

Adapting to climate change

CIRCLE-2 is supporting adaptation to climate change by facilitating research outputs that are tailored for the common needs of different regions and countries

CLIMATE CHANGE IS the world's current hot topic, provoking volatile discussion on a global scale. Some claim that climate change is simply a natural cycle while others argue that it is worsened by human mismanagement and exploitation. The effect that humans have had on the planet over the last few centuries cannot be denied; however, it is the impact of that climate change that is providing the most worrying statistics. Whatever the causes, in order to safeguard the sustainability of our ecosystems, it is clear that the reality of climate change needs to be addressed, by both

governments and individuals alike. If its impacts are not carefully studied, the battle against the effects of climate change will be lost, and our grandchildren may be left to live in a world that bears no resemblance to our own.

Focusing on the impacts of climate change is a monumental task, the challenges of which span both the ecological, economical, social and cultural dimensions of sustainable development. The influence of climate change appears to be now unavoidable, making a need for European adaptation strategies all the more evident. CIRCLE-2, coordinated by Tiago Capela Lourenço, is responding by providing a network that supports the development of European knowledge on the key vulnerabilities that are presented by climate change, as well as the response options to better deal with them. This type of support can only be engendered by research that is strictly relevant to policy and policy-making at European, national and regional levels.

THE CYCLICAL NATURE OF CLIMATE CHANGE POLICY

The primary goals of CIRCLE-2 include optimising research programmes, and increasing the efficiency and impact of public research funding. It is seeking to contribute to European efforts by aligning and networking research funding and managing organisations, along with their respective national and regional programmes. CIRCLE-2 will also aid the envisaged EU Clearing House on Climate Change Impacts, Vulnerability and Adaptation (CCIVA) by maintaining a common research agenda and sharing the generated knowledge on available adaptation research with national and European decision makers. Research and knowledge can therefore inform policies as well as disseminate findings to an international community, creating a more successful approach than has so far been achieved.

BRIDGING THE GAP

To date there have been major knowledge gaps in climate impact and adaptation research. Bridging these is another aspect of CIRCLE-2's approach to further facilitate more policy-relevant research and strategies. The project focuses on what it believes are the two levels of this problem: one is the scientific subjects themselves, and the second is related to the mechanisms necessary to support innovative and crucial climate research. Capela Lourenço is keen to emphasise that although CIRCLE-2 does not leave completely aside basic climate research, such as earth system dynamics and atmospheric processes, the team are concentrating more on supporting applied research in order to address the substantial gaps left open by mainstream research approaches. For example, they see a need to understand how the growing body of available research results can be used to sustain policy decision-making for both local and global scales. Another area CIRCLE-2

is highlighting as vital is the lack of cohesion between natural sciences and the social processes that direct adaptation.

Support mechanisms like funding and monitoring of projects are the backbone of any research programme, but, as Lourenço cautiously points out, the success of these mechanisms is not attributed to financial stability alone: "Support mechanisms have a great deal to do with understanding the common avenues (scientifically but also in management) that can be explored on the path to a ERA on climate research." CIRCLE-2 therefore presents itself as a cooperative scheme to address the needs that climate adaptation research creates, both financial and scientific.

POTENTIAL CHALLENGES

Climate impact and adaptation research is never going to be straightforward, especially when a project is bringing together organisations and promoting research funding across different countries. Although the CIRCLE-2 framework is in a good position to overcome such challenges, they nevertheless present ongoing issues. The very essence of cooperation brings together the realities of disparate countries and programmes, creating respective difficulties, even between countries in the EU. National funding rules also vary from country to country, with budgetary restrictions often preventing action. Organisational structures also reflect the various ways countries and institutions address research funding and how they manage the studies they facilitate. Further adding to this strain are the different political agendas and timings of the respective countries. This can be reflected in the behaviour of institutions and ultimately some topics of common interest can end up not being funded even if mutually beneficial.

