



Clim-ATIC: Climate Change - Adapting to The Impacts, by Communities in Northern Peripheral Regions

Project Summary

Clim-ATIC is a multi-partner strategic project, currently being developed in a preparatory project part-funded by the European Commission's Northern Periphery Programme (NPP). The proposal for a main project will be submitted to the NPP in October 2007.

Research on climate change in Northern Europe predicts not only changes in average temperature and precipitation, but also an increase in the frequency and duration of floods, droughts, storms and other extreme events, and, in the long term, significant sea level rise and the possible breakdown of the thermohaline circulation. The impacts of such changes to agriculture, fisheries, forestry, energy, transport, tourism, cultural heritage, landscape character, and environmental processes are of concern, as is the uncertainty associated with the related impacts on small and rural communities. Policy decisions made by national, regional and local government organisations, in an attempt to combat climate change, will also have significant effects on lifestyles and business operations in these communities.

The Clim-ATIC project will explore the potential for rural peripheral communities to adapt to the likely direct and indirect impacts of all aspects of climate change. Community stakeholders from five regions across the Northern Periphery will work in partnership with regional public sector and academic partners to build local adaptation capacity and deliver local adaptation activities that will provide local economic and social advantages, and new knowledge from the practical evaluation of the opportunities for, and barriers to, the specific activities carried out to adapt to climate change impacts.

The project has the following aims:

- ensure appropriate engagement, in the project regions, with local administrations, communities, small businesses and potential entrepreneurs that have a strong desire to explore and implement adaptation opportunities, as well as ensure the appropriate participation of regional and national decision makers,
- ensure the best possible understanding of the likely regional direct and indirect impacts of climate change on communities, by communities and local decision makers,
- facilitate the exploration of innovative community adaptation activities that will bring local employment opportunities, social benefits, and/or improved environmental management in the context of climate change,
- provide the resources and support for communities to develop local community climate change adaptation strategies and implement at least one adaptation demonstration project in each region,
- effectively manage, monitor and evaluate all project activities, and communicate all lessons and results throughout the Northern Periphery, specifically targeting decision-makers,
- establish a sustainable delivery mechanism that will continue to provide training and advice to communities, small businesses and local administrations across the Northern Periphery with regard to adaptation, as well as to continue to compile and disseminate relevant new knowledge on climate change adaptation,
- identify existing knowledge gaps, areas for further study and possible future projects.

The project will have the following outputs and outcomes:

- A review of the likely implications of climate change on rural communities in each partner region, through the development of potential scenarios using climate change data and local knowledge and experience. This will include the assessment of the short-term effects and consideration of the long-term effects of climate change on the communities, with links to national sustainable development indicators.
- The production of appropriate climate change impact visualisations and other communication tools to build an understanding of the nature and scope of the climate change risks for a community.
- An identification of barriers and opportunities for rural communities that wish to adapt to climate change.
- An identification of the potential environmental, social, and economic benefits that climate change adaptation actions may bring to a rural community.

- The production of a *Community Climate Change Adaptation Strategy* by at least one rural community within each partner region.
- A review of the opportunities for future funding and projects, in particular through Axis 3 and the LEADER approach under the Rural Development Programmes, and future rural development programmes, to support communities wishing to adapt to climate change.
- An evaluation of the extent to which the political and policy framework within each partner region has been a key driver in equipping communities to adapt to climate change, and the significance of other drivers.
- Access to improved information for all rural communities and their stakeholders across the Northern Periphery regarding the realities, implications, and opportunities of climate change, through the development and creation of the institutional means to deliver new knowledge in a formal capacity.
- An evaluation of the effectiveness of all Clim-ATIC project activities, the development of capacity of communities for adaptation, and the short-term effects of adaptation actions, utilising sustainability appraisal techniques

To support the delivery of these outputs a project steering group of national and regional decision-makers and stakeholders will be established in each project region. These groups will meet biannually with regional project partners to offer essential support and guidance throughout the project. This will also enable improved capacity-building at regional and national level to take place, benefiting communities in the future.

