CLIMATE

Adapting to Change

C.L.I.M.A.T.E Interreg NPA

PROJECT EVALUATION REPORT – MARCH 2020

UNIVERSITY OF THE FAROE ISLANDS

Collaborative | Learning | Initiative

Northern Periphery and Arctic Programme 2014–2020

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PROJECT EVALUATION REPORT – MARCH 2020

EDITOR

Ólavur S. J. Dalsgarð

UNIVERSITY OF THE FAROE ISLANDS – 2020

Executive Summary

The CLIMATE project can demonstrate an impressive list of achievements that will continue as a legacy beyond the lifetime of the project. A large amount of knowledge on climate change, environmental management and policy, and research on adaptation planning methodology has been produced during the three years the partners have been working together.

The climate adaptation plans that have been produced have significantly increased the preparedness of the participating municipalities. The dissemination of results, through the knowledge sharing platform and various stakeholder engagement activities etc., is already having a positive ripple effect on the regional level, where an increasing number of municipalities, authorities and organisations are taking inspiration from the project to increase their preparedness for climate change.

The project has delivered significant research and educational contributions through two open access research publications and a Palgrave book chapter.

A communication plan has provided an effective approach to public relations, in which participation at international, regional, and local conferences, workshops, national media coverage, social media engagement and scientific publications, has ensured a broad outreach that extends beyond the NPA region.

Contents

1. Background & Purpose

The main purpose of the project is to tackle climate change in the NPA region on local and regional levels through using models of best practice to develop Climate Adaptation Plans for local authorities.

There are significant differences between the various regions that participated in the programme. The specific climate change challenges can vary, both in type and intensity. The preparedness scales of local authorities also vary, and the political processes in carrying out climate adaptation planning are also different across the regions.

The project aimed to bring various stakeholders across the NPA region together to build synergy from each other's strengths in tackling climate change. The project outputs include a generic and flexible toolkit with a set of tools that can guide any authority in any region when carrying out climate change adaptation planning.

The project has delivered an applicable climate adaptation planning model, comprehensive climate adaptation plans for 3 municipalities and substantial research outputs in the form of scientific research papers and an educational book chapter. In addition, there has been a strong focus on stakeholder engagement and dissemination of results, across regions and sectors, in order to increase public awareness and ensure the project's legacy in the long term.

The project has been overseen by the NPA Joint Secretariat in Copenhagen, the first level controller (FLC) in each country, and the project's lead partner (LP), which is Derry City & Strabane District Council (DCDSC).

The project started on 1 June 2017 and will run until 31 May 2020. As all financial claims had to be submitted by March 2020 most deliverables and activities have been completed by March 2020. However, some ongoing work will continue until the formal end of the project in May 2020. This work includes the final project reporting, the continued implementation process of the climate adaptation plans, and finalisation and publication of research publications.

Disclaimer

Some project activities will be affected by the global Covid 19 situation. As most deliverables have already been completed and those that remain to be completed do not require further engagement activities, Covid 19 is not expected to have a significant impact on the finalisation of project deliverables. However, as it stands the political processes of implementing the adaptation plans with the municipalities are currently on hold and the project's final dissemination activities and public events will be postponed or cancelled.

Activities and processes that may be affected by Covid 19:

- Sweden:
  - Plans for Kick Out and launch of the CLIMATE project in June 2020 within the regional network for climate adaptation: Postponed/cancelled.

- Northern Ireland
  - Derry City & Strabane District Council
    - Consultation and approval of Climate Change Risk & Opportunities Assessment
    - Consultation and approval of Climate Adaptation Plan
    - Launch of Climate Adaptation Plan
  - Local Government Climate Action Network: On hold

- Delays in partners claims verifications.

1.2 Objectives & outcomes

The main objective of the CLIMATE project is:

- Promote and improve climate change awareness in European peripheral rural communities through a knowledge-based approach and community led sustainable resource planning that will mitigate against future climate impact and incorporate transnational collaboration through a best practice model which will improve preparedness for sustainable environmental management in future years.

The main outcomes will include:

- The development of a Knowledge Hub;
- Development of a portal for research and data for synthesis of best practice models;
- Development of a pilot cloudburst strategy and guidelines for buildings to manage heatwaves;
- Development of 3x Climate Adaptation Plans;
- Development of a Risk Register/Risk Assessment tool that can inform the preparedness scale for local authorities, and
- Production of a scientific research publication & final project evaluation report.

1.3 Partners and Associate Partners

The CLIMATE project is made up of 8 Project Partners (PP) and 11 Associate Partners (AP) from countries across Northern Periphery and Arctic region (NPA).

The 8 main partners involved in the CLIMATE project are:

- Derry City & Strabane District Council (DCSDC), Northern Ireland
- Rural Area Partnership in Derry Ltd. (RAPID), Northern Ireland
- City of Sundsvall (SK), Sweden
- Härnösand Municipality (HSD), Sweden
- Mid Sweden University (MIUN), Sweden
- University of the Faroe Islands (FF), Faroe Islands
- University College Cork (UCC), Republic of Ireland
- Northern Ireland Environment Link (NIEL), Northern Ireland
- Climate Northern Ireland (Climate NI)

In addition, the following 11 associate partners have also participated in the project.

- Regional Council of Lapland, Finland
- Department of Agriculture, Environment and Rural Affairs, Northern Ireland
- Adaptation Scotland, Scotland
- Vatnajökull National Park, Iceland
- South East Iceland Nature Research Centre, Iceland
- International Barents Secretariat, Norway
- County Administrative Board of Västernorrland, Sweden
- Swedish Meteorological and Hydrological Institute, Sweden
- County Governor of Finnmark, Norway
- The electric supplier SEV, Faroe Islands
- Tórshavn Municipality, Faroe Islands

2. Evaluation Methodology

The evaluation process of the Climate Interreg NPA project has followed a descriptive evaluation methodology and data has been collected from the project deliverables, activities, surveys, interviews, and workshop discussions. In addition, data for this evaluation report are taken from the minutes that have been collected from Monthly Progress Meetings, Research & Adaptation Sub-group Meetings, and bi-annual Steering Group Meetings.

2.1 Defined parameters of evaluation

- Conduct a comprehensive evaluation and review of the effectiveness of the project approach to climate change adaptation which will aid local authorities with their preparedness scale in tackling climate change.
- Outline how successful the project has been and make recommendations for the future thus giving the project an exit strategy.
- Evaluate the quality of climate adaptation research and climate adaptation planning work conducted by the project partners, and how successfully it has been disseminated throughout the NPA region via Project Partners, regional public authority Associate Partners, and other visitors, volunteers, education institutions, community groups, local and central government.
- Evaluate the long-term influence of the project - the website, new resources, research, training to mitigate against climate change and a climate adaption plan that will be delivered by local authorities beyond the lifetime of the project, to ensure continuation as a legacy.
- Evaluate how the project structure and organization has functioned to fulfil project objectives and make recommendations to the NPA programme with relevant feedback for future projects.

2.2 Methods used for evaluation

The nature of the Climate Interreg NPA project requires a descriptive and qualitative evaluation method. This means that the evaluation will tell the story of the CLIMATE Project and evaluate the overall quality of the deliverables, activities and other outputs that have been produced as part of the project.

The process of analysing the data will be an inclusive process where partners will be informed on a monthly basis of the progress. This will also allow the partners to address and answer any concerns that may arise. In addition, the evaluator and the programme manager will have

regular contact and two monthly meetings to discuss the analysed data throughout the evaluation period.

2.3 Standards and collecting evidence

A criterion for the method used for this evaluation report is that the evaluated data is produced as part of the Climate Interreg NPA project. Data will be collected for evidence from project deliverables, recorded activities, and from partner surveys and interviews. The Monitoring Guideline Matrix, which has been developed as a project management tool, will serve as a guidance for organising the data and collected evidence.

The scales to determine the quality of the evaluated material will mainly be based on qualitative analysis of various aspects of the project. However, the partner survey will also add a quantitative scale to the overall evaluation.

An action plan has been produced to set timescales and responsibilities for collecting the various data for evaluation throughout the evaluation period from October 2019 to March 2020.

2.4 Scope of evaluation

The evaluation will focus on the following areas:

- Examine the extent to which aims and objectives have been realised;
- Confirm what has been achieved;
- Assess the delivery of the project;
- Review the effectiveness of the project's approach to climate change adaptation;
- Ensure that project requirements such as partner obligations, administration and accounting, dissemination and publications have been fulfilled, and
- Assess the long-term legacy of the project.

2.5 Reporting and dissemination

The evaluation will be documented in the final evaluation report, which the University of the Faroe Islands is responsible for completing by March 2020.

The action plan allocates time for partners to follow the evaluation throughout the process. Partners will have the opportunity to review the final report before it is issued for submission.

During the evaluation period, the partners will be required to engage in the development of a strategy to disseminate the results.

3. Evaluation of Work Packages

The delivery of the project has been organised into 5 work packages that are overseen by an individual project partner. All project partners have nonetheless been responsible for contributing and feeding into all 5 work packages.

The progress in each work package has been monitored and reviewed at the Monthly Progress Meetings. The Monitoring Guideline Matrix was used as a monitoring tool.

3.1 Work Package 1 – Knowledge Sharing Platform

Mid Sweden University has been responsible for Work Package 1 (WP1), but completion of WP1 has been achieved in close cooperation with the other project partners.

The work package has been central to the overall project as it has brought together research, methodological approaches, and practical management features.

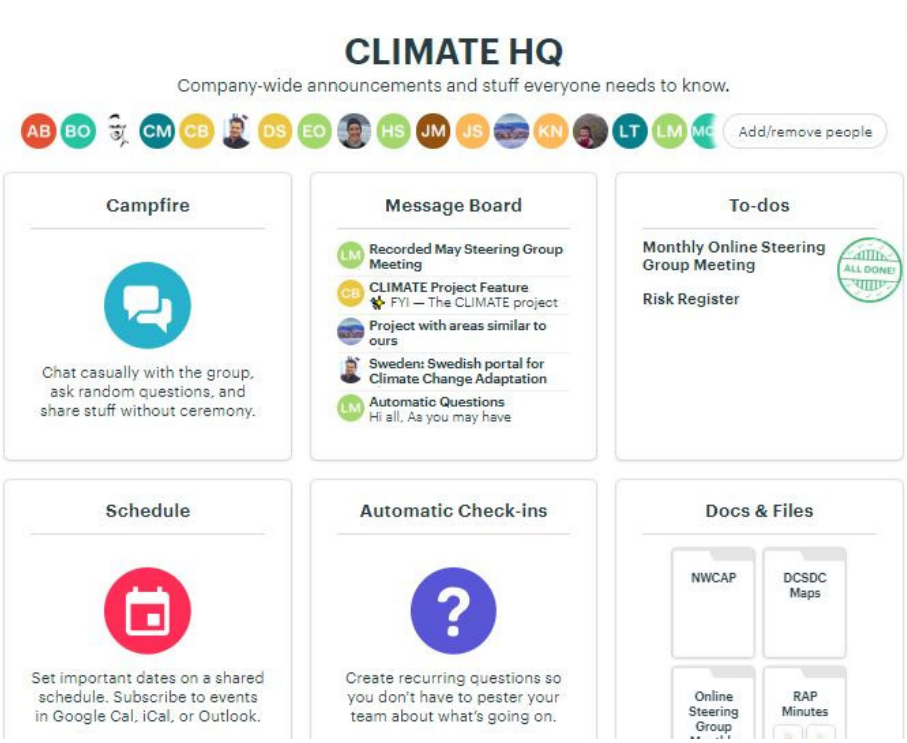
The project description assigned a number of deliverables and adhering activities to the work package in order to achieve to the following objectives:

> *"This work package will conduct a comprehensive evaluation and review of best practice models for climate change adaptation plan development which will aid local authorities in the NPA region with their preparedness scale in tackling climate change. The Work Package will incorporate the work of research institutions in Scandinavia and the Arctic and utilising the experience of Project Partner Sundsvall Municipality in order to create a Knowledge Sharing Platform for a Best Practice Model for Development of a Climate Adaptation Plan. This will develop a knowledge hub on climate adaptation strategies that can be used as an environmental management tool by local authorities throughout the NPA region"*

Table 1 highlights the main deliverables that have been produced and documented under WP1.

3.1.2 Development of Knowledge Hub (T1.1.1)

As the work package title suggests, the main purpose of the work package is knowledge sharing. It has therefore also functioned as a framework for organising much of the work that the partners produce. For this purpose, an online database was created with the project manage-



Basecamp has been used as a knowledge hub for the project

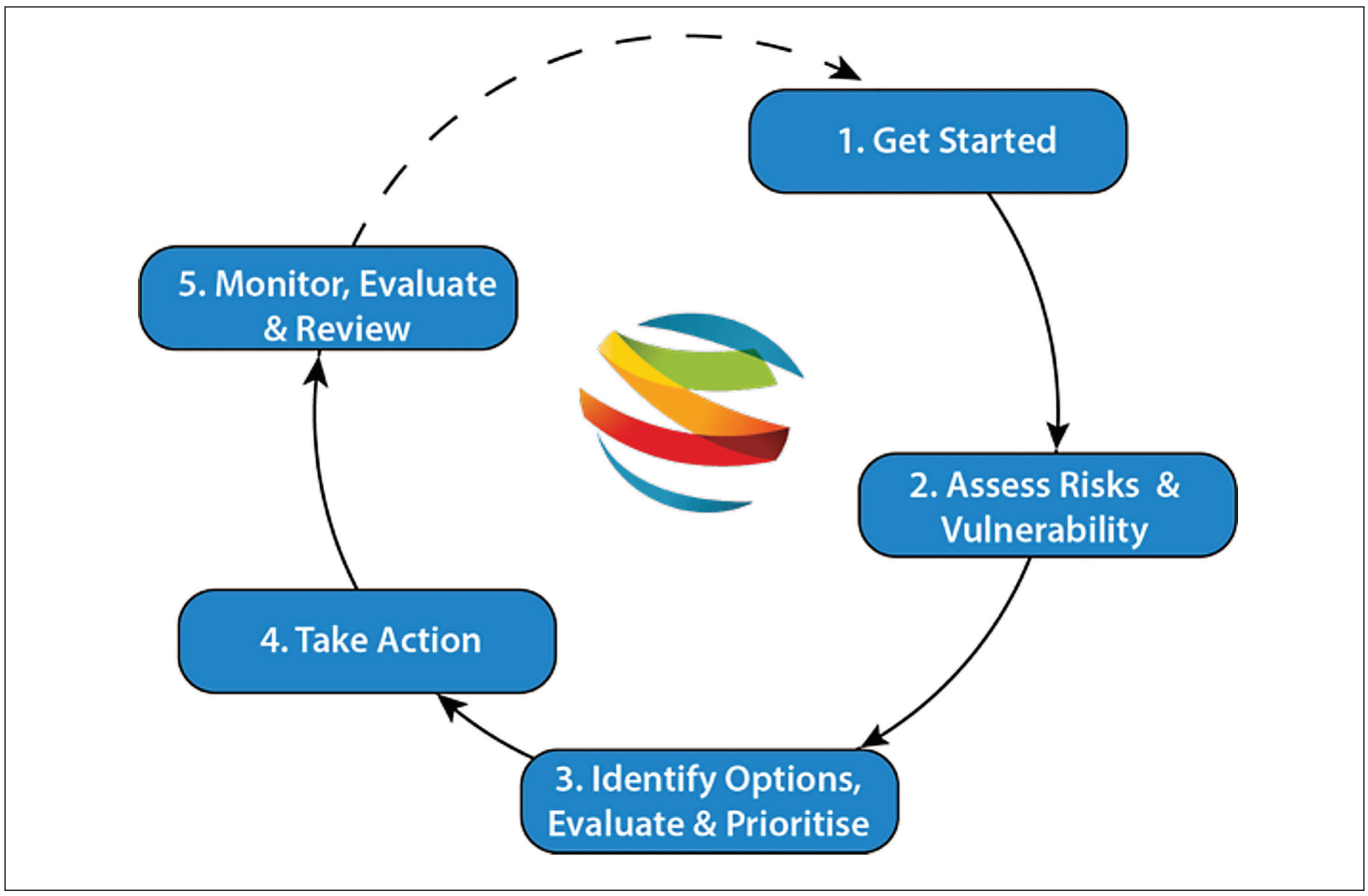
ment site http://basecamp.com. The online database on Basecamp, titled Climate HQ, has served as an internal management and information sharing tool.