Climate change adaptation research is a novel field and a very policy-dependant area. CIRCLE-2's individual partners may be active within their own perimeters, but experience constraints when they try to cooperate transnationally. The issues facing CIRCLE-2 are complex, spanning several areas, and the means to combat them are necessarily varied. Consequently, CIRCLE-2 is

set to help the development of European and national climate change response frameworks by providing support to adaptation strategies through the facilitation of research outputs tailored to meet the requirements of specific groups of regions or nations.

ADAPTING TO CLIMATE CHANGE

Some parts of Europe are better prepared to deal with anthropogenic climate change than others. Capela Lourenço provides a warning about underestimating what can be learnt from poorer or apparently less developed

Although challenging, collaboration is the key to unclocking the solutions behind climate change

societies: "Climate adaptation has been a part of human behaviour for thousands of years, and in the last centuries has not been exclusive to richer nations," he says. "Several good examples of how to cope with a more extreme climate come exactly from poorer countries (e.g. urbanisation and buildings, and water resource management)." CIRCLE-2 is therefore looking to provide support not only for collaborative research with developing nations and new EU member states, but in assisting the transfer of knowledge between these facilities whilst cooperating on the research management level.

Although challenging, collaboration is the key to unlocking the solutions behind climate change. It is only through international effort that the issues surrounding climate change will be successfully addressed: by appealing, involving and aiming research at those people who can facilitate change in policy and effect decision making.

CIRCLE-2 is ensuring that the most pertinent issues surrounding climate change adaptation research are appropriately and actively supported. In an area that is currently as much policy as science, CIRCLE-2 is offering important mechanisms to address and understand the impacts of climate change, their associated uncertainties, as well as the necessary response options, both within current and future societal activities. Through this, CIRCLE-2 is establishing itself as a key player in the climate change debate.

Climate and cooperation

Tiago Capela Lourenço, CIRCLE-2's Coordinator, is merging science and policy by addressing the impacts of climate change with a collaborative approach.

CIRCLE-2

How does CIRCLE-2 seek to build upon the work of previous networks, and what different objectives is it aiming to pursue?

CIRCLE-2 is an ERA-Net (European Research Area-Network) and builds upon an extensive network of persons and organisations that have been collaborating on climate change research coordination since 2004. CIRCLE-2 has now been enlarged with several key European research funding institutions that were not involved in previous phases. It has also grown significantly in the number of participating countries and includes more regional institutions.

European climate research and policies have evolved significantly since 2004 with more focus now being put on adaptation. CIRCLE-2 has set clear goals and objectives that accompany and reflect these changes. First and foremost it seeks to provide the basis for active cooperation on climate change adaptation research and policy. Our partners and contributing partners will collaborate in a comprehensive but flexible work programme over the next four years.

How will you ensure that studies of adaptation cost are based upon case studies that cover a wide range of places and sectors?

Despite its pan-European scope, CIRCLE-2 has learnt over the past years that applying a variable geometric approach to its activities is a suitable mechanism to pursue concrete objectives. Europe and European research management is a complex field, with geography and cultural background still playing a significant role in its decisions - this is visible even at a researcher's level.

CIRCLE-2 will foster several levels of interaction and cooperation across its consortium. Geographically focused groups are already cooperating (e.g. Mediterranean, Nordic, CEE/SEE) or foreseen (e.g. Atlantic, Support to neighbouring countries), and

transdisciplinary, topical or sectoral calls are running (e.g. mountains) or under discussion (e.g. delta areas, urbanisation). The focus of CIRCLE-2 is flexible: to maintain a clear adaptation-driven programme and a common research agenda; to keep track of developments; and to inform wider European communities.

Your work plays an important role in supporting climate impact research projects across Europe. What have been some of the benefits to the different initiatives you fund?

We believe the active support of joint research projects is one of the best ways to showcase the importance of our work. CIRCLE has funded and supported several transnational research projects in its