The five project regions, and current partners and potential partners/funders (*in italics*) are:

Highlands and Islands, Scotland

- UHI Millennium Institute (Lead Partner): Centre for Mountain Studies, Environmental Research Institute, Sustainable Development Research Centre
- Forestry Commission for Scotland
- *Cairngorms National Park Authority*
- *Highlands and Islands Regional Transport Partnership (HITRANS)*
- *Highlands and Islands Enterprise*
- *Highlands and Islands Community Energy Company*
- *Scotland and Northern Ireland Forum for Environmental Research (SNIFFER)*

County of Västerbotten, Sweden

- Swedish Forest Agency (Skogsstyrelsen)
- Association of local authorities in the County of Vasterbotten
- *Climate Impacts Research Centre, Umeå University*
- *Swedish Energy Agency*

Lapland, Finland

- Lapland Regional Environment Centre
- *Finnish Forestry Research Institute*
- *University of Lapland*
- *Regional tourist organisations*

Municipality of Sisimiut, south west Greenland

- *University of Greenland*
- *Arctic Technology Center*

Flora Municipality, Sogn & Fjordane, Norway

- Western Norway Research Institute
- *Norway Energy Service*

If the main project proposal is successful, the project will be principally funded by the European Commission's Northern Periphery Programme 2007-2013. A total budget of approximately 2.7 million euros will be required over 3 years. Up to 45% of each regional project budget will have to be provided from regional sources. The main project proposal will be submitted on 1st October 2007 with a proposed project start date in early 2008.

Please contact Clive Bowman at the Centre for Mountain Studies, UHI, if you would like more information on this project or wish to discuss participation. Phone: +44 (0)1738 877204, or email clive.bowman@perth.uhi.ac.uk.

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Additional information on project themes and activities

The project activities will be split into 5 workpackages (WPs). WP 1 will contain project management, communication and evaluation activities, WPs 2 and 3 will develop the capacity for adaptation, WP 4 will evaluate the realities of delivering adaptation actions, and WP 5 will bring all the lessons together and create a sustainable service, providing information, training and advice relating to community climate change adaptation.

Workpackage 1

Financial Management, Project coordination, Project communication and Project evaluation

Effective project management – including project activity and financial management, delivery of a communication strategy and project evaluation - will be implemented by the lead partner, the UHI Millennium Institute (UHI). This workpackage will run throughout the project, enabling control of all project decisions, activities and expenditure, as well as taking a coordinated approach to all aspects of project communication and the evaluation of project activities.

Workpackage 2

Regional Climate Change and Scenarios

An evidence base of the likely impacts of climate change will be provided to communities by producing a number of potential climate change scenarios. Each participating region will create its own visualisations of the likely direct and indirect impacts of climate change; these will be integrated through the use of common data sets and scenarios of future emissions of greenhouse gases, as well as local knowledge and experience. The outputs from this workpackage will be tailored to the needs of each community and will be in a form that is easily understood and communicated, allowing each community to make informed adaptation decisions.

Workpackage 3

Community climate change adaptation opportunities

Relevant regional stakeholders with sectoral expertise, local knowledge, and knowledge of regional and national policies and frameworks will meet with local community stakeholders, to take part in a number of discussion and brainstorming activities in order to identify adaptation opportunities, and allow businesses and administrations to assess how to avoid or reduce the negative impacts of climate change (risks) while taking advantage of positive impacts (e.g., through local employment opportunities, social benefits, environmental management). All sectors and community subgroups will be brought together to compile all adaptation ideas and discuss these in order to establish coherent community climate change adaptation strategies and identify priority actions.

A regional dissemination event (seminar or community activity day) will be held in each participating region to promote the new adaptation strategies of each community and discuss issues surrounding its development or proposed implementation. Other communities, administrations and public organisations will be invited to attend.

Workpackage 4

Community adaptation demonstration projects

Suitable complementary adaptation demonstration projects that will deliver adaptation activities at a local level, and further build adaptation capacity at both a community and decision making level will be progressed and implemented in all five project regions. All demonstration projects relate directly to at least one of five agreed themes of priority in the northern periphery and has commonalities with at least one other demonstration project in another region, to promote transnational linkages and partnerships, and also to enable direct comparisons to be made, thus maximising new knowledge;

1. *sustainable transport provision,*
2. *secure, local and sustainable energy provision,*
3. *tourism opportunities,*

4. *proactive flood risk management,*
5. *forest land management opportunities.*

The demonstration projects and their linkages under each theme will be:

theme	Sustainable transport provision	Sustainable energy provision	Tourism opportunities	Proactive flood risk management	forest land management opportunities
region					
Highlands and Islands, Scotland	(1) Local transport project in the Cairngorms National Park possibly relating to alternative fuels (waste oil)	(2) Local community wood fuel supply project in the Cairngorms National Park	(3) New tourism ideas to replace snow sports in Cairngorms National Park	(4) Integrated catchment land management (riparian woodland) project in Glen Urquhart	
Sweden	(1) Develop "Green Card" travel system of benefit to the tourism business sector in Åre Municipality.		(2) Develop a GIS tool for to assess the impacts on the tourism sector in Lycksele Municipality		(3) Develop an adaptation educational package for forest land with the community of Skelleftea Municipality.
Lapland, Finland			(1) Develop new tourism strategies in relation to snow reliability with Lokka village, Ylläs and Rovaniemi.	(2) Develop a GIS-based flood risk management system in Kittilä and Rovaniemi	
West Norway		(1) Develop energy management and energy planning tools and services in Municipality of Flora			
Greenland	(1) Sustainable transport infrastructure adaptation (road, air and sea) in Municipality of Sisimut. (tbc)	(2) Energy management and energy efficient housing design in Municipality of Sisimut. (Tbc)	(3) Develop new tourism strategies in relation to improved weather in Municipality of Sisimut. (tbc)		

All demonstration projects will require further development, which will take place early in the project at both a local level and a transnational level. It is anticipated that a partnership relationship will develop early in the project between the stakeholders involved in complementary demonstration projects, thus enabling each to input into the design of each other's project, and to follow its progress

Proposed demonstration project details for each theme are as follows:

1. sustainable transport provision

Scotland (1) – sustainable transport project in the Cairngorms National Park

Future climate change is likely to have an impact on current activities, and their associated infrastructure, including transport mechanisms, within the Cairngorms National Park. The Cairngorms National Park Authority (CNPA) recently launched its new Park Plan in early 2007, which has strategic objectives focusing on transport and communication infrastructure improvements, as well as strengthening the capacity of local communities. There is thus an interest from both the CNPA and the Highland Regional Transport Partnership (HITRANS) to develop a local sustainable transport project of benefit to communities, local businesses and park visitors, which will take on board the risks of future climate change, and will also contribute towards reducing the carbon footprint of the National Park – current ideas are focusing on community use of alternative fuels eg biodiesel and hydrogen.

Sweden (1) - Alternative and new travel systems to remote tourist destinations, Åre

Future climate change may mean that travel in some Northern Periphery regions will be more expensive (more risks) and, in some cases, may not be possible in the way we are used to (less snow). For the tourism sector, in particular, it is essential to find sustainable travel systems to ensure that people continue to visit remote destinations. It will develop an example of a sustainable low risk "Green Card" travel system with reduced carbon dioxide discharges. The outcome of the project will be a tangible system within existing infrastructures useful for actors within the tourism sector.

Greenland (1) - Sustainable transport infrastructure adaptation (road, air and sea) - tbc

2. secure, local and sustainable energy provision

Scotland (2) –development of a community wood fuel supply infrastructure

Energy securing will be effected by the increase of extreme weather events that climate change is likely to bring. In the Cairngorms National Park there is a desire to see a shift from the current national grid energy provision model to the local energy provision model to reduce risk and increase security of supply. A number of communities have recently been exploring the potential of developing a combined district heating system to provide energy for their village. Not only will this provide energy security, but if a local source of fuel can be utilised, this can lead to reduced transport costs and increased local employment. Discussions with local Estates managing coniferous woodland plantations could lead to the development of a community/estate partnership to supply the wood fuel in the form of chips. The demonstration project will explore the options further with a suitable community and begin establishment of an appropriate new community wood fuel supply infrastructure.

Norway (1) – Municipality involvement in energy management and energy planning

The energy sector plays an important role in developing sustainable local communities. Higher energy prices, related to Government policies, climate change impacts and public demand for new energy sources will lead to a need for new tools, knowledge, and technology understanding and operation at the local level. These tools and methods must be based on analysis of existing distribution systems, the capacity for producing renewable energy within a defined area, and the linking of this information to other planning and decision-making processes. These other processes could include a re-investment plan for energy distribution systems, water supply planning, drainage management, waste management, spatial planning and new investment in housing and business.

Greenland (2) - Energy management and energy efficient housing design - tbc

3. tourism opportunities

Sweden (3) – Use of GIS in climate change adaptation for the tourism sector

Current tourism activities will be potentially affected by many climate change impacts. This demonstration project will utilise GIS as a tool for local communities to increase their adaptation capacity in order to develop strategies for reducing their vulnerability to climate change. Relevant questions and indicators (GIS application) will be selected by focus groups consisting of local administrators, tourist operators, the forest industry, government organisations, and NGOs. The specific outcome from the pilot project will be a GIS communication and planning tool for local adaptation to climate change specifically for the tourism sector. It is anticipated that the process will create new ideas and networks for the creation of products and services for climate change adaptation.