All project partners have access to the online database and its functions. The database provides an online framework where the users can upload materials and communicate relevant information with each other. Basecamp has worked well as a management and communication platform for the project partners. The system has a function to allow email notifications when a partner makes an upload to the database. This has ensured that project partners always are informed about the developments of the project. The Knowledge Hub will be updated and maintained for 5 years after project completion by project partner RAPID.

Working towards the work package objectives has included delegating responsibilities between the various partners and regular meetings to discuss the work progress. In addition to the mandatory Monthly Progress Meetings, a Research and Adaptation Sub-Group (RAP) has also been established to strengthen the research and development side of the project. The RAP has met on a monthly basis and has especially increased the projects effectiveness in producing and delivering outputs.

3.1.3 Best Practice Model (T1.2.1)

Development of the Best Practice Model commenced at the early stages of the programme with an extensive research into methodologies and



The Best Practice Model – Planning Cycle

approaches to climate adaptation planning. A large collection of materials on the topic was collected and shared with the partners through Basecamp. Based on this research, the research partners have produced an International Best Practice Review report that review's different best practice approaches to climate adaptation planning from 7 different countries. The International Best Practice Review report provided a scientific foundation for the development of the CLIMATE project's adaptation planning model.

Climate NI has provided a paper on assessing the economic benefits from undergoing climate adaptation planning. The Economic Assessment Summary paper also includes a facts sheet that can work as a support tool when conducting a Situational Analysis (see T1.4.1).

The end-product of the best practice model is described in a document titled *The International Best Practice Climate Adaptation Model*. The document is a comprehensive description of the model, that has been developed through the CLIMATE project. The document presents the model's approach to tackling climate change adaptation and describes how, and by who, the model can be applied.

The document serves as guideline, that takes the climate adaptation planner through the model's tiered approach to climate adaption and

concisely explains every step of the adaptation cycle. In short, the climate adaptation planning (CAP) cycle is made up of the 5 steps in the illustration above.

The Best Practice Model guideline also presents a selection of useful support tools, such as templates and checklist for every step of the process. Some tools, such as the Preparedness Scale Risk Register, are not compatible with the standard pdf version of the model description. However, a wider selection of support tools will be available on the digital version on the final project website.

The document will be available in several formats to allow distribution on a variety of different platforms with the municipalities and on other existing portals – such as Climate NI, Climate Ireland, and SHMI.

3.1.4 Workshop Delivery (T1.3.1)

An important part of the programme has been to follow a stakeholder engagement plan. Stakeholder engagement workshops have been organised to upskill the project partners in mapping and engaging with stakeholders.

The workshops have been supplemented with support tools, such as the Stakeholder Engagement Framework and templates, for mapping relevant stakeholders in each region (T1.4.1).

This part of the work package has been closely linked to the Communication work package (WPC). Many positive outcomes, from prioritizing the partners' stakeholder engagement skills, can therefore be seen in the extensive project outreach throughout the regions, which are documented in WPC.

3.1.5 Adaptation Support Tools (T1.4.1)

Development of climate adaptation support tools has been a key objective in the CLIMATE project. The development of support tools has been an ongoing process that has involved testing the tools in practice. Partners from all regions have been involved the process in some way since the beginning of the project.

The involvement of so many partners enabled instant feedback that has strengthened the evaluation of each support tool as it was being developed.

The final model therefore includes a collection of useful tools, templates, presentations, and guidelines, that have been tested, evaluated, and found effective in practice.

3.1.6 Overall Work Package Evaluation

WP1 has successfully brought together partners of different academic and professional backgrounds to cooperate on developing a best practice model for climate adaptation planning. The work package has followed an effective approach where researchers and practitioners have been able to support each other with their knowledge and expertise. This has enabled the partners to test every step in the best practice model and the support tools in practice throughout the project. Meanwhile, at a local level, the practitioners have been effectively supported with cutting-edge research and support tools in their work towards producing climate adaptation plans.

The most obvious challenge that was encountered in WP1 was when it came to organising and delegating work and responsibilities in the beginning of the programme. However, once the RAP sub-group was established the efficiency was significantly increased and all deliverables have since been delivered to a professional standard and on time.

Table 1 **Completed Deliverables**

Deliverable Number	Deliverable Title	Projected Deliverable Description	Deliverable Result
Work Package 1	**Knowledge sharing**	**WP Responsible Partner: Mid Sweden University**	
T1.1.1	Development of Knowledge Hub	Collate existing data and research into climate change adaptation and present this information on a portal.	• Establishment of Basecamp as Knowledge Sharing Portal √ • Monthly Research and Adaptation Planning sub-group meetings (RAP) √
T1.2.1	Best Practice Model	Highlight Best Practice Models and solutions that can be introduced within the development of the Climate Adaptation Plan. Exploring models for monetary valuation of climate change adaptation, audit of the economic value in developing the plans and the potential economic cost of doing nothing.	• Economic Assessment Summary paper √ • International Best Practice Review paper √ • Adaptation Planning Model – to be shared within existing online portals – Climate NI, Climate Ireland, SMHI √
T1.3.1	Workshop Delivery	Workshops delivered to partners in order to upskill their knowledge as to how to effectively map relevant stakeholders and actors and how to engage with local authorities and the community to adapt to climate change.	• Stakeholder Enagement Workshop held during Bi-annual steering group meeting (6th June 2018) √ • Stakeholder Engagement Plan Produced (Oct 2018) √ • Stakeholder Engagement Templates circulated to partners √ • Stakeholder Engagement Workshop delivered at Nov 19 Iceland Conference √
T1.4.1	Adaptation Support Tool	Example of Adaptation Support Tool to be created – outline how a local council will benefit from co-operation with other relevant stakeholders.	• International Best Practice Model toolbox √ • Situational Analysis tool √ • Description of Best Practice Model Steps √ • Community & Stakeholder Engagement Framework √

3.2 Work Package 2 – Developments of Climate Adaptation Plan / Preparedness Scale

City of Sundsvall has been responsible for Work Package 2 (WP2). The objective with the work package has been to develop climate adaptation plans that can increase the participating municipalities preparedness scale.

Part of WP2 built on work that had started previously in Sundsvall Municipality. By bringing this into the project, the work package could combine the knowledge and tools developed in WP1 with expertise from previous experiences to improve the training and capacity building exercises and workshops, that were conducted with practitioners, and other relevant stakeholders. In practice, the work package functioned as the practical implementation and testing of the Best Practice Model developed in WP1.

Recognising the variations in the levels of preparedness across the regions, the work package has explored different governance approaches to climate adaptation and how these work across the different regions. This work has provided valuable knowledge and understanding of how policy can be framed from both bottom-up as well as from top-down approaches. The findings in this regard have also been used as data for the two research publications that have been produced in WP3.

An important aim with the adaptation plans has been to ensure that local environments are protected, by considering issues such as flood risk, coastal change, water supply and changes to biodiversity and landscape. Therefore, WP2 has also explored research and development in other relevant areas, such as forest management, for inspiration to sustainable solutions (see Appendix 1 for further information).

3.2.1 Sundsvall – Summary of adaptation planning

Before the CLIMATE-project started, Sundsvall municipality had analysed what effects due to climate change were most likely to affect Sundsvall in the future, and in which sectors the largest need of adaptation were to be found. Due to a lack of resources, the work with climate adaptation was slowing down and the CLIMATE project has therefore in a way relaunched the work on climate adaptation in Sundsvall. CLIMATE made it possible to go from overall planning and general analysis to actual measures and detailed analysis to determine measures. The CLIMATE project enabled the establishment of an extreme rainfall plan (see Appendix 2a) and guidelines for heatwaves (see Appendix 2b). The project gave valuable input from other project partners which also improved the overall results.

In the process of developing the guidelines for heatwaves, Sundsvall municipality have managed to tie resources within the organisation to implement the measures stated in the guidelines, this has made a big difference between before and after CLIMATE. Sundsvall municipality would probably not have managed to come this far without being part of CLIMATE.

The mapping of extreme rainfall and the discussions made in the process of developing the extreme rainfall plan has affected other plans and policies where the main issue hasn't been extreme rainfall. The mapping of extreme rainfall developed to date serves as a knowledgebase for the Municipality's ongoing spatial planning and provides information for external parties facing the risk of flooding during intense rainfall event. This is a huge difference compared to the knowledge about the risk of flooding before the project started. Both the guidelines and the extreme rainfall plan have increased the awareness both within and outside the organisation.

The CLIMATE-project has improved the collaboration in the region, as municipalities and other organisations learn and lend from each other to a greater extent than before. The most distinctive evidence of the progress Sundsvall has undergone is the ranking in the national assessment of municipalities work with climate adaptation. Sundsvall municipality has during the CLIMATE-project advanced from 13th place to 2nd best in Sweden.

CLIMATE partners Sofie Eriksson and Joakim Bergsten of Sundsvall Municipality receiving a diploma for being ranked as second in the list of the best municipalities in Sweden on climate adaptation.

3.2.2 Härnösand – Summary of adaptation planning

The adaptation planning process in Härnösand started already in 2014, ahead of the CLIMATE project. This initial work meant that Härnösand did not have to start from the very beginning in their adaptation planning work. As a result, step one in the best practice model, “Get Started”, as well as parts of step two “Assess Risks & Vulnerability” were already covered when the planning work continued in 2018.

The previous work in Härnösand resulted in a report titled “Klimatförändring i Härnösand” (“Climate Change in Härnösand”). The report highlighted the need of a coordinator to be able to continue the work with climate adaptation planning. This work has since 2016 been carried out by an appointed coordinator with the responsibility for sustainable development in the municipality. A working group, which was tasked to produce a climate adaptation plan based on the CLIMATE project’s best practice model, was established within the municipality in October 2018.

Several (4) workshops have been held during 2019-2020 where the main aim has been to follow the steps in the best practice model; Assess Risks & Vulnerability, Identify Options, Evaluate & Prioritize and Take action. The workshops were coordinated and planned by Härnösand’s coordinator and supported by Mid Sweden University.

CLIMATE partner Daniel Johansson presenting climate work in Härnösand Municipality at the regional network for climate adaptation coordinated by County Board of Västernorrland.

The workshops, and the parallel work within the municipality, have been very effective in producing knowledge and information about

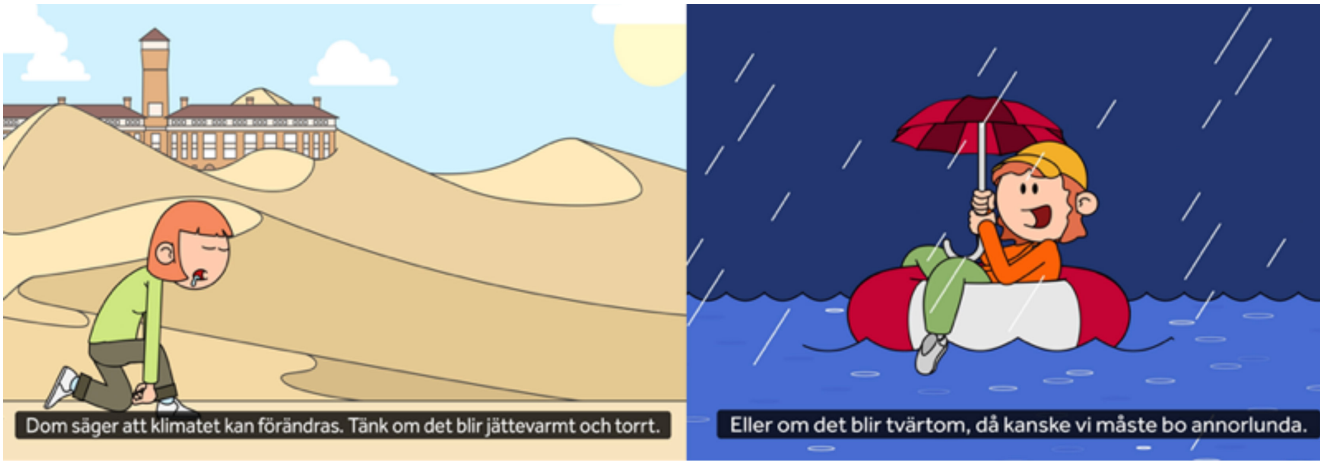
challenges and identifying measures and feasible actions. The workshops have identified the following key areas for the municipality's Climate Adaptation Plan (CAP).

- GIS-based data collection and processing for 3rd level risk assessment of cloudburst situations in the municipality (see Appendix 3d).
- Study of water drainage area, within the lakes and watercourses in the central parts of Gådeå drainage area. Effects of extreme weather events and potential counteracting actions identified (see Appendix 3e).
- Information on how to slow down water movement by implementing specific measures in the Gerestabäcken (stream).

The climate adaptation plan in Härnösand consists mainly of four parts. The main (governing) document will be the CAP, which currently is underway. The main document will give an overview of the adaptation planning work in Härnösand and will be presented to politicians during late spring 2020 and hopefully adopted in early autumn 2020 (see Appendix 3a).

The CAP will be revised every four years. In addition to the CAP, the climate adaptation work will also be presented using a digital tool, ESRI StoryMap. The work in Härnösand will be made available and continuously be revised, on StoryMap and the webpage, whenever relevant and new information is collected. The information is digital and consists of small text sessions, maps (e.g. cloudburst simulation maps) and an animated movie (see Appendix 3b).

Another part will be the action plan, which will contain more details on relevant measures and is currently being compiled (see Appendix 3c). This action plan will not be formally adopted by politicians, but rather form a summary and working material for the climate adaptation working group. The aim is to revise the action plan on an annual basis.



Two snapshots from Härnösand´s animated movie about the master plan.

Finally, some detailed information will be collated and presented mainly internally, this is the case for some GIS-based data with many layers where specific software and competence is needed. However, the cloudburst simulation model will be available to relevant external stakeholders as well, e.g. the rescue service where this tool will be useful and valuable.

In short, the CLIMATE project has largely influenced the climate adaptation work in Härnösand and has contributed to several important outputs. It is also important to note that one of the most valuable actions in the CAP and action plan is to form an organisation (coordinator and working group) and dedicated funding so that the adaptation work will continue also after the end of the CLIMATE project. For instance, the formal political anchoring (CAP to formally being adopted), the actual implementing of actions and step five in the best practice model (monitor, Evaluate and Review) will not be accomplished within the time frame of the CLIMATE project but will be carried out by the coordinator and the working group after the end of the project.

3.2.3 Derry City & Strabane District Council – Summary of adaptation planning

The CLIMATE Project has enabled the development of the first Climate Adaptation Plan within Derry City and District Council (DCSDC). It is also the first local authority climate adaptation plan in Northern Ireland.

Work began with a programme of stakeholder engagement that involved identification of the key personnel across council responsible for services,

CLIMATE project and Climate NI hosting a workshop for Derry City & Strabane District Council.

Derry City & Strabane District Council hosted the first regional Climate Change Conference in March 2019. Over 150 delegates attended from local councils in NI & ROI, government departments, agencies, NGOs, charities and local community groups.

operations and estates affected by climate change. A Climate Adaptation Working Group was established with an agreed terms of reference focusing on development of the adaptation plan and delivery of actions going forward. Following the Best Practice Model, developed by the research partners and supported by project partners from Climate NI and Climate Ireland, the Climate Programme Manager lead a series of workshops with the Climate Adaptation Working Group as well as a programme of 1-1 meetings across council. This process included the identification of risks and impact to Council including the development of a Climate Impact Profile. However, further communication and awareness was required within the Council to enable greater understanding of the issue and opportunities for climate adaptation. Therefore, a video was produced highlighting the impacts of climate change and severe weather events across the North West and associated adaptation responses. Through dissemination of the video, and presentations at events and meetings, adaptation planning support increased, paving the way for wider involvement across Council.

The Climate Adaptation Working Group agreed on the adaptation plan vision, aims and themes and developed the associated 5-year Adaptation Action Plan. This detailed action plan outlines the lead departments responsible for each action as well as partners, timescales and Key Performance Indicators. The working group will continue to meet quarterly to report on progress with an annual report, review and update scheduled.

The adaptation planning process has proven to be a catalyst for further action across DCSDC including the integration of climate adaptation within key strategic policies including the Green Infrastructure Plan, Draft Local Development Plan, Heritage Plan and Local Community Growth Plans. In addition, the CLIMATE Programme has also enabled a Climate Change Risk & Opportunity Assessment for two major regeneration projects in Derry and Strabane. This is the first of its kind in DCSDC and Northern Ireland and will ensure that projects consider climate risk at the early stages of design. This will also inform future 'climate proofing' and checklists for all future masterplans and capital development in DCSDC.

A major legacy of the CLIMATE Programme in DCSDC is the development of a North West Climate Action Plan. Building on the awareness and support created by the adaptation planning process in Council, the Climate Programme Manager secured funding from a DCSDC and Donegal County Council led cross border fund to develop a cross border multi-agency climate action plan. The funding will see the development of a nature-based climate adaptation study, and the appointment of three officers to develop the wider action plan from 2020 – 2021.

