The workshop can be hosted by one of the project partners or in a neutral facility in the EU agreed upon by the participating project coordinators.
2. It is anticipated that RESILENS consortium members will attend/participate in several international and regional conferences in the field of Risk and Resilience management for critical infrastructures during the duration of the project. This will provide opportunities to meet partners from relevant EU projects. It is anticipated that "team and personal" collaborative approaches will be pursued by the

consortium members attending those conferences. Where possible, meetings during conferences should be arranged beforehand. RESILENS members should therefore endeavour to identify such opportunities that could make such inter-project meeting possible in already scheduled international or regional conferences and workshops. A report on the outcome of such discussions should be made by the relevant partner to the wider consortium.

3. Extend an invitation to selected external projects to attend a special collaborative session at a biannual RESILENS General Assembly (GA) meeting.
4. Co-writing of publications. Where possible collaborative publications should be pursued between partners from different relevant projects, particularly where complementarities have been identified in project tasks and objectives. The RESILENS consortium partners are encouraged to pursue such partnerships which could result in peer reviewed publications, conference proceedings and reports in the field of resilience management in urban and critical infrastructure.

3.3 Tracking progress, results and outputs of collaboration approaches.

Results and outputs produced from the collaboration between the RESILENS consortium and other relevant projects and initiatives on a project, team/task or personal level will be tracked and recorded via:

- All intended collaboration meetings should be reported to FAC so that they can be well documented.
- Any collaborative publication or outcomes resulting from such collaboration approaches should also be saved in the file management system in the folder "Collaboration with relevant projects" under WP Management in the main folder Work Package 6.
- Other discussion points or concept contributions which can potentially contribute to the RESILENS outputs should also be documented in a word document report and saved in the file management system.
- Where collaboration with other projects has informed or contributed to the successful execution of a task this should be documented in the associated deliverable under a section entitled 'collaboration with external projects'.
- Drawing from the contents of the "Collaboration with relevant projects" file, the outcomes of the collaboration approaches will be outlined in a section in the RESILENS mid-term and final report which is due after months 18 and 36 respectively.

3.4 Possible barriers to inter-project collaboration

It is important for partners to be aware of potential barriers to inter-project collaboration, such as:

- Individual personalities and competition between partners from the related EU projects. Naturally this is going to be a barrier as some of the identified EU projects which will be involved in the collaboration efforts will have similar goals and objectives similar to those pursued by RESILENS, and might also have competing regional, financial and stakeholder interests which must be considered by the RESILENS consortium.
- Lack of information and experience can be a potential barrier as sometimes other projects may be working to a different scope or mandate.
- As inter-project collaboration is a joint venture aimed at exploring how to refine or develop project outcomes, there should be expected that there can also be a resistance to change.
- Fundamentally, there could also be cultural mismatch between projects as often is the case with large disaster resilience projects which span a large geographical area with various critical players including Industry, Government Organisations, NGO's and Community players.

As a result there are various risks associated with inter-project collaboration including:

- Lack of consistency and clarity on roles and responsibilities.
- Outcomes do not justify the time and resources invested.
- Loss of flexibility in working practices.
- Complexity in decision-making and loss of autonomy.
- Diverting energy and resources away from core aims - mission drift.
- Damage to or dilution of your brand and reputation.
- Damage to organisation and waste of resources if collaboration is unsuccessful.
- Lack of awareness of legal obligations.
- Stakeholder confusion and fatigue from multiple approaches.

3.5 Possible mitigation actions to facilitate inter-project collaboration

The possible barriers and risks identified in Section 3.3 which can potentially limit the effectiveness of inter-project collaboration can be mitigated against by developing the following:

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- Good personal relationships;
- Compatible cultures or an understanding of different cultures;
- Written agreements (MoU's);
- Experience of change management, leadership and vision;
- Clear and agreed mutual benefits and collaborative advantage;
- A focus on the big picture;
- Careful planning.

4.0 Conclusion

This deliverable presents the approach which the RESILENS consortium will take in operationalising Task 6.3 in coordinating and collaborating with related projects and initiatives. The methods and procedures by which cooperating with other projects will be monitored is set out. The suitability of the approaches for ongoing coordination and collaboration set out herein will be reviewed as the project progresses to ensure all opportunities for successful liaison with relevant projects and initiatives are being fully harnessed by the project partners.