Finland (2) - Tourism products and tourism strategies in relation to the future prospects of local communities

The objective of this project is to study both the changing practices of local communities and the interactions between communities and wider market and tourism policy strategies. This will be achieved by mapping the tourism products of Northern Finland from the viewpoint of their possibilities to adapt to drastic or slower changes of the operating environment and examining how strategic tourism planning takes into account the issues of climate change. An additional important question is how the traditional industries and tourism are combined in everyday lives of local actors and what kinds of choices and alternative living strategies are feasible. The project will specifically focus on three different kinds of communities that will be affected by changes in snow reliability.

Scotland (3) - New tourism to replace snow sports in Cairngorms National Park

The area around Cairngorm Mountain has, in the past, predominantly focused its tourism provision on catering for snow sports. Recent seasons have been poor in terms of snow reliability and the trend is set to continue. In conjunction with the other demonstration projects under this theme, the CNPA and the principal snow sport tourism business, Cairngorm Mountain Limited, will carry out workshop and brainstorm activities with other tourism businesses in the area to develop new tourism business opportunity ideas.

Greenland (3) - Develop new tourism strategies in relation to improved weather conditions - tbc

4. proactive flood risk management

Scotland (4) – implementation of an integrated catchment management plan

Climate change is predicted to bring an increase in extreme rainfall events and thus flooding events across the Northern Periphery. Sustainable flood management is now recognised as a viable, and often preferred, alternative solution to engineered flood works, that can bring multiple benefits. Glen Urquhart currently has an established land use partnership group (GULuP). Its membership is predominantly from the local community (including landowners), and it also has representatives of national and regional stakeholder organisations. As an area that has been impacted by flooding, an integrated catchment management plan was recently developed by the Forestry Commission (national forest agency), in partnership with this group, under the Interreg project SAFER. Elements of the plan have been implemented on Forestry Commission land, but the group now wish to reassess the plan in the light of the likely impacts of climate change, and continue implementation on private land, to reduce future flood risks, and well as explore the commercial opportunities for recreational access, wood fuel and tourism.

Finland (1) – development of a GIS-based flood risk management system

Finland has recently been severely impacted by flooding. A proactive response to flooding, instead of a reactive response is essential if we are to successfully adapt to the increased risks of flooding. This demonstration project will involve preliminary flood risk assessment and flood risk maps in project areas, flood risk management plans, visualisation to local people (maps, website, seminars and media), building code and land use plans. This will involve two communities that are at risk of flooding in Lapland by Rivers Kemijoki and Ounasjoki.

5. forest land management opportunities

Sweden (3) – Adaptation Strategy for Forest Land

Climate change offers many opportunities for forest management in the Northern periphery; increased growth, new species, and new management practices. This demonstration will explore how to more effectively disseminate the existing knowledge of the impacts of climate change on forestry, with the forest community of Skelleftea in Northern Sweden, in cooperation with an organisation that focuses on the education of adults. Appropriate authorities and NGOs, all of the forest owners within the specified project area, and representatives of the forest sector will form sub-groups (study circles) that will research, discuss and develop a draft educational package through a series of interactive meetings. The project will be carried out in collaboration with the MISTRA Swedish Research Programme on Climate, Impacts and Adaptation (SWECIA). The outcome of this demonstration project will be a tested educational package that can be offered to every NGO and Authority as well as other parties active within the forest sector throughout Northern Sweden.

Scotland (4) – implementation of an integrated catchment management plan

The demonstration project in Glen Urquhart, with the land use partnership group (GULuP) (as shown above under sustainable flood management) will also offer opportunities to deliver new adaptive forest management practices and communicate them with other communities and regions.

Workpackage 5

Establish a Northern Periphery Community Climate Change Adaptation Information, Training, and Consulting Centre

Clim-ATIC will conduct a feasibility study to investigate the potential need for, and customer requirements for, a new climate change information, training and consultancy service. It will investigate the most suitable structure and delivery vehicle for such a service, the target audiences, and what knowledge they require. The communities, businesses, local administrations and other participants in work packages 2, 3 and 4 will actively contribute into this study, ensuring that the end service is appropriate to their needs, and explore possible opportunities for them to be involved in the delivery of this service. A business plan will be developed, initially for 5 years, with a focus on information and training services, and include an agreement on which organisations (potentially the University of the Arctic) would be involved in the long-term management of the new service to ensure currency of information, course development, and delivery.

At least one short course will be developed and delivered in English, as part of the Clim-ATIC project, and the frame work will be established for wider delivery. There will be further development of the business plan to incorporate the provision of consultancy services including identification of funding sources and future research opportunities to feedback into an improved climate change impact adaptation training service.