3.2.4 Local Government Climate Action Network

Northern Ireland Environment Link (listed as Climate NI from this point) supported Derry City and Strabane District Council (DCSDC) through development of the first local government Climate Adaptation Plan (2020-2025) in Northern Ireland, including the methodology, planning process and resource development for the CLIMATE toolkit.

As part of the dissemination of the CLIMATE tool, Climate NI is now tailoring the information which has been developed for the whole Northern Periphery and Arctic region to make it specific to the NI political and legislative context. In using this situational analysis, Local Government Climate Action Network (LGCAN) is in effect the first implementation of the tool's adaptability and effectiveness outside of the project's core partners.

Currently, each council has put forward their own lead contact to undertake the process in each of the other 10 councils in NI. DCSDC is not undertaking this process but is an invaluable member of the group, helping to stimulate leaders of adaptation planning in other councils. To account for not having a specific project manager resource like the CLIMATE project, Climate NI has developed the LGCAN, which is a central group where the lead contacts of each council come together to discuss adaptation planning between themselves and with government departments, to share best practice and support. There is an online tool being developed to lead councils through the steps between meetings.

LGCAN also acts as a way to train the council representatives with the

information and methods they need in order to undertake the next step of the adaptation planning process with their own working groups (see Appendix 4 for further details).

3.2.5 Tórshavn Municipality

Tórshavn Municipality is an associate partner to the CLIMATE project. This partnership does not require as high participation and deliverables as the full partners municipalities. However, Tórshavn Municipality has taken part in some project activities that have provided valuable information about the requirements for successful application of the Best Practice Model.

At the project offset, baseline studies were conducted across all the region. The baseline study found that the Faroes mainly have a bottom-up approach. This means that rather than following national guidelines and policies, climate adaptation is mainly driven by initiatives on the local or regional level. In addition, most climate related initiatives have so far focused on climate mitigation rather than adaptation.

As an associate partner, representatives of the municipality attended the bi-annual steering group meeting and adhering conferences and workshops on the Faroes in June 2018. A working group, consisting of officials from various departments of the municipality, was established with objective to draft a proposal for a climate policy initiative. The CLIMATE project was invited to present the Best Practice Model and run workshops and training with the working group. A first pass risk assessment was conducted and identified a range of climate related risks that included flooding, storm, and extreme cold.

Although these challenges were identified, the climate adaptation planning cooperation between Tórshavn Municipality and CLIMATE has not yet proceeded any further. Doing so would have required allocating further resources to the cause, as has been done in the other participating municipalities. However, the collaboration with Tórshavn municipality clearly demonstrated that the project's activities and engagements can initiate important processes, and that the Best Practice Model can be applied even with limited resource allocations.

3.2.6 Capacity Building and Training

A key element in the project's stakeholder engagement and communication plan has been to delivering seminars/workshops utilizing citizen science. Through this citizen science approach, the CLIMATE project intends to influence statutory agencies and use citizen science to create awareness of key issues, including information seminars/workshops on climate change awareness and also on the practical impacts of climate

change. This approach aims to utilise the Northern Ireland experience of bottom up community development to help inform local and regional government better influence change. Information will be obtained through engaging and consulting with all the main stakeholders through meetings and workshops to discuss and identify the main climate priorities in order to find out how communities can become involved in the process of citizen science that would directly link with the Derry City and Strabane climate change plan and wider NPA project.

In order to gather the views of the main stakeholders a number of consultation workshops were delivered at the RAPID Offices to discuss and identify the main climate priorities considered important for the region and to identify how communities could become involved in the process of citizen science. The underlying precept of the discussions was to identify how Citizen Science would directly link with the Derry City and Strabane climate change plan and wider NPA project.

As communication lead partner, RAPID has worked with bridging the Citizen Science approach to the overall CLIMATE project work. In this regard, RAPID has organised additional seminars in Northern Ireland and produced a report with the results.

3.2.7 Overall Work Package Evaluation

Work Package 2 has provided practical experience of applying the Best Practice Model within the three participating municipalities. The work package has also functioned as a testing ground for the model that has provided data on how the model performs when subjected to various pre-conditions.

All work package objectives have been achieved and in many regards the partners have delivered substantially more than required towards the work package deliverables.

Sundsvall, Härnösand, and DCSDC have all increased their preparedness scales through their participation in the CLIMATE project. Although the partners started at different adaptation planning stages, in particular the Swedish partners had already undergone several steps in the adaptation planning cycle, all the municipalities can now demonstrate significantly improved preparedness, that includes comprehensive climate adaptation plans and action plans, that address their region specific climate risks. In addition, the training and capacity building events and workshops, that have been organised as part of the work package, have increased both internal and public awareness and thereby contributed to all the participating municipalities moving into regional pole-positions when it comes to climate adaption planning. The positive developments in this regard are already having a ripple-effect where neighbouring municipalities have taken inspiration from the CLIMATE

Table 2 **Completed Deliverables**

Deliverable Number	Deliverable Title	Projected Deliverable Description	Deliverable Result
Work Package 2	**Develelopment of adaptation plans**	**WP Responsible Partner: City of Sundsvall**	
T2.1.1	Pilot a Strategy for Cloudbursts	Strategy developed and adopted by Work package lead Sundsvall Municipality.	• Guidelines for Heatwaves – Sundsvall √ • Extreme Rainfall Plan – Sundsvall √
T2.2.1	Development of Climate Adaptation Plans x 3	Climate Adaptation Plans to be developed and adopted by project partners Sundsvall Municipality, Derry City & Strabane District Council and Harnosand Municipality.	• Derry City & Strabane Disctric Council: Plans completed – Awaiting political process to begin √ • Harnosand Municipality: Finished draft march 2020 – Expect political process to commence June 2020 √ • Sundsvall Municipality: Cloudburst Strategy and Heatwave Guidelines delivered 2018-12-17; 2019-01-14 √
T2.3.1	Delivery of Training	Delivery of ten workshops to at least 300 people from 30 public authorities and community organisations.	• Derry City & Strabane District Council: Working Group Established in DCSDC – 5 Workshops Held √ Interdepartmental Heritage Working Group Workshop – Oct 2018 √ Briefing Session to Senior Leadership Team – Oct. 2018 √ Workshops/ Briefings held with Elected Members x 4 √ Briefing with Regional Local Auhtority Group – throughout project – quarterly meetings x 5 √ Cross Border Collaboration – meetings with Republic of Ireland x 5 √ Regional Climate Change Conference – March 2019 (150 in attendance – representation from local councils in NI & ROI, government departments, agencies, non government organisations, chairties and local community groups) √ • University of Ulster – Medical Conference – DCSDC Presented CLIMATE Programme (over 400 students) March 2019 √ • Harnosand Municipality: 2018-10-05 √ 2019-01-31 √ 2019-06-19 √ 2019-10-25 √ • Sundsvall: 2017-09-15 √ 2018-01-16 √ 2018-02-09 √ 2018-02-19 √ 2018-03-02 √ 2018-04-18 √ 2018-03-02 √ 2018-04-18 √ 2018-04-20 √ 2019-06-10 √ • Torshavn Municipality: 2019-01-09; 2019-02-04 √
T2.4.1	Capacity Building	Delivery of seminars/workshops utilising citizen science and also the establishment of steering groups of relevant authorities within each partner country.	• DCSDC – Working Group Established in DCSDC – 5 Workshops Held √ • Sundsvall: steering group heatwave and steering group extreme rain both established in 2017 √ • Härnösand: steering group- climate adaptaion plan established in 2018 √ • Torshavn Municipality: Working group established – 2 Workshops held √ • All Party Climate Working Group established (Elected representatives – Sept 2019) √ • North West Green Infrastructure Climate Change Sub Group established 2018 onwards √ • Information about skyfall to property owners and bursiness owners(sundsvall june 2019) √ • Citizen Science Scoping Report for CLIMATE NPA Programme (March 2020) √

project and started regional cooperation on climate adaptation initiatives.

As the preparedness scales of the municipalities differed significantly when the project commenced, the final outcomes were expected to differ in absolute terms within the lifetime of the project. This was especially because of the limitations set by the fixed time limit of the project. As such, the CLIMATE project has allowed the municipalities to undertake the

appropriate level of risk assessments to their individual preparedness scales.

The CLIMATE project has contributed with resources (financial, knowledge, and expertise etc.), that have enabled each of the municipalities to produce climate adaptation plans that are ready for implementation by the local councils. All the municipalities point out that the support from the CLIMATE project has enabled them to overcome key obstacles, such as building the necessary organisational structures, training of staff, and securing political anchoring for the implementation of measures.

3.3 WP3 – Monitoring & Evaluation

Monitoring and evaluation have had a high priority throughout the CLIMATE project. A separate work package, which the University of the Faroe Islands has been responsible for, was allocated in order to increase the efficiency of the project delivery and to strengthen the projects long-term legacy. The main objectives of the work package include ongoing monitoring of the project and producing an evaluation report, that includes recommendations for the future.

WP3 also included other deliverables, such as a risk register, a scientific publication, and other activities that form part of the projects exit-strategy. Completing the deliverables and activities has been done in close cooperation with the other project partners.

Table 3 highlights the main deliverables, that have been produced and documented under WP3.

3.3.1 Monitoring Guideline Matrix (T3.1.1)

An action plan has been produced to keep track of the deliverables and activities that are prescribed in the project description. The tool is an excel document that addresses each work package on separate sheets and includes a summary of action points.

The tool has worked well as a monitoring guideline matrix and it has provided a transparent overview of the work process from beginning to end of the project. Maintenance of the monitoring guideline matrix and updating the action points has been done on a monthly basis in cooperation with the lead-partner at DCSDC.

3.3.2 Preparedness Scale & Risk Register (T3.2.1)

In cooperation with the project partners, WP3 set out to identify the preparedness scales, for tackling climate change, of the participating regions. A baseline study was conducted across the participating municipalities. The study identified important differences between the regions that have been taken into considerations in the wider research and model development. The differences that were identified concerned

both the nature of the climate challenges, the actual preparedness scales of the participating regions, as well as differences in the political processes towards initiating climate adaptation planning.

The findings in the Baseline Summary Review paper were also important in the development of a risk register tool that can inform local authorities about their preparedness scale. The University of the Faroe Islands has developed a Preparedness Scale Risk Register tool that can be applied by authorities across all the participating regions. A guideline document and an example of how to use the tool are also provided and can be found among the Adaptation Support Tools (T1.4.1).

3.3.3 Dissemination of Results (T3.3.1)

A range of dissemination activities were already planned for in the project description. These activities included the delivery of six international conferences to be held during each of the bi-annual steering group meetings. Other target groups were also identified on an ongoing basis throughout the project's duration.

The first two bi-annual steering group meeting, the project launch in Glasgow in June 2017 and the second meeting in Derry in November 2017, did not include a conference for invited guests. These meetings focused on getting a good start to the project and organising internal matters. As more data and results became available for dissemination, the remaining bi-annual steering group meetings in the Faroes, Finland, Sweden and Iceland included conferences that were attended by a broad spectre of representatives from local and regional authorities, research institutions, IGOs and NGOs.

The project's model and research have also been disseminated by partners and associate partners in other forums and platforms. Representatives of the project have presented the project at numerous other conferences, as well as given interviews that have been broadcasted on national radio (See WPC for extended dissemination activities).

The dissemination activities have also been distributed to target groups with the use of social media, including Facebook, Instagram, and Twitter.

3.3.4 Project Evaluation Report (T3.4.1)

The Project application required that a final evaluation report and one scientific research publication were produced. The objective with these was to evaluate the project work and to disseminate the knowledge that has been produced to an extended scientific community. The original aim was therefore to publish one scientific open-access research paper and to produce a final report that evaluates the project delivery and results. In this regard however, two major complimentary deliverables have also

been produced. These include an additional research paper and a chapter in the Open Access Palgrave McMillan book, “Creating Resilient Futures: Integrating Disaster Risk Reduction, Sustainable Development Goals and Climate Change Adaptation Agendas”..

With regards to the evaluation reports, a mid-term evaluation report that looked at the work progress, in order to ensure that the work was going as scheduled, was completed in April 2019. The mid-term evaluation confirmed that the project was going as planned, provided an overview of completed deliverables and activities, and made recommendations for which areas needed to be prioritized for the remainder of the project.

The final evaluation report provides an overall evaluation of the project and forms part of the project’s exit-strategy where the learnings and recommendations are presented. Part of the project closure was completed at the bi-annual steering group meeting in November 2019. During the meeting in Iceland, the University of the Faroe Islands presented a preliminary evaluation that included a collation of deliverables and an analysis of an online partner evaluation survey.

As dissemination to the scientific community also has been a priority for the projects legacy, the research partners have worked towards documenting the project’s results in scientific journals. In order to present a representative presentation of the many aspects that have been studied, it was been decided to produce two scientific publications. Researcher at University College Cork have led the drafting of the main paper, which is titled *“The promise of policy mainstreaming: polycentricity in European climate change adaptation”*. The paper looks at the policy side of climate adaptation planning. The paper has been drafted and submitted for peer-review and approval. Some revisions to the paper are expected before it can be finally published in the near future (see Appendix 5 for abstract).

Mid Sweden University is currently leading the work on a second research paper. This paper will address the practical side of developing climate adaptation models and uses the involved municipalities as case studies. This second paper is expected to be completed towards the end of the project. Both papers build on outputs that have been produced under the CLIMATE project. As the project description only prescribes one research publication, the second paper will only count as a complimentary paper to the main paper that has already been submitted for publication.

3.3.5 Overall Work Package Evaluation

All the main objectives with WP3 have been successfully achieved. The required deliverables have been completed on time. The publication of

the scientific research paper is currently pending approval but is, for the purpose of the project evaluation, considered as being completed.

The dissemination activities have also been executed as planned. Additional dissemination, that has been delivered through media coverage, social media, networking and educational events, international, national, and regional conferences have also proved an effective approach to communicating the learnings from the project to relevant stakeholders throughout the NPA region.

The main challenges that WP3 has encountered were at the early stages of the project when it was still somewhat unclear how the workloads were distributed between the partners. This made it difficult to identify a useful approach to conducting the ongoing monitoring of the project. However, when the Programme Manager was appointed, and when the CLIMATE Action Plan Tool came into use, the monitoring of the project became clear and effective.

Table 3

Completed Deliverables

Deliverable Number	Deliverable Title	Projected Deliverable Description	Deliverable Result
Work Package 3	**Monitoring & Evaluation**	**WP Responsible Partner: University of the Faroe Islands**	
T3.1.1	Monitoring Guideline Matrix	University of the Faroe Islands to evaluate the project on an ongoing basis against overall project objectives and targets set within other Work Packages.	• CLIMATE Action Plan tool √
T3.2.1	Preparedness Scale & Risk Register for public authorities	Develop a Preparedness Scale & Risk Register on Climate Change Adaptation that can then be adopted by local, regional and national public authorities.	• Baseline Summary Review paper √ • Preparedness Scale Risk Register Tool √ • Guideline for using Preparedness Scale Risk Register Tool √ • Example of how to transfer workshop data into the Preparedness Scale Risk Register √
T3.3.1	Dissemination of Results	Delivery of six international conferences to disseminate results and knowledge sharing. Identify a list of target groups to disseminate the project results to. Use a variety of methods eg social media as outlined in the Communication Work Package.	Target Groups in: • Faroe Islands Jun 2018: Runavík Municipality √ Sunda Municipality √ Tórshavn Municipality √ University of the Faroe Islands √ Jarðfeingi (Faroese Geological Survey) √ NORA √ • Finland Nov 2018: Rovaniemi Municipality √ International Barents Secretariat √ Regional Council of Lapland √ Reindeer Herders' Association √ Finnish Forest Administration √ • Sweden Jun 2019: Vasternorrland County Administration √ SHMI √ Swedish Forest Agency √ • Iceland: Hornafjörður Municipality √ Nýheimar Research Center √ Skaftárhreppur Research Center √ University of Iceland √ Veðurvaktin (The Weather Watch) √ • Regional Climate Change Conference – March 2019 (150 in attendance – representation from local councils in NI & ROI, government departments, agencies, non government organisations, chairties and local community groups) – extensive PR and social media activity delivered in conjunction with the conference √ • DCSDC Awarded Local Government Environmental Sustainability Award 2018 √
T3.4.1	Project Evaluation Report	Produce two final reports – one an Evaluation on the success of the project against targets and one Scientific Research Paper which analyses and valuates the methodology used in delivering the CLIMATE project.	• Midterm Evaluation Report (March 2019) √ • Final Evaluation Report (March 2020) √ • Scientific Research Paper I: Flood et al. (2020), The promise of policy mainstreaming: polycentricity in European climate change adaptation - Submitted for peer-review √ • Scientific Research Paper II – (due March 2020) • Book Chapter: Burns, C. and Flood, S. (2021). Climate Change adaptation and planning and development: questions of integration in Creating Resilient Futures: Integrating Disaster Risk Reduction, Sustainable Development Goals and Climate Change Adaptation Agendas. (Flood, S., Jerez Columbié, Y., le Tissier, M., and O'Dwyer, B. Eds.) Palgrave Macmillan Open Access, Switzerland. √

4. WPC – Communication

A separate work package was dedicated to organising the project's external and internal communication. The main objective with WPC was to ensure quality, relevant and effective communication in order to generate good interaction and publicity. RAPID has been responsible for the work package.

4.1 Communication Plan (C1.1)

The preparation of a communication plan has been very valuable to the project. The plan was worked out already in the beginning of the project and included building a contact register with relevant national, regional and local medias. The partners were also provided with a Community & Stakeholder Engagement Framework that was useful in guiding the partners and associate partners in how to communicate information to relevant recipients.

The communication plan has ensured that partners have been in regular contact with stakeholders, scientific network, and other actors in the communities. This has both been through direct contact and through regular media coverage of the project's activities.

4.2 Promotional Toolkit (C2.1)

RAPID created the branding at project's outset. The branding included a promotional toolkit with templates for all necessary purposes. The toolkit was made available and shared with the partners through the knowledge hub on Basecamp.

As the toolkit was available from the beginning of the project the official templates have been used consistently for all the documents and presentations etc.

RAPID has also developed a mini website with most of the formal information about the project. The website, http://climate.interreg-npa.eu/, contains information about the aims and objectives of the project and the partners contact details.

RAPID has also published quarterly newsletters that have provided updates about how the project is developing and what the partners have been up to in the last quarter. There have been some periods that haven't had as many activities to report to the newsletter. The content and quality of the newsletters have had a higher priority than issuing a newsletter every quarter. This has nonetheless ensured a high standard with relevant and informative content. The newsletter has been distributed digitally on the project's mailing list as well as shared via the


CLIMATE
Adapting to Change
Collaborative | Learning | Initiative
Newsletter
Issue 6
18/03/2020
Northern Periphery and Arctic Programme
EUROPEAN UNION
COLLABORATIVE LEARNING INITIATIVE MANAGING AND ADAPTING TO THE ENVIRONMENT
Thursday 21st November. Steering Group Meeting, Iceland.
The CLIMATE project partners meet in Iceland for the final bi-annual steering-group meeting and project Conference held from 20th to 24th November.
Throughout the course of the four days, partners attended meetings, accompanying workshops and excursions which provided an opportunity for partners to work together on several project outputs including research, adaptation planning, monitoring and evaluation and communications. The meetings were well attended with representation from all full partner organisations.
The closing conference held on Friday 22nd November provided an opportunity for partners to share experience and expertise as well as hear from associate partners and gain insight into climate change impacts in Iceland.
Project partners pictured to the left at the Presidential Visit Bessastaði. Gifts were presented on behalf of the project and municipalities.
During the Presidential visit, the CLIMATE delegation engaged in discussions regarding climate change, adaptation within Iceland and dissemination of project results.
Site visits on Thursday 23rd November:
Þingvellir National Park
Geysir Hot Spring
Skógar waterfall
Friðheimar greenhouse
CLIMATE Adapting to Change
Northern Periphery and Arctic Programme
EUROPEAN UNION

Followers of the project have been kept up to date about project developments through quarterly newsletters and regular updates on the project's social media profiles.

project's online profiles on Facebook, Instagram, and Twitter. Printed copies have also been handed out at conferences, seminars and other events where the project has been represented.

4.3 Website and Digital Hub (C3.1)

There have been some obstacles to overcome in order to launch the final website. The main concerns have regarded the continued maintenance of the website once the CLIMATE project is finished. As a website is considered as crucial for the continued legacy beyond the projects

lifetime it has been decided to launch a static website. This means that once the project is finished there will be no updates, but the website containing all the project outputs will be available for at least 5 years. The final website is currently under development and will be available shortly at http://climate-project.net.

The website will contain the final model with all the adhering templates, guidelines, and tools that have been produced by the project partners.

RAPID has also organised subscriptions for the Basecamp online data sharing platform and the Go-To-Meetings platform for hosting online meetings. Both platforms have been very effective in providing the required digital communication tools.

4.4 Public Events, Seminars & Trans-national Workshops (C4.1)

The Communication Work Package also included a range of community engagement activities. A regular activity has been hosting conferences when partners and associate partners met for the bi-annual steering group meetings. The conferences provided a platform for engaging with local communities and stakeholders. Attendants at these workshops have included representatives from local councils, regional council, intergovernmental organisations, and the energy sector etc.

In addition to the planned conferences, the project partners have attended a wide range of international, national, regional and local conferences, seminars, and workshops. At these events, project representatives have delivered training in the project's methods, raised awareness of climate change and promoted the climate adaptation planning approach through positive engagement with politicians, practitioners, students, and the wider public.

4.5 Overall Work Package Evaluation

The communication work package has effectively delivered its objectives. Parts of the work package were delivered in the early stages of the project as it formed the branding of the project and provided the digital communication platforms that have been used throughout the project. The digital communication platforms have been effective resources for knowledge sharing and for organising the work between the partners.

The communication plan ensured a strategic outreach and partners have more than fulfilled the original project ambitions to engage with and deliver training to at least 300 people from 30 public authorities and community organisations. Results have been disseminated throughout

CLIMATE partner Ólavur Dalsgarð giving a public presentation to 400 people and participating in panel discussion at the Faroese climate change conference, Heimurin Hitnar.

the participating regions and beyond. This widespread publicity will have a positive impact on the future legacy of the project.

Bringing project partners, associate partners, and stakeholders from across the NPA region together into the CLIMATE project has created important professional and interpersonal relationships and networks. It is also important to keep in mind that by bringing people from so many different backgrounds together as the CLIMATE project has done, significant knowledge on for example culture and heritage are also transferred between the partners. The value of this kind of knowledge may be difficult to measure, but there can be little doubt that all the participating regions now have a significantly greater knowledge about each other and therefore the foundation more cooperation in the future has been laid.

Table 4

Completed Deliverables

Deliverable Number	Deliverable Title	Projected Deliverable Description	Deliverable Result
Work Package C	**Communication**	**WP Responsible Partner: RAPID**	
C1.1	Communication Plan	Produce Project Communication Plan with SMART Objectives for each partner to ensure quality, relevant and effective communication. The communication plan will encourage partners to make positive use of local, regional and national media.	• Communication Plan √ • Community and Stakeholder Engagement Plan √ • Media Plan √
C2.1	Promotional Toolkit	RAPID will supply all project partners with a portfolio toolkit of targeted promotional material to include leaflets, quarterly newsletters, posters, project presentations, social media, press releases/ press kits, project logo and branding.	• Promotional Toolkit √ • Mini website √ • Quarterly Newsletters √ • Social media: Facebook √ Instagram √ Twitter √
C3.1	Website and Digital Hub	Production of the website and digital hub which will be used for internal communication and also for dissemination of the project results throughout the NPA region following completion of the project via contacts made with Associate Partners and other relevant stakeholders and steering groups.	• Mini website hosted on NPA Programme main website √ – http://climate.interreg-npa.eu/ • Basecamp online digital hub platform for document sharing √ • Go To Meeting system for hosting online project meetings √ • Final Website – to be launched – http://climate-project.net
C4.1	Public Events, Seminars & Transnational Workshops	6 conferences will be held at which Project Partners and Associate Partners will attend. Other events in partner countries will be held throughout the project to promote the ongoing work being carried out by the project partners and associate partners.	• Project partner conferences in: Scotland √ Northern Ireland √ Faroe Island √ Finland √ Sweden √ Iceland √ • 3rd European Climate Change Adaptation Conference (UK) March 2017 √ • Heimurin Hitnar Conference, Torshavn, presentation & panel discussion – September 2019 √ • 3rd Nordic Conference on Climate Adaptation, Norrkoping – 2018 √ • Swedish Geotechnical Institute Conference, Gothenburg √ • National Board of Housing, Building and Planning, Sweden, Presentation: "Climate adaptation in built environment", February 2020 √ • Science & Innovation Day, Sundsvall Municipality √ • Climate Lab Open Day, University College Cork √ • Green Infrastructure & Climate Adaptation Conference, Derry – March 2019 √ • 4th European Climate Change Adaptation Conference in Lisbon √ • European Climate Change Adapation Conference (Portugal) June 2019 √ • 3rd Pan Arctic Regional Climate Outlook Forum, Rovaniemi √ • 8th Nordic Geographers Meeting, Trondheim √ • UK Climate Project 2018, Belfast √ • Waterpro Ecosystems Services Conference, Lough Neagh Discovery Centre, Northern Ireland √ • Award ceremony, Sweden's best municipalities in climate adaptation √ • The 5th Nordic Conference on Climate Change Adaptation, NOCCA october 2018 √ • Presentation at a conference led by Swedish Geotechnical Institute √ • Regional Climate Change Conference ROI & NI – March 2019 √ • NI Regional Climate Projection Conference – June 2019 √ • University of Ulster – Medical Conference – March 2019 √ • NI & ROI EU – SEUPB Conference – Presentation of results July 2019 √ • Regional Environmental Health Conference NI – Oct 2019 √ • NI Regional Community Resilience Group – Presentation Sept 2019 √

5. WPM – Management

The lead partner was responsible for coordinating and leading monthly progress meetings with all the CLIMATE Project Partners. This involved review and updates to the project action plan, risk register and budgets. The lead partner also led on the development of specific work package delivery and stakeholder engagement frameworks. These were developed at the initial stages of the project in order to ensure the necessary deliverables were met while engaging with relevant partners.

The project action plan and delivery frameworks were aligned to the project application, deliverables and outputs required for reporting. Bi-annual reports were produced by the lead partner providing a summary of the steering group meetings, lessons learned, progress and next steps.

The CLIMATE Programme finances and reporting are managed by lead partner Derry City and Strabane District Council.

This included budget monitoring and liaison with partners regarding their expenditure and projections.

The CLIMATE budget is underspent, mainly within staffing costs. A budget reallocation exercise was undertaken in 2019. It should be noted that all deliverables were met with additional work undertaken meeting the overall project objectives. Therefore, the under spend was not due to missed outputs but rather an overestimation by everyone at application stage. Changes in the exchange rate between Euro and SEK have also had a contributing effect to Swedish partners being underspent.

Project reports and claims were undertaken by all partners, however it should be noted that delays in verification from first level controllers in Sweden and the Faroe Islands has led to delays in partner report certification and subsequent lead partner report submissions.

Overall, the project has been well managed, and the project partners have expressed great confidence in the management team at DCSDC throughout the project.

Table 5	**Completed Deliverables**		
Deliverable Number	**Deliverable Title**	**Projected Deliverable Description**	**Deliverable Result**
Work Package M	**Management**	**WP Responsible Partner: Derry City & Strabane Disctric Council**	
M1.1	Steering Groups Meetings	Steering Committee meetings will be arranged seven times during the project period in connection to the conferences and workshops. Steering Group Committee Meetings x 6	• Scotland - project Launch (June 2017) √ • Northern Ireland (DATE) √ • Faroe Islands (June 2018) √ • Finland (November 2018) √ • Sweden (June 2019) √ • Iceland (November 2019) √ • Monthly Progress Meetings √
M2.1	Financial Reports	Financial Management Reports to be presented at steering committee meetings.	• Period 1 Claim 02/08/2018 √ • Period 2 Claim 24/10/2018 √ • Period 3 Claim 21/05/2019 √ • Period 4 Claim 10/12/2019 √ • Period 5 Claim – in progress • Period 6 Claim – awaiting
M3.1	Six monthly reporting mechanism	Co-ordination of the project's continuous reporting to NPAP Managing Authority • Progress reports (sixmonthly) • Financial reports (six monthly) • Final report	• Period 1 Lead Partner report 02/08/2018 √ • Period 2 Lead Partner report 24/10/2018 √ • Period 3 Lead Partner report 21/05/2019 √ • Period 4 Lead Partner report 10/12/2019 √ • Period 5 Lead Partner report – in progress
M4.1	Quality Assurance and-Project Risk Register	DCSDC will maintains quality control by regularly monitoring standards of work at Lead Partner and Partner level at regular project partner meetings.	• Risk register established standing item at monthly and bi-annual meetings √

6. Partner Evaluation

An internal evaluation of the CLIMATE project has been conducted with the Project Partners and Associate Partners. In order to secure a comprehensive evaluation of the project the evaluation process was done in three steps. The first step was to collect data on the partners' experience of participating in the project. Two online surveys were circulated to collect the baseline data for the evaluation. The surveys provided both quantitative and qualitative data that was used in the second step, which was to analyse the responses to the surveys. The third step was to organise an evaluation workshop during the meeting in Iceland, where the partners considered the findings from the survey analysis and did some group work with a feedback session as a final discussion.

6.1 Project Partner Survey

An online survey was circulated to the Project Partners (PP) in order to assess the project effectiveness in delivering results and meeting the PPs expectations. The survey consisted of 10 quantitative questions and 11 qualitative questions where PPs could elaborate in their own words about potential gains and challenges that they have encountered throughout the project. The aim was also to find out to what degree the partners think that the terms of reference have been met in accordance with the project description. Many of the questions were therefore based on the targets set out in the project description.

Participation in the survey was made mandatory to all PPs and 7 out the project's 8 PPs had completed the survey when it closed. The survey data is therefore representative and reliable.

6.1.1 Quantitative Analysis

The answers to the quantitative survey were largely positive and indicated that the partners' expectations were met for the most part. In many cases, the project even turned out to be more successful than expected. But some questions had a wider distribution of responses than others. This may indicate that in some regards there has been some variation in how each of the partners have gained from the project.

However, as Q1 demonstrates, all PPs (100%) had at the least their overall expectations met. 57% even said that the project exceeded their expectations. This high satisfaction is also consistent with many of the following responses that further demonstrate that the PPs have gained significant knowledge and expertise from participating in the project.

Table 6	**Survey responses rated as positive vs negative** **Positive rating > 3, neutral/as expected rating = 3, negative rating < 3**	Positive %	Neutral %	Negative %
Q1	To what extent were your overall expectations to the Climate project met?	57%	43%	0%
Q2	To what extent has the project increased your knowledge on climate adaptation processes?	71%	29%	0%
Q3	To what extent has the project delivered relevant networking across the NPA region?	57%	43%	0%
Q4	To what extent has the project increased your awareness of solutions for the sustainable management of natural and cultural heritage?	29%	57%	14%
Q5	To what extent has the project raised public awareness of climate change and the climate adaptation process in the NPA region?	14%	71%	14%
Q6	How effective has the project been in transferring knowledge across the NPA region?	71%	29%	0%
Q7	How satisfied are you with the delivery of the project activities and deliverables? (conferences, workshops, reports etc.)	100%	0%	0%
Q8	How effective has the project's delivery of climate adaptation plans been?	43%	43%	14%
Q9	How content do you feel with using the project support tools in practice?	100%	0%	0%
Q10	Would you recommend other organisations to use the International Best Practice Model to undergo a climate adaptation planning process?	100%	0%	0%

Q2 demonstrates that the project has increased the PPs' knowledge on climate adaptation processes to a larger extent than they had expected. Similarly, Q3 indicates that the projects approach to building relevant networks across the NPA region has been more successful than the partners expected when they joined the project.

Q4 and Q5 did not have as clear-cut positive responses as the previous three. Both questions had one respondent (14%) whose expectations hadn't been met. Most PPs expectations were nonetheless met as expected (57%), while 29% "more than expected" and 14% responded less than expected. Q4 asks into a very specific theme in the project description, namely the question of solutions for the sustainable management of natural and cultural heritage. As all PPs have had different responsibilities throughout the project their individual involvement in each of the topics may have varied. One negative response is therefore not a concern, but it indicates that the topic could have been prioritized in the PPs internal communication.

With regards to Q5, which is on how successful the project has been in raising public awareness on climate change and climate adaptation processes in the NPA region, most responses were "As expected" (71%). This is an acceptable score but given the importance the matter is given in the project description this is a relatively low score that indicates that

the external communication with stakeholders and others in the NPA region has not been as efficient as expected.

Although somewhat similar, Q6 was more open for interpretation than Q5 was. It looks like the PPs responded more positively about the project efficiency in transferring knowledge across the NPA region, than when asked about raising awareness. Although the exact knowledge is unspecified, the PPs find the project very successful in transferring knowledge across the NPA region. This does also correlate well with 43% being satisfied and 57% being very satisfied with the delivery of project activities and deliverables when responding to Q7.

Q8 asked into the effectiveness of the project's delivery of climate adaptation plans. The responses ranged from ineffective to very effective. There are a few factors that can explain this wide variation between the partners' responses. It is important to keep in mind that the political environments in each of the regions varies significantly. The process of securing political anchoring has been easier in some regions than others. In addition, all PPs have not been as directly involved in the implementation processes and with stakeholder engagement as others have. This is because some partners' roles have been more focused on the research and development side of the project delivery while others have been more directly in contact with the authorities that are undergoing climate adaptation planning. Finally, it must also be taken into account that most of the project's climate adaptation plans have been completed after the survey was completed in October 2019.

When it comes to being familiar with the Best Practice Model, all partners say they have a good understanding of the model and how to use its support tools. Q9 scored 100% positive responses when asking into how content PPs are about using the project's support tools in practice. This reflects the consistent participation of all PPs throughout the development of the project's Best Practice Model and adhering support tools.

Although the PPs may have had higher expectations for effective implementation of climate adaptation plans during the lifespan of the project, this quantitative survey confirms that the PPs recognize the value of the knowledge and outputs that have been produced by the project. This is further supported by Q10, in which 57% of the PPs confirm that they are likely to, and the remaining 43%, will absolutely recommend other organisations to use the International Best Practice Model to undergo a climate adaptation planning process.

6.1.2 Qualitative Analysis

The second part of the PP survey was a qualitative section where the partners could elaborate in their own words and give feedback to their

experience of participating in the CLIMATE project. The qualitative section consisted of the following 11 questions:

11. What are the main lessons you have learned from the project?
12. Do you think the project has increased the preparedness scale of local authorities in your region? Provide examples if possible.
13. In your experience, how have local authorities responded to the project's approach to climate adaptation planning?
14. What have you learned from other regions in the NPA about the challenges of climate change?
15. How can your region/institution relate to the research on climate adaptation planning that has been presented as part of the project?
16. What has been the most challenging part of the project?
17. Do you have any examples of how the project has had a positive impact in your region?
18. How was your institution involved in the project and was this involvement satisfactory? Would you prefer more/closer involvement or less?
19. How do you see the project's legacy continue in your region in the future?
20. Are there any areas of the project, that you don't think have been delivered sufficiently?
21. Do you have any other comments, that should be considered for the evaluation of the project?

This analysis will present a summary of the main points that can be drawn from the PPs responses to these questions. The PPs full answers can be seen in Appendix 6.

Among the points that were raised in the responses to Q11 were learning across different regions and disciplines at the same time. By participating in the CLIMATE project PPs have learned a lot about what is required in the practical application of adaptation planning models, especially in terms of resources, stakeholder engagement, and management. In doing so, PPs have gained knowledge from each other's disciplines and learned how different governance levels in the regions are addressing the various climate related challenges.

With regards to Q12, the PPs have many examples of how the CLIMATE project has increased the preparedness scale of local authorities. Some partners also feel better equipped with the new knowledge and understanding to support local authorities to increase their level of preparedness. This has for example led to concrete measures against extreme rainfall and heatwaves in one municipality, and the project has also had a wider regional impact as neighbouring authorities, in both

Sweden and Northern Ireland, have been inspired by the project to undertake climate adaption planning processes as well.

Q13 asked into how local authorities responded to the project's approach to climate adaptation planning. The project has been welcomed by local authorities across all the participating regions. The project's approach to building trust, making the business case for adaptation, and securing political anchoring have been crucial for getting local authorities onboard. In this regard, the project has also enabled others in the regions to see that creating a plan is possible. Although authorities in all regions have shown significant interest in the project, and some have even pushed for external funding to implement the adaptations proposed by the project, it has sometimes been challenging to implement new processes, particularly when it comes to securing resources, political buy-in and ownership.

Q14 demonstrated that the CLIMATE project has transferred a large amount of knowledge across the NPA region. This knowledge does partly account for specific differences in climate conditions and how the climate challenges are impacting differently from region to region. But it has also become evident how different governance structures leads to different challenges in the implementation of climate adaptation models. These differences, such as political anchoring and top-down vs bottom-up approaches to climate adaptation, are however something that the PPs see as a positive thing, that has presented itself as an opportunity to learn from one another.

Research on climate adaptation planning has been a central part of the CLIMATE project. The research has been conducted in close cooperation between the participating partners that come from different academic and professional backgrounds. Responses to Q15 confirmed that the project's research dimension has been a central element that has tied together the inter-disciplinary competences and interests of all the partners. As such, the research has enabled the research partners to obtain first-hand data about adaptation implementation processes in practice, while at the same time delivering knowledge and understanding of existing cutting-edge adaptation research in return.

The research dimension has also strengthened the continued legacy of the CLIMATE project. When addressing the legacy beyond the 3-year lifespan of the project, multiple partners respond to Q19 by referring to the project's research. In this regard, the scientific research papers will provide a permanent academic reference to the project's work, while the data that has been collected across the regions will be available for undertaking further research on the topic.

The PPs also identify some other examples of how the project's legacy will continue. The implementation of adaptation plans is an obvious

example, but the list also has more subtle examples, such as being the first of its kind in the respective regions and thereby leading the way and providing guidance to other authorities to begin planning for climate change as well.

Much of the project's legacy will also be found in the participating regions. In response to Q17 the PPs pointed out that the project had already served as a catalyst for further adaptation work, among others obtaining funding for a wider regional climate action plan. It was also mentioned how the project has contributed to useful discussions and exchanges between relevant actors in society. The project is further given credit for playing a central role in a major shift in one region's climate profile, for example by hosting a high-profile conference and raising public awareness through a variety of national radio and television interviews. In one municipality the project has already led to a new standard for group housing and there are signs that other municipalities, both in Sweden and Northern Ireland are looking to the CLIMATE project for inspiration.

It is not a coincidence that the project has so many positive impacts on the regional level. The project's success is connected to how the PPs have been using the knowledge that is generated by working in the project to engage with the relevant stakeholders. A respondent points this out as *"the new knowledge gained from working in the project has been directly applied in our engagement with practitioners and decision makers in our region"*.

There have nonetheless been some challenges that the PPs have had to deal with throughout the project. An interesting feature regarding Q16 is that all the PPs have experienced different challenges as being the most challenging part of the project. Challenges that were mentioned included:

- securing ownership within local authority
- completing a project output
- gaining access to the right people within relevant organisations
- creating the resource for organising workshops in the best way
- the start-up process and to fully grasp the project objectives
- financial reporting
- internal discussions about what requirements and goals we should have when it comes to adaptation
- building up an understanding of shared concepts and approaches in a working environment with a range of practitioners and researchers of varying academic backgrounds

In spite of being mentioned as the most challenging part of the project, some of these challenges have ultimately been valuable to the overall project objectives. And in the responses, PPs also recognize that addressing and overcoming these challenges in an organised and professional environment is part of the ultimate project objective.
When asked more directly if there are parts of the project that haven't been delivered sufficiently (Q20), there were no major concerns raised. Someone mentioned that the scientific approach hadn't been as expected. This must however be seen in the context of the mixed academic backgrounds that the partners come from. A couple of responses mentioned that the PR and Communication of the project could have been delivered better. But it was also recognised by individual partners that, as it had been difficult to identify relevant topics to advertise in the early stages of the project, the PR and communication had not been prioritized from their end.

Although some challenges and complications have arisen during the project, these have not been of a serious nature. Almost all the challenges have been resolved through cooperation between the partners. Regarding external challenges, such as financial reporting, it is difficult to direct this critique directly to the project delivery. But these are mandatory requirements from the funding body that have inflicted significant complications on the project partners. But the management team has been dedicated in supporting the PPs in addressing the challenges and concerns that have arisen in relation to the financial reporting, and this has worked out for everyone. Another indication that the partners were satisfied with most internal matters of the project is that they all responded that they were satisfied with their own involvement in the project (Q18).

6.2 Associate Partner Survey

In order to assess the effectiveness of the project's approach to collaborating with associate partners (AP) a quantitative online survey with 10 questions was circulated to the APs.

The Associate Partners were asked about their experience in participating in the CLIMATE project. There were 7 quantitative questions (questions 1 through 7) in which they were asked to rate a few aspects of the project on a scale from 1 to 5.

1 = negative, 3 = neutral or as expected, and 5 = positive.

Three follow up questions (8 through 10) allowed the respondents to elaborate with more qualitative answers to inform the evaluator about their experiences. Of these, no one opted for the last option of providing any additional comments.

Only 4 out of 11 APs had completed the survey when it closed. As only 36.3% of the APs completed the survey, the data is not as representative of the total associate partner cohort. However, as participation could only be made voluntary for APs, it is assumed that the APs that did complete the survey have been more involved throughout the project than the ones that didn't respond. As the participation was this low a binary method was chosen for analysing the data. Neutral/as expected ratings are therefore for the purpose of this analysis categorised as positive.

6.2.1 Survey Analysis

The survey results were a mixture of positive, negative and neutral responses. The overall feedback indicates that the participation in the project has been as expected, for most respondents at least.

Table 7	**Survey responses rated as positive vs negative** **Positive rating ≥ 3 and negative rating < 3**	Positive %	Negative %
Q1	To what extent has the project increased your knowledge on climate change?	75%	25%
Q2	To what extent has the project increased your knowledge on climate adaptation processes?	75%	25%
Q3	To what extent has the project increased your awareness of the adaptation approach to climate change?	100%	0%
Q4	Has the Climate project increased your knowledge on the variety of climate challenges in the NPA region?	75%	25%
Q5	How would you rate the project's overall communication approach? – social media, quarterly newsletters, conferences and other PR events .	50%	50%
Q6	Has the project strengthened your network for climate related matters?	100%	0%
Q7	Do you think other organisations in your region could have benefitted from participating in the project?	100%	0%

As some questions received negative feedback from at least one respondent (that is 25 % of the total number of respondents) this does require some consideration for the evaluation. The negative feedback must be accepted as a critique of some shortcomings of the project's delivery, but it seems as if these are largely related to communication rather than the actual content that has been produced by the project. This does both correlate with Q5, which is about the project's communication approach, which is being rated as ineffective by 50% of the respondents. In addition, it is also plausible that an inefficient communication approach is part of the reason why only 4 out of 11 APs took part in the survey.

There were only two responses to Q8, which was *"Do you have any examples of how your organisation or region has gained or learned*

something from the project?". Both responses demonstrated that the respective regions had gained substantial knowledge on climate change adaptation. Both respondents also felt that they had been able to contribute to the project with knowledge from their regions. In addition, one respondent also stressed that he/she had on several occasions referred to the project in other presentations throughout their region.

Q8	
Do you have any examples of how your organisation or region has gained or learned something from the project?	
	As a co-ordinator on the regional level I have been given the chance to listen how other regions i the northern part of Europe are adressing the challenges ahead. Meeting the participants also gave me a opportunity to tell them about our region and our adaptation work.
	We have gained much valuable knowledge about adaptation to the climate change. I've been giving presentations about the subject every time I can and thus increasing the knowledge about climate change adaptation in our region. I sincerely hope this project "stays alive" after it ends and people can access its material and information afterwards.

Table 8

Q9 was *"Do you have any suggestions for how your participation as an associate partner could have been improved?"*. There were 3 responses, which all suggested that they would have benefitted from more direct involvement in the work processes of the project.

Q9	
Do you have any suggestions for how your participation as an associate partner could have been improved?	
	Patricipation in all "facetoface" meetings, not just some of them.
	Perhaps if I would be able to read any minutes from project meetings It would have given me a bit more information during the project.
	By taking us to all of the steering group meetings. The meetings are the most important knowledge transfer and learning situations. In addition, some, even minor, extra tasks would've been nice to do so you'd feel that you're doing something.

Table 9

The Associate Partner survey does therefore indicate that the AP's have largely had a positive experience by participating in the project. APs have in particular increased their knowledge on the adaptation approach to climate change and strengthened their professional network for climate related matters. As the APs believe that other organisations also can benefit from participating in the project there is good reason to assume

that the content and work that has been done by the project has been both relevant and useful for the associate partners.

A possible shortcoming in the communication approach may also explain some of the mismatches between the APs expectations to the project compared to their actual experiences. It would be desirable to fulfil the suggestions of more comprehensive participation for APs, but that would also require significantly more resources. However, a more realistic solution to this problem could have been a stronger communication approach, both from the beginning as well as throughout the project. A stronger communication approach could have provided the APs with clearer expectations about involvement and responsibilities. A more efficient communication approach could also have kept the APs more in the loop, and thereby prevented this sense of feeling excluded from some important parts of the project from occurring.

6.3 Evaluation Workshop

The University of the Faroe Islands organised a monitoring and evaluation workshop at the final bi-annual steering group meeting in Iceland in November 2019. The workshop was attended by all the project partners and those associate partners that attended the steering group meeting. The purpose of the workshop was to present the preliminary evaluation results to the partners and to collect the final data to complete the comprehensive evaluation of the project delivery.

The workshop structure was in three stages. The first part was a presentation from the University of the Faroe Islands where the findings from the online surveys were presented to the workshop participants.

The second stage was a group work exercise where the partners were asked to discuss the following three questions in groups of 4-5 people:

1. Have project objectives been clear enough from the beginning?
2. What have been the main obstacles for a more effective project result?
3. Have the Best Practice Model and the Support Tools been tested in practice?

The final part of the workshop was a feedback session where the groups presented their answers and an in-dept discussion across the groups was facilitated by the workshop organisers.

6.3.1 Workshop results

The feedback session provided many reflections on what parts of the project had worked and what could have been done differently.

The discussions at the feedback session confirmed that many PPs and APs had experienced some confusion in the beginning of the project. Although the overall objectives were clear in the project description a lack of leadership meant that it was difficult to establish the individual roles and responsibilities when it came to project outputs. This was significantly improved when the programme manager was appointed. The final year of the project has therefore been a turning point where everything has become much clearer for everyone and allowed partners to fulfil their different tasks according to the project plan.

The confusion at the project's offset was also the root to some of the main obstacles for more efficiently delivery of project results. All partners had anticipated that they would be allowed to work on deliverables until the project's closure in May 2020 and have therefore planned their workload accordingly. As the partners weren't aware that no payments could be claimed after March 2020, the closure of the project has not been clear enough from the beginning and is likely to have some negative impact on the project's end-product.

Differences in culture, language, and knowledge base have sometimes presented challenges for effective communication between the partners. In hindsight, the partners think that many of these challenges could have been resolved faster if the project had prioritized more personal meetings in the beginning of the project in order to build the interpersonal relationships between the partners quicker. Similarly, they also believe that it would have improved the interpersonal relationships had all PPs and APs attended all bi-annual steering group meetings.

There were also suggestions that the online tools that the partners were provided with for internal communication have not been utilized sufficiently. In this regard, having a protocol in place from the beginning, on how to conduct the monthly online conference meetings, could have benefitted the project significantly. Consistent usage of tool functions, such as screensharing and video sharing, would both improve the effectiveness of the online discussion and most likely have a positive effect on speeding up the building of interpersonal relationships.

A final obstacle that was brought up at the workshop was that the reporting to Interreg NPA has been too burdensome and has therefore drained too much energy and resources, that could have been used more efficient on project delivery.

The final workshop discussion was about the extent the Best Practice Model and the adhering Support Tools have been tested in practice. The aim with the question was to obtain some reflections about the project's approach to developing the model and tools in parallel with the practical development of climate adaptation plans with the municipalities. There was an overwhelming consensus that all parts of the model and all the

tools have been tested somewhere, although this post-normal science (i.e. imbedding research within its applied context) approach has not allowed a continuous implementation of the model in practice. It has therefore been more of a learning by doing approach where the development of tools has been supported by direct feedback from the parallel developments of adaptation plans with the municipalities.

7. Conclusion and Recommendations

In conclusion the project evaluation has found that the CLIMATE project has been very successful in achieving its aims and objectives. All work packages have been delivered successfully without any major complications. When troubles have occurred, the partners have effectively worked out solutions that have ensured that the original priorities have been kept in focus.

The list of outcomes and results from the project is very extensive. This evaluation report has aimed to capture these outcomes and results while telling the story of the CLIMATE project. In short, the project has:

- Developed a Best Practice Model and the Support Tools that have been successfully implemented and tested by the municipalities. The tools and templates will be accessible to other organisations through the project website and on Climate NI and SHMI databases.
- Through training and capacity building efforts, successfully aided the municipalities in increasing their preparedness scales to tackling the challenges from climate change. Climate adaptation plans have been produced for Sundsvall, Härnösand, and DCDCS. The adaptation plans are of a high standard and have placed the participating municipalities into pole positions in their respective regions when it comes to climate adaptation work.
- Delivered high quality research on climate adaptation planning. The research has included both the policy side of undertaking climate adaptation planning and the practical assessment of risks and development of measures. In addition to contributing with discussion and analyses to a wider scientific community, the research has also provided new region-specific data for further climate adaptation planning work and research in the NPA region.
- Secured political anchoring and raised public awareness through a strong communication strategy and an effective stakeholder engagement plan.

In addition to the results that have been demonstrated through produced deliverables the project has also generated many other valuable outcomes. The project's approach to bring together project partners, associate partners and other stakeholders and various organisations has been very effective in producing collaborative learning across regions and professional sectors. The approach has also offered interpersonal relation and network building that have laid the foundation for future cooperation across the regions.

Overall, the delivery of the CLIMATE project has been a huge success

on all parameters. There have obviously been some challenges and lessons learned that can provide recommendations for future projects of this kind.

- Placing leadership and distributing responsibilities has been key to the project success.
- Financial reporting and delays in FLC verifications can inflict severe distress on partners.
- Associate partners are a valuable resource and generally wish to participate in project activities. Their voluntary participation must be respected, but it could be beneficial to involve them more often and maybe have some form of protocol for associate partner activities.

On a final note, the value of the project as a financial resource must be acknowledged. Although the main objectives have revolved around developing tools, raising awareness, and producing adaptation plans etc., all the participating municipalities have confirmed that they would not have come this far without the financial support from the project, which has enabled them to employ dedicated staff to the cause.

Appendices

Appendix 1

Biodiversity and Sustainable Forest management models

- A brief summary from Mid Sweden University as a part of the CLIMATE project

In the framing of the C.L.I.M.A.T.E. project, Mid Sweden University has provided a brief summary of work and research related to Climatic effects on Forest Biodiversity as well as on Forest Management. This summary is mainly based on research from the Swedish Forest Agency.

Climate change is a threat to many forest species worldwide and the effects on the forests are multifaceted. In general, boreal temperate forests are likely to grow faster due to a warmer climate, but at the same time, the risks of damage increase. By adapting forestry to cope with a changing climate, the forest's opportunities to withstand, for example, forest fires, storms, insect and fungal infestations, are improved. In addition, it is important to minimize the risk of damages to the forest floor (soils and water catchments) from machines in the forest industry, especially given warmer winter with limited frozen soils.

The Swedish Forest Agency's task is to implement Swedish forest policy and assure that the forests are used in a sustainable way. Sustainable forestry has an important role to play in the material and energy supply for a society where the climate impact is greatly reduced.

Below are the main effects from a changed future climate listed (Skogsstyrelsen, rapport 2, 2016):

- **The growing season** is prolonged which will likely impact the growth in a positive way, most in the northern parts of Sweden and then decreasing towards south.
- **Drought and fire.** Growth may not increase everywhere. Groundwater levels are raised during the winter season. On already very moist soil, the growing season can thus be shortened. The rainfall is increasing but not the part that comes in the summer. At the same time, it gets warmer and rainfall accumulates on fewer occasions (which means greater surface run-off) and therefore the risk of drought increases. The risk of forest fire increases to the same extent as the risk of drought.
- **Frost in springtime.** Warmer spring gives earlier growth start but at the same time increases the risk of spring frost. This is because the nights are still long and the temperature difference between day and night is great. The spring frost can damage the trees.
- **More browsing damages.** Damages from deer and moose browsing is already today causing damages in forests. A changed climate in the future will likely worsen the effects from deer and moose. Mild winters mean that the deer and moose survive to a greater extent. Unless the hunting also increases, they will become more abundant and pine and broadleaf plants

grazed even harder. Compared to today, the difference becomes worst in the northern parts of the country.

- **Storm damages**. The risk of falling trees due to storms increases even without stronger winds. The storm fellings can increase because:

  a) the groundwater levels becomes higher during the winters and with shorter periods of frozen soils.
  b) the proportion of the wind sensitive spruce has increased even further as a result of browsing of the deer or moose on pines.
  c) trees grow generally faster in the warmer climate and much faster reach heights where the risk of falling increases significantly. The risks of falling becomes even greater if also strong winds becomes more frequent (and more intense).

- **Snow damages**. The risk of damages due to heavy snow fall (and ice) may increase during the winter because temperatures near zero degrees becomes more common.

- **Driving and forest roads damages**. With warmer and winters with more rain instead of snow, the risks for driving damages increases significantly, unless planning and methods are improved. Severe driving injuries are already prohibited by the Forest Forestry Act and can in some cases lead to prosecution. Driving injuries can damage biodiversity if natural wetlands and streams receive mud and humus from the catchment area. In addition, there will likely become problems with extracting timber and other wood products from the forests because mild winters and soft forest roads (no frozen ground) prevent the transport of timber from large areas.

- **Damages and injuries from insects and fungi increases**. Many pest insects and some pest fungi get better conditions in a warmer climate. This applies, among other things, to those who already today cause the most costly damages - root rot and spruce bark beetles. Also, in a future changed climate, new species of pests can migrate and establish. Increased trade in untreated forest biomass as a result of a developed global bioenergy market may further increase this risk.

- **The root rot is favored.**The root rot is spread from fresh stumps to living trees after harvesting and can eventually infect the new stand via root contact. The distribution takes place mainly when harvesting is done during the growing season. As the growing season is extended, an increasing proportion of the harvesting is likely to occur during the growing season. In addition, if the proportion of spruce increases as a result of increased browsing pressure

(see the section “More browsing damages”), the conditions for spreading the root rot are improved even further.

- **Biodiversity**. Climate change threatens many of the more sensitive and already threatened forest species. Currently, many species has an advantage of being able to cope with harsh winters and this advantage may be reduced in a warmer climate, this means that northern species can decrease due to competition. The relative fast speed of climate change also means that species with low dispersal ability and special biotope requirements will not be able to move north. Increased variation in moisture content between spring / autumn and summer can cause problems for species with requirements of high humidity. If browsing increases, forest regeneration may even further be directed to spruce while other desirable tree species (for example, rowan, aspen, pine) can become less abundant. This may reduce diversity on a regional scale. Changes in forestry as a result of climate policy can have a negative as well as a positive effect on biodiversity. As winters get milder, new species can migrate in from the south and southern species can migrate north, which can have different effects from case to case.

Due to the quite recently adopted National Climate Adaptation Strategy (Förordning 2018:1428), the Swedish Forest Agency is the Governmental authority responsible for working with climate adaptation in the forest sector. As a result, in 2019, the Swedish Forest Agency presented goals for the authority's work on climate adaptation and an action plan was presented in January 2020. The Forest Agency's continued work on climate adaptation will be reported annually according to instructions from the Swedish Meteorological and Hydrological Institute (SMHI), who has the responsibility to coordinate climate adaptation planning for all governmental authorities.

The Swedish Forest Agency has accomplished an analysis of vulnerability of forests and forestry to climate change and has put forward impact objectives and suggested adaption measures after consulting relevant stakeholders (Skogsstyrelsen, Rapport 2019/23). The objectives aim at maintaining a profitable forestry with an evenly spread wood delivery over time, while avoiding increased negative effects on other societal values and facilitating improved possibilities to climate adaptation for reindeer keepers. In short, three main objectives has been identified:

- **In near time, forest damage is counteracted through well-functioning systems for surveillance and crisis management.** Under this objective, there are subgoals on maximum volume of insect-killed wood (annual mean), stump treatment to avoid root rot and maximum area of burned forest (annual mean of undeliberate forest fire).

- **In the long-term, damage is cost effectively counteracted through the formation of site adapted forests with reduced sensitivity for storm-felling and high level of variation**. Here, subgoals are on minimum share of

regeneration with pine on dryer soils, maximum share of pine plants damaged from browsing, risk spreading through minimum shares of mixed and broadleaf forest and improved knowledge on how to create less storm-sensitive stand edges for the future.

- **Forestry develops to avoid increasing damage on the environment and other societal values over time**. Here, subgoals are on maximum number of soil/water damage from forest vehicles, alternatives to clear-cutting on high-risk objects for erosion, reduced area of clear-cuttings within a watershed area, area of reestablished wetland on formerly drained land and a limited impact on ground lichen availability and migration routes for the reindeer keeping. The various objectives overlap to some degree and there are also synergies with other societal goals. For example, a reduced share of large clear-cut areas will mean reduced risk for water-related downstream damage and more variation at the landscape level useful for biodiversity as well as for human visitors. Through active silvicultural choices, forest owners can adapt their forests to cope better with the future climate. The Swedish Forest Agency and other authorities and research organisations should collect data, develop and communicate knowledge and facilitate adaption measures in other ways. During 2020–2024, the Swedish Forest Agency intends to synchronize tasks about climate change adaptation with tasks about wood production and sustainable growth under the Swedish Forest Programme umbrella and within dialogues with stakeholders.

The report is put forward due to the Swedish regulation (2018:1428) about authorities work with climate change adaptation and should be considered as a first step to promote and monitor climate change adaptation in a systematic and dialogue-based way.

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Appendix 1

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Appendix 2a

Sundsvall Extreme Rainfall Plan - Summary

As the climate changes, the community increasingly needs to adapt. Stormwater management has been identified as one of Sundsvall's key adaptation requirements for our expected future climate. This action plan aims to reduce the risk of adverse impacts of extreme rainfall events, which are expected to become both more intense and more frequent in the years ahead.

The action plan identifies several priority sites in central Sundsvall. All the sites selected have key community functions and are subject to the risk of dangerously high water levels after heavy downpours. The risk assessment was based on a model that simulates extreme rainfall events over Sundsvall. Mapping of extreme rainfall can continue to serve as a knowledge basis for ongoing community planning and an information service to external parties.

As the lowest adaptation level for the sites of community importance in this action plan, the baseline chosen was a 100-year rainfall event* to which a 'climate change factor' (multiplier) was applied. For sites that are especially vital to the community, like the Hospital, a higher level of adaptation (500-year rainfall event) was found necessary. Adaptation levels were chosen based on national recommendations and other cities' cost-benefit analyses.

The sites under municipal management identified were placed in an internal order of priority and split into three categories, according to the years by which the sites must be investigated in detail. Investigation of each site must include an impact assessment for an extreme rainfall event on the defined scale. Where measures are clearly needed, action proposals and cost-benefit analyses of introducing the recommended measures must also be developed.

Appendix 2b

Sundsvall Heatwave Guideline for Buildings - Summary

With Sundsvall's present-day climate, there is already a need for measures to reduce the risk of personal injury, due to high indoor temperatures at the Municipality's housing units for people with special needs who are at particular risk during heatwaves. In the decades ahead, the risk of harmful consequences will be ever greater as the climate becomes warmer, bringing higher maximum temperatures and more frequently recurring heatwaves. Early preventive action will lessen not only suffering for many individuals, but also the need for costly measures at an acute stage.

Preventive measures in the form of a well-planned outdoor environment, with vegetation that can shade the building from the sun, and also technical solutions in the form of awnings or corresponding means of shading, reduce the need for costly, energy-intensive cooling. However, when it is hot outside, the indoor temperature will always approach that of the exterior unless cooling takes place. One reason for this is that the ventilation system must be kept on during the day, which eventually heats up the building to the same temperature as outdoors. Keeping the interior below the outdoor temperature therefore requires some kind of cooling unit. Not only is the cost of installing these systems high, but they also boost energy use and, accordingly, environmental impact and operating costs.

To reduce energy use as far as possible, cooling facilities should be installed only after other measures — of the kind that do not boost energy use by affecting the HVAC system's operating status — have been taken. Limiting the cooling, first of all, to communal areas and to a temperature of 25° reduces energy use appreciably compared with cooling the entire building to 23°, which is the normal indoor temperature at the housing units. Such limitations in terms of floor space and temperature are ways of reducing energy use, environmental impact and operating costs, while providing a relatively cool environment for both residents and staff at the hottest time of day.

Drakfastigheter, which owns and manages most of the units concerned, is responsible for ensuring that the *Guidelines* are followed, and for operating and maintaining the equipment. To date, the Sundsvall social services have borne responsibility for external shelter from the sun, such as awnings, but in the future Drakfastigheter will be responsible for these as well.

Until all Sundsvall Municipality's special-needs housing meets the standards laid down in these *Guidelines*, Drakfastigheter must monitor how far such premises comply with the *Guidelines* and report this to the Executive Committee once during every Committee term of office

Appendix 3a

ABSTRACT A: Climate adaptation plan - Härnösand

The climate adaptation plan (CAP) will be an important part of the municipality´s (Härnösand) tool for the strategic and long-term work with adapting to a changing climate. Working with climate adaptation is an important part of Härnösand´s efforts to strengthen and ensure a robust and resilient society, while at the same time creating opportunities for development. The CAP is divided into three parts and the plan is also supported by information found on the digital platform (StoryMap, see b) for more info), which the reader of the plan first should get acquainted with before reading this document. The first part of the CAP is an introduction that describes, among other things, the purpose and demarcations of the work on climate adaptation. It also addresses connection to laws and other governing documents, external actors and vulnerable objects in society. This is followed by the central two parts of the plan, the action plan and implementation, which describe the adaptation measures that are prioritized and suitable to implement and how they should be implemented and followed up.

Since August 2018, the municipalities are required to identify climate-related risk of damages on existing buildings and how such risks can be reduced or totally stopped in their master plan. Therefore, the climate adaptation planning process is closely linked to the work that is undertaken in the masterplan and the CAP can be regarded as a support document for the masterplan. In the current masterplan (2011-2025), there is also a statement that Härnösand´s municipality should develop a local climate- and vulnerability analysis with suggestions for climate adaptation actions,; an ambition that has resulted in this CAP. The plan has been developed with the aim of minimizing the negative consequences of climate change and taking advantage of positive consequences in the best possible way.
Above all, the plan will result in continuous and systematic work with climate adaptation so that climate adaptation becomes a natural part of the decision basis for planning, implementation, control and follow-up of measures in the regular planning processes that already are taken place in Härnösand.

The plan aims to identify the risks that result from climate change and focuses mainly on measures that are within the municipality authority (right to decide) and on measures that can be implemented within the current economic framework. The plan is focused on municipal activities, while only some measures relevant for other stakeholders have been analyzed. Also, no indirect effects of climate change have been taken into account. This means that some issues, for example, increased migration to Sweden and Härnösand as a result of a changed climate (e.g. extreme heat in central and south Europe) have not been included. The time perspective for measures in the plan extends until 2100 since most research and data also extends until then. However, it is important to highlight that changes in the climate will not cease 2100 and that further actions may be necessary beyond that.

Several objects and structures are specifically important for the society in Härnösand. These can for example be related to the infrastructure for the production and distribution of electricity, district heating and drinking water, sewage and storm water, roads and public transport. But also activities such as preschools, special

Appendix 3a

housing for the elderly and for people with disabilities, police, ambulance and fire stations as well as shops, petrol stations and pharmacies. To consider the climate resilience of these structures is also part of the climate adaptation work. Risks and measures that are addressed in the climate adaptation planning also affect the ongoing work on increasing the preparedness for general resilience in the municipality, which is communicated and taken into account in the CAP. But on the other hand, risks and measures that are addressed in the CAP need also to be taken into account in other planning processes aiming at increasing the preparedness scale. Communication, cooperation and a clear organisation is hence very important in the climate adaptation planning process. The main output (measure) from the planning is to form an organisation (including a coordinator and working group) responsible for the climate adaptation planning in the municipality. These resources will be safeguarded once the CAP becomes formally adopted by the politicians. This is important so that the climate adaptation planning process also continue after the adoption of the document, highlighting the importance of the actual implementation of the adaptation planning measures and that the main result not should be merely a piece of text (shelf-warmer).

The work is still ongoing when it comes to prioritise and compile a short-list of adaptation measures but some examples of suggested measures are:

- Adaptation of certain properties to heat waves. For example, reduced solar radiation, better cooling and ventilation where high risk citizens stays (e.g. elderly homes and daycare).
- Treatment of contaminated areas in flood-sensitive areas.
- Point out important parks and green areas that should be preserved and improved.
- Carry out a cloudburst simulation model (almost already complete, see d) for more info)
- Decrease or limit the amount of hard surfaces (pavements etc.) by controlling this factor in the detail plan, e.g. residential car parks.
- Include the climate adaptation perspective in the planning department's checklist. This should ensure that climate adaptation principles being investigated when establishing new detailed plans.
- Develop a plan to secure drinking water production in Härnösand.
- Investigate the risks of leakage of contaminated water into the drinking water system during flooding.
- Routinely highlight the importance of the climate adaptation issue at every renewal of the board (politicians).

More information on adaptation measures can also be found in the action plan (c), which is a complement to the CAP that describes all the adaptation measures in more detail.

Appendix 3b

ABSTRACT B: Digital platform and ESRI StoryMap – Härnösand

The digital information about climate adaptation in Härnösand is currently being produced and will form a valuable part of the CAP work. The main aim is to communicate the current climate adaptation work in Härnösand to a wider audience and making this information easy accessible for the public. Example of external users are citizens, schools, journalists, other municipalities etc. but the platform can also fill a knowledge gap internally, for instance for staff in service sectors not directly involved in the adaptation planning.

General information about climate adaptation with a glossary and links where more information can be found will be presented on Härnösand´s webpage, forming a platform and a one-way-in for anyone interested in climate adaptation in Härnösand. In addition, a digital tool, ESRI StoryMap (https://www.esri.com/en-us/arcgis/products/arcgis-storymaps/overview) will be used to present information about climate adaptation. This tool will contain maps, short text notes and an animated movie. Some maps from the cloudburst simulation model will be presented here, but no detailed information other than "flat" (no layers) maps. The reason to why the full result from the cloudburst simulation model will not be presented in StoryMap is mainly because specific software and competence to interpret the results is necessary. Sundsvall municipality has already implemented a cloudburst plan and they also present the results as flat maps and the reasoning behind this limitation mirrors Härnösand´s (https://sundsvall.se/wp-content/uploads/2019/01/Skyfallsplan-f%C3%B6r-Sundsvalls-kommun.pdf).

The movie builds on the same "characters" from a movie about the ongoing work with the master plan in Härnösand (https://www.harnosand.se/kommun--styrning/framtidens-harnosand/oversiktsplan.html). The movie will contain information on expected effects from climate change and examples on actions that can be taken to increase Härnösand´s climate resilience. This short movie will also have English subtitles, making it relevant for a wide range of users. The digital platform as well as the movie will be available during March-April 2020.

Two snapshots from Härnösand´s animated movie about the master plan.

Appendix 3c

ABSTRACT C: Action plan – Härnösand

The action plan presents all the suggested climate adaptation measures categorised into type of measure (Physical, Organisational or More knowledge needed). Each measure is also classified according to the service area/subject the measure relate to (General, Life & Health, Natural environment, Built environment or Technical supply). The document describes the objectives, time perspectives, responsible partners and priority of each measure. This document is not yet completed but a draft has been made and it will be finalised in March-April 2020. The action plan is a valuable part of the adaptation planning but will not be included in the final CAP, which eventually will be formally adopted by politicians. However, it will still be crucial for the organization that will continue to work with climate adaptation in Härnösand and will be revised on a yearly basis.

A general description of the outline for the Action plan in Härnösand.

Type of measure	**Objective**	**Time perspective**	**Responsible partner**	**Prioritising**
Short description of the measure	The purpose of the measure is briefly described	Time allocated for implementation is categorised in four time perspectives. Ongoing = Measures already in place and regularly revised Short = Measures that should be implemented before 2030. Medium = Measures that should be implemented 2030-2060. Long = Measures that should be implemented 2060-2100.	**Decision maker** E.g. KS = Municipality Board SAM = Social Service Area HEM = HEMAB **Executer**	Based on a 1 to 4 scale, where 1 has the highest priority. 1 = Implement immediately, is expected to have large effect and relatively few resources needed. 2 = Investigate further, is expected to have large effect but requires relatively large resources. 3 = Possible, is expected to have small effect and relatively few resources needed. 4 = Potential, is expected to have small effect but requires relatively large resources.
Category of measure	Physical	Organisational	More knowledge needed	

Appendix 3d

ABSTRACT D: Cloud-burst simulation model - Härnösand

Härnösand municipality decided that it would be very valuable to get more information on effects of intensive and heavy rainfalls, so called cloudbursts. Therefore, in 2019, a cloudburst simulation model was procured for the whole municipality. Sundsvall municipality has previously produced a similar cloudburst simulation model and this tool was found to be important and very useful for many stakeholders, both internally and externally in Sundsvall. These type of rainfall simulation models are resource intense (large data needs) and contains highly detailed and site-specific data and as such, they can be classified as third level risk assessments, according to the Best Practice Model.

Some initial results have recently been delivered (Feb 2020) from the consulting company DHI. The full report will be delivered in March. The mapping methods used include: Dynamic calculation of surface runoff (2D-analysis) and Dynamic calculation of surface runoff plus flow in stormwater system (2D/1D-analysis). Calculations are made for the whole Municipality area using 100-year rainfall + a climate factor of 1.25 and 500-year rainfall + a climate factor of 1.25, all excluding the stormwater system. For the Urban area the same calculations are made but also calculations based on a 30-year rainfall + a climate factor of 1.25, all including the stormwater system. The 2D-analysis has a horizontal resolution of 4x4 m, elevation data is processed for buildings and viaducts, dynamic infiltration is based on soil maps and the deduction for the stormwater capacity corresponds to a 10-year rainfall. All these calculations results in high resolution maps where the Maximum water depth (m), Maximum surface water flows (l/s/m) and Flow directions are visible. A couple of examples of “flat” maps of maximum water depth and flow can be seen in the figure below, the full model is multi-layered and has a very high resolution but requires specific software and training to use.

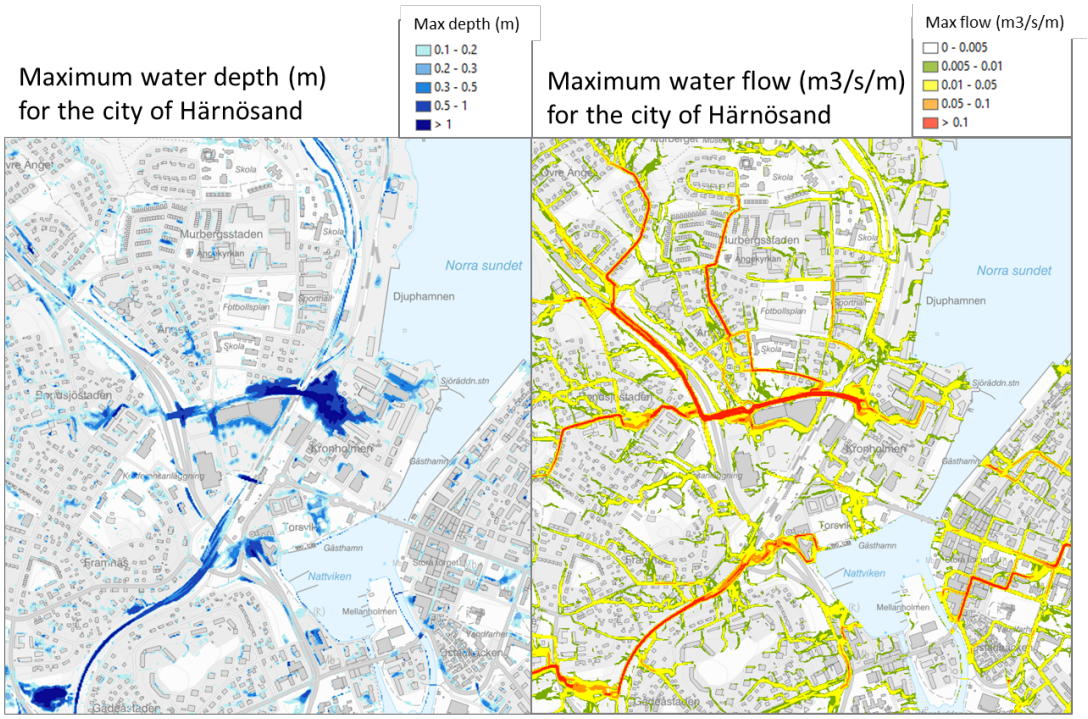
There are some pitfalls regarding the interpretation of the results and therefore important to note; Maximum water depths and flows occur at different times in different parts of the model areas. Thus, the results do not include temporal aspects over the rain event. In addition, road drums are not included in all analysis– they are only included in the 2D/1D-analysis. Therefore, the results can only be used to identify important road drums and indicate what parts may need to be surveyed. *In the current calculations, flooding will be overestimated upstream the drum and underestimated downstream.*

The cloudburst model will likely be a very useful tool for many stakeholders, both internally (especially in the planning processes) and externally (e.g. rescue services). For example, it can provide information on where it would be very useful and effective to build new or increase existing green areas and give indication which contaminated soils (from past industry activities) that should be prioritized. Soil remediation is a very costly process which is not possible to implement everywhere in the short term.

Appendix 3d

Maximum water depth (m)
for the city of Härnösand

Maximum water flow (m3/s/m)
for the city of Härnösand



Some results from the cloudburst simulation model of Härnösand, calculated and delivered by DHI. The maximum water depth and flow in the urban area in the municipality of Härnösand, calculations based on a 100-year rainfall + a climate factor of 1.25.

Appendix 3e

ABSTRACT E: Pre-study Climate Adaptation in the watercourse Gådeån - Härnösand

The consultant Sweco has carried out an analysis of important values within the lakes and watercourses in the central parts of Gådeå drainage area and providing some suggestions for climate adaptation measures. The geographical boundary for the analysis is flooded areas according to the modelled flows by SMHI in 2013 with a return period of 100 years (FHQ100) and a calculated maximum flow for future climate scenarios.

Important values refer to municipal and state facilities and constructions, residential areas, enterprises, contaminated areas that pose a risk of contamination, area of high biodiversity values and cultural heritage sites. A guideline to the definition of important values has been a list of functions important to the community compiled by the municipality of Härnösand. The most important values that have emerged in the analysis are related to biological diversity, drinking water production, technical facilities, historical cultural sites, housing estates and agriculture.

Listed below are certain areas with important values in the watercourses of Gådeån that will be affected by the future climate and hence important to protect or values that are clearly in conflict with each other:

- The rivers downstream of lake Nässjön to the estuary, where there is an unusually rich fauna with the presence of red-listed species, which are threatened by low flows;
- Cultural heritages sites that is threatened by high flows;
- Drinking water production in lake Bondsjön, which is supplied by runoff from lake Långsjön, which is mainly threatened by drought and altered water quality during heat waves and altered water quality during high flows;
- Road bridges and low points in the road network affected by high flows;
- A private dam that is a barrier to fish migration and important for regulating flows and water levels in the lake system;
- Approximately fifty houses, mainly for holiday purposes, along the stretch are threatened by high flows
- About 20 hectares of agricultural land that will be impossible or difficult to manage at high flows.

According to Sweco's assessment, measures to improve climate adaptation are:

- Hydrodynamic modelling of flows and review of the existing flow measurements,
- Risk analysis of the road network. (Transport Administration)
- Road culvert inventories in tributaries,
- Environmental investigations of the contaminated sites (MIFO objects),
- Building antiquarian investigation for Ultrå mill and dam,
- Restoration of water courses in Helgumsån and Brunneån.

Appendix 4

Local Government Climate Action Network (LGCAN)

Background

Climate NI supported Derry City and Strabane District Council (DCSDC) through development of the first local government Climate Adaptation Plan (2020-2025) in Northern Ireland, including the methodology, planning process and resource development for the CLIMATE toolkit.

As part of the dissemination of the CLIMATE tool, Climate NI are now tailoring the information which has been developed for the whole Northern Periphery and Arctic region to make it specific to the NI political and legislative context. In using this situational analysis, Local Government Climate Action Network (LGCAN) is in effect a first case study of the tool's adaptability and effectiveness.

Currently each council has put forward their own lead contact to undertake the process in each of the other 10 councils in NI. DCSDC is not undertaking this process but is an invaluable member of the group, helping to stimulate leaders of adaptation planning in other councils. To account for not having a specific project manager resource like the CLIMATE project, Climate NI has developed the LGCAN which is a central group where the lead contacts of each council come together to discuss adaptation planning between themselves and with government departments, to share best practice and support. There is an online tool being developed to lead councils through the steps between meetings.

LGCAN also acts as a way to train the council representatives with the information and methods they need to go and undertake the next step of the adaptation planning process with their own working groups.

What is the current adaptation situation in NI?

Aside from development of the DCSDC plan, the level of current capacity and resource is low in Northern Ireland, so guidance is designed to undertake a first assessment.

CLIMATE tools available for use in the LGCAN steps include:

- Working Group Terms of Reference
- Workshop Agendas
- Workshop Exercise Templates
- Service Area Factsheets
- Risk Register and Action Plan examples
- Collections of data used, methodology, resource and contacts

We integrate CLIMATE information into each step according to the need for the resource and information context in Northern Ireland local authorities.

The practical information

Appendix 4

So without a funded project manager resource as there was under the CLIMATE project, Climate NI has tweaked the broad CLIMATE methodology to develop the following region-specific approach:

Each council has a *lead adaptation contact* who will lead on this process.

What is the role of Lead Adaptation Contact?

- Volunteer
- Participate in LGCAN training meetings
- Follow the online process
- Organise logistics and secretariat for their council working group; made up of representatives from as many services as possible within their council.
- Coordinate work between meetings with services, writing up findings from the first internal working group and drafting action plans.

What are the stages?

Training and support will be provided for the lead contact (LGCAN Training), providing them with the information and skills to lead their own workshop with members of their own council working group. The steps are the same as the CLIMATE project, but the workshops have changed. In LGCAN there are 3 workshops, the first covering both Steps 1 and 2. Then two further workshops will take place for step 3, with some work to write-up the information by the lead adaptation contact.

Workshop 1

- *Step 1* – You will have assembled a council working group and have an understanding of climate change for your council
- *Step 2* – You will conduct a vulnerability assessment to understand how you have been impacted by weather events already and how you may be impacted in future.

Workshop 2 & 3

- *Step 3:* You will finalise your Risk Register and develop your plan, including objectives and actions. The plan must then be adopted according to your organisational procedures (i.e. Public consultation, committee etc…)

Implementation

- *Step 4* – You will develop the monitoring and evaluation framework for the strategy continuing to hold regular meetings of the planning group.
- *Step 5* – Monitor, review and evaluate your plan, including the need for more site-specific assessment and linkages with external actors.

Appendix 4

Learned information

Some additional information has been developed with learning from the CLIMATE project, though not featured specifically as a part of the CLIMATE project. These are mainly communication-related, since that is one of the key gaps to success found by CLIMATE. New resources include specific projection information for Northern Ireland, NI-specific factsheets and other advertising documents such as a Workshop Brief to explain clearly what the steps are to people who may be asked to attend.

Appendix 5

Article

The promise of policy mainstreaming: polycentricity in European climate change adaptation

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Abstract: Historically, responses to climate change have been developed through international initiatives to reduce greenhouse gas emissions at the global level. However, the impacts of climate change are experienced at local scales, nested in, and interacting with, global biophysical and socio-economic systems, with significant interplay existing between the local, national, regional and global. Taking these factors into consideration, this paper explores three case studies from Northern Europe (Northern Ireland, the Republic of Ireland, and Sweden) to discuss policy mainstreaming of climate change adaptation (CCA) in the light of increasingly polycentric forms of governance. Each case study is classified and analysed under enabling factors and provisional mainstreaming approaches, providing a useful heuristic to explore the promotion and shaping of planning and action from initiation to implementation. Findings suggest that the focus is still placed on national and local strategies and that effective adaptation mainstreaming and policy coherence in a context of global climate risks call for a transboundary approach that brings forward forms of governance with the capacity to support context-specific yet transferrable adaptation strategies. This is particularly relevant in Europe, where 28 states share a diverse yet relatively small territory facing unprecedented environmental and climate challenges. The cases of Northern Ireland, the Republic of Ireland, Sweden are particularly illustrative of the governance challenges arising from the diverse socio-historical circumstances and geophysical factors that have shaped states and institutions across Europe's Northern Periphery and Arctic (NPA) region. Studying, comparing and contrasting locally tested mainstreaming strategies across countries can contribute to understand the socio-historical factors that mediate different forms of governance and set the framework for transnational experiences. This deepening of understanding is key to coherently approaching the practical complexities of policy mainstreaming and reinforcing the alignment of transboundary adaptation policy coherence at European level with evidence-informed local adaptation policy mainstreaming.

Keywords: Co-design; Climate policy; Mainstreaming; Polycentricity; Local authority planning; Collaborative learning; Adaptation planning; Governance

Appendix 6

Project Partner Survey Results

Q1		
To what extent were your overall expectations to the Climate project met?		
1 Not at all	0	0,00%
2 Less than expected	0	0,00%
3 As expected	3	42,86%
4 More than expected	4	57,14%
5 Much more than expected	0	0,00%
Total	**7**	

Q2		
To what extent has the project increased your knowledge on climate adaptation processes?		
1 Not at all	0	0,00%
2 Less than expected	0	0,00%
3 As expected	2	28,57%
4 More than expected	4	57,14%
5 Much more than expected	1	14,29%
Total	**7**	

Q3		
To what extent has the project delivered relevant networking across the NPA region?		
1 Not at all	0	0,00%
2 Less than expected	0	0,00%
3 As expected	3	42,86%
4 More than expected	2	28,57%
5 Much more than expected	2	28,57%
Total	**7**	

Q4		
To what extent has the project increased your awareness of solutions for the sustainable management of natural and cultural heritage?		
1 Not at all	0	0,00%
2 Less than expected	1	14,29%
3 As expected	4	57,14%
4 More than expected	2	28,57%
5 Much more than expected	0	0,00%
Total	**7**	

Appendix 6

Q5		
To what extent has the project raised public awareness of climate change and the climate adaptation process in the NPA region?		
1 Not at all	0	0,00%
2 Less than expected	1	14,29%
3 As expected	5	71,43%
4 More than expected	1	14,29%
5 Much more than expected	0	0,00%
Total	**7**	

Q6		
How effective has the project been in transferring knowledge across the NPA region?		
1 Not effective at all	0	0,00%
2 Ineffective	0	0,00%
3 Neutral	2	28,57%
4 Effective	4	57,14%
5 Very effective	1	14,29%
Total	**7**	

Q7		
How satisfied are you with the delivery of the project activities and deliverables? (conferences, workshops, reports etc.)		
1 Not satisfied at all	0	0,00%
2 Unsatisfied	0	0,00%
3 Neutral	0	0,00%
4 Satisfied	3	42,86%
5 Very satisfied	4	57,14%
Total	**7**	

Q8		
How effective has the project's delivery of climate adaptation plans been?		
1 Not effective at all	0	0,00%
2 Ineffective	1	14,29%
3 Neutral	3	42,86%
4 Effective	2	28,57%
5 Very effective	1	14,29%
Total	**7**	

Appendix 6

Q9		
How content do you feel with using the project support tools in practice?		
1 Not content at all	0	0,00%
2 Uncertain	0	0,00%
3 Neutral	0	0,00%
4 Content	6	85,71%
5 Very content	1	14,29%
Total	**7**	

Q10		
Would you recommend other organisations to use the International Best Practice Model to undergo a climate adaptation planning process?		
1 Definitely not	0	0,00%
2 Unlikely	0	0,00%
3 I don't know	0	0,00%
4 Likely	4	57,14%
5 Absolutely	3	42,86%
Total	**7**	

Appendix 6

Q11	
What are the main lessons you have learned from the project?	
	The strategic and policy context for climate adaptation practical application of adaptation planning model and processes practical examples of adaptation in practice from visiting other regions.
	How resource demanding the challenge is. Also the different languages used by different partners/subject areas in the field.
	The best practice model should be seen as a guide to initiate a climate adaptation planning process. But must be adapted to local conditions. Examples are how well climate adaptation is rooted in management and in the businesses involved. The most important step is - to get started with an organization - to work on the issues.
	NIEL (Climate NI) has developed practical experience in supporting adaptation planning, which is particularly important given the governance difficulties at a national level in Northern Ireland. The work needed to develop enough understanding to support the adaptation process has been one of the main lessons learned.
	Everything takes time, issue is complex, important to get stakeholders on board.
	Deeper knowledge of adaptation for rainfall and heat waves, as well as the climate adaptation challenges that other countries in the Northern Periphery have and how they work with these challenges.
	An excellent experience working with an interdisciplinary team to deliver innovative outcomes in terms of research outputs, support tools and build enduring networks.

Appendix 6

Q12	
Do you think the project has increased the preparedness scale of local authorities in your region? Provide examples if possible	
	yes - the adaptation plan in DCSDC is the first of its kind in Northern Ireland and will be replicated across the rest of the region.
	Something has happened, both on municipal level and at the ministry level, since we have got a small grant to continue the work.
	We are 7 municipalities in our county, of which two municipalities are included in the project. We have a regional network where all municipalities meet and discuss climate adaptation. The project has with great certainty contributed to more people thinking about climate adaptation. Another municipality in the county has started the adaptation planning process.
	Yes, CLIMATE has increased the preparedness in local authorities in Northern Ireland. In Derry and Strabane District council the impact is obvious, but other councils have been keeping up to date with the process, benefitting from the work being done, the communications and ultimately and the outputs from the project which will provide them with the guidance to begin adaptation planning across the region.
	Yes. Through the existing regional climate adaptation network the project has provided examples on how to work on climate adaptation.
	Absolutely, the project has led to concrete measures against both rainfall and heat waves in the future.
	Yes. The preparedness scale of local authorities in our region has been increased as a result of the project. The new knowledge and understanding developed through engagement with project has helped us to improve our ability to support local authorities in our region and increase their level of preparedness.

Appendix 6

Q13	
In your experience, how have local authorities responded to the projects approach to climate adaptation planning?	
	local authorities have responded well, however the process has highlighted the challenges that exist for any new process, particularly resources, political buy in and ownership.
	They have shown interest, but there is a lack of commitment.
	With curiosity and the desire to be involved.
	It has been welcomed across Northern Ireland, as local authorities are able to learn from the approach from a variety of sources utilised byt the CLIMATE project. The project has enbaled others in the region to see that creating a plan is possible, and educating them about why it is neccessary.
	Local municipalities have been active and engaged in the project.
	Beyond expectation, local authorities have pushed for external funding to implement the adaptations proposed through the project.
	Local authorities have responded in a positive manner. The importance of building trust, making the business case for adaptation action and securing political will has been crucial to this process.

Appendix 6

Q14	
What have you learned from other regions in the NPA about the challenges of climate change?	
	the impacts that are felt in other regions in particular melting ice and snow, forest fires and cloud bursts. also the political challenges in terms of appropriate levels of anchoring and support required.
	The differences of the challenges from one region to another.
	That awareness is different in the region on various levels, and that the impacts are also different and how they affect the country in the region.
	We have learned the difference in approach to governance; from top down and bottom up approaches in different regions. We have also had the urgency of the issue reinforced, and the challenges of communicating a complex issue which requires time, careful planning and resource in every region.
	A lot! Better understanding that the impact of climate change differs substantially among regions. Also the variation among regions in political anchoring as well governance structure has been become evident.
	The challenges can look very different in different regions, both because the physical effects are different but also because the way you work in different countries differs greatly.
	We learned the importance of have sufficient resources in place in the form of staff and finance. We also learned the importance of securing political will and buy in to the process as well as the fact that there are significant overlaps between issues of concern across the NPA regions as well as examples in one region that can be used to develop new knowledge and approaches in other NPA regions.

Appendix 6

Q15	
How can your region and institution relate to the research on climate adaptation planning that has been presented as part of the project?	
	the research has been vital in understanding the context for adaptation in particular the resources, time, data and information required in order to undertake adaptation planning. This understanding will enable better preparedness for adaptation planning.
	We expect the university will continue working on the tasks started in this project.
	In Sweden, we can relate to the research quite well as we have policy documents in place on a national level and that the government has commissioned several authorities to work on climate adaptation. Which also reaches regional level, and now also local level to some degree.
	The research has been useful, providing a baseline for adaptation approaches and maturity. The diversity in context has helped to develop thought around how best to embed the plans in activity of the local authorities. Mainstreaming is such an important part of the adaptation process, because as a standalone concept it will be useless. So the research has been useful.
	As a research partner our understanding of cutting edge adaptation research has increased significantly. We hope and believe that the scientific input to the project has been valuable for other partners.
	The way we work is in good agreement with the way suggested in the tool. Some steps may differ in some processes, but in general we try to follow all the steps.
	Our institution's research has a strong focus on climate change adaptation planning and decision making so the we related strongly to the research carried out in the project. Our region is also currently developing climate change adaptation plans to be published in the 4th quarter of this year (2019), so the relevance of climate change adaptation research is high.

Appendix 6

Q16	
What has been the most challenging part of the project?	
	Securing ownership of the climate adaptation planning process within local authority.
	Risk register - due to sparce feedback.
	The biggest challenge is getting access to the key people in the organisation needed to drive and participate in the initial process of getting a process started. There is also a challenge in the anchoring of the work, which can be very time-consuming. Something that needs to be considered in planning.
	Creating the resource for workshops in the best way possible was challenging, including the new climate projections released by the UK Met Office in the middle of this project. Understanding what level of detail is required and keeping workshops on track has been a challenging but valuable experience.
	Startup process was slow and to fully grasp the overall project objectives. This is however, much clearer now at the end of the project. Financial reporting has been a nightmare! Too many levels of control from own institute , through FLC, project coordinator and NPA secretariat. This is not efficient use of human resources! Overall a critical resource person has been the project coordinator that supported us throughout the project period.
	The internal discussions in the organization about what requirements and goals we should have when it comes to adaptation have been the biggest challenge.
	Working with a range of practitioners and researchers of varying academic backgrounds has been a challenging but ultimately rewarding process. Building up an understanding of shared concepts and approaches has taken time but ultimately has been a very rewarding exercise.

Appendix 6

Q17	
Do you have any examples of how the project has had a positive impact in your region?	
	Increased understanding and support for adaptation planning, in particular this had subsequently lead to changes in practice within the local authority as well as acted as a catalyst to secure funding for a wider regional climate action plan.
	Not yet!
	The project has contributed to strengthen resources to work with climate adaptation and it has also contributed to useful discussions and exchanges between different actors in society.
	We have had a major shift in profile for climate change, and the project has played host to the Derry City and Strabane District Council 'Green Infrastructure Conference' which was a high profile conference to discuss climate action. A variety of national radio and television interviews has raised awareness, and we have presented on the next phase of using the CLIMATE project work as part of a major new initiative to help all local authorities in Northern Ireland adapt.
	Involved municipalities has benefitted from the project in developing their climate adaptation and also inspired other municipalities and authorities in the region.
	The project has resulted in a new standard for the municipality's group housing.
	Yes, the new knowledge gained from working in the project has been directly applied in our engagement with practitioners and decision makers in our region.

Appendix 6

Q18	
How was your institution involved in the project and was this involvement satisfactory? Would you prefer more/closer involvement or less?	
	Lead Partner Involvement was satisfactory.
	Satisfactory.
	Our municipality has become more involved in the issues of adaptation thanks to the project.
	We were involved in supporting the project, in research and development of tools for the supporting toolkit, and also in helping DCSDC to deliver their adaptation planning process workshops, presentation development, project communications and dissemination. We have been heavily involved in large parts of the project.
	As a main partner, research partner, our role has become clearer during the project and we are presentaly satisfied with our involvement.
	Our institution has developed adaptation plans. Our involvement as an institution in the project has been at a reasonable level.
	We were a funded partner in the project and found the level of involvement appropriate and useful for the purposes of furthering the research and supporting the development of adaptation plans. We were happy with the level of involvement in the project.

Appendix 6

Q19	
How do you see the projects legacy continue in your region in the future?	
	through the implementation of the climate adaptation plan and development of the wider North West Climate Action Plan. The first of its kind on the island of Ireland this will see the development of climate action on a cross border, multi agency basis.
	The material is published and might be used as foundation for future work.
	One of the measures that has been discussed most internally is the need for a working group that will continue work after the project is over.
	CLIMATE will have a very important legacy, helping DCSDC to develop the first ever cliamte change adaptation plan in Northern Ireland, and leading the way to provide guidance for every other authority to begin planning for climate change, and even working with counterparts across the border in the Republic of Ireland.
	Climate adaptation plans developed at the municipalites are likely to be active documents important for implementation of actions and will inspire others to move forward.
	The implementation of the adaptation plans developed in the project will continue for several years.
	Yes, through the new knowledge acquired, the institutional and interpersonal relationships developed, adaptation planning tools created and research papers published the project's legacy will continue in our region.

Appendix 6

Q20	
Are there any areas of the project, that you dont think have been delivered sufficiently?	
	No.
	The science part of the climate challenge has not been dealt with as we would have preferred.
	We have not been able to capture all operations in the municipality. We have initially chosen to focus on a few operations, to continue with the others after the project.
	The communications of the project could have been delivered much better, from the website and social media, to the newsletter dissemination.
	PR and communication has not been prioritized from our end. It has been a challenge to identify relevant topics to advertise during the project period. Potentially easier at the end when more concrete activities are available.
	No.
	As the project completes in March 2020 we are not in a position at this point in time to comment on the final delivery of project outputs.

Q21	
Do you have any other comments, that should be considered for the evaluation of the project?	
	No.
	Not
	At the time of writing it is not yet clear how the final resource will be presented, but this is very important to get right. Nevertheless, the information and experience provided by the project has made a huge difference in Northern Ireland.
	Unfortunate that there is no system for securing the long-term legacy of the project. No obvious platform for documenting and promoting the project into the future.
	No.
	We enjoyed our involvement in the project and working with the project team. We were especially impressed by the management and coordination of the project.

Appendix 6

Q1		
To what extent has the project increased your knowledge on climate change?		
1 Not at all	0	0,00%
2 Less than expected	1	25,00%
3 As expected	2	50,00%
4 More than expected	1	25,00%
5 Much more than expected	0	0,00%
Total	**4**	

Q2		
To what extent has the project increased your knowledge on climate adaptation processes?		
1 Not at all	0	0,00%
2 Less than expected	1	25,00%
3 As expected	1	25,00%
4 More than expected	2	50,00%
5 Much more than expected	0	0,00%
Total	**4**	

Q3		
To what extent has the project increased your awareness of the adaptation approach to climate change?		
1 Not at all	0	0,00%
2 Less than expected	0	0,00%
3 As expected	2	50,00%
4 More than expected	2	50,00%
5 Much more than expected	0	0,00%
Total	**4**	

Q4		
Has the Climate project increased your knowledge on the variety of climate challenges in the NPA region?		
1 Not at all	1	25,00%
2 Less than expected	0	0,00%
3 As expected	2	50,00%
4 More than expected	1	25,00%
5 Much more than expected	0	0,00%
Total	**4**	

Appendix 6

Q5		
How would you rate the project's overall communication approach? - social media, quarterly newsletters, conferences and other PR events		
1 Not effective at all	0	0,00%
2 Ineffective	2	50,00%
3 Neutral	0	0,00%
4 Effective	2	50,00%
5 Very effective	0	0,00%
Total	**4**	

Q6		
Has the project strengthened your network for climate related matters?		
1 Not at all	0	0,00%
2 Unlikely	0	0,00%
3 Neutral	1	25,00%
4 Somewhat	2	50,00%
5 Definitely	1	25,00%
Total	**4**	

Q7		
Do you think other organisations in your region could have benefitted from participating in the project?		
1 Not at all	0	0,00%
2 Unlikely	0	0,00%
3 Neutral	1	25,00%
4 Probably	1	25,00%
5 Definitely	2	50,00%
Total	**4**	

Appendix 6

Q8	
Do you have any examples of how your organisation or region has gained or learned something from the project?	
	As a co-ordinator on the regional level I have been given the chance to listen how other regions i the northern part of Europe are adressing the challenges ahead. Meeting the participants also gave me a opportunity to tell them about our region and our adaptation work.
	We have gained much valuable knowledge about adaptation to the climate change. I've been giving presentations about the subject every time I can and thus increasing the knowledge about climate change adaptation in our region. I sincerely hope this project "stays alive" after it ends and people can access its material and information afterwards.

Q9	
Do you have any suggestions for how your participation as an associate partner could have been improved?	
	Patricipation in all "facetoface" meetings, not just some of them.
	Perhaps if I would be able to read any minutes from project meetings It would have given me a bit more information during the project.
	By taking us to all of the steering group meetings. The meetings are the most important knowledge transfer and learning situations. In addition, some, even minor, extra tasks would've been nice to do so you'd feel that you're doing something.

Appendix 7

Associate Partner Survey Results

Q1		
To what extent has the project increased your knowledge on climate change?		
1 Not at all	0	0.00%
2 Less than expected	1	25.00%
3 As expected	2	50.00%
4 More than expected	1	25.00%
5 Much more than expected	0	0.00%
Total	**4**	

Q2		
To what extent has the project increased your knowledge on climate adaptation processes?		
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5 Much more than expected	0	0.00%
Total	**4**	

Q4		
Has the Climate project increased your knowledge on the variety of climate challenges in the NPA region?		
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Total	**4**	

Q7		
Do you think other organisations in your region could have benefitted from participating in the project?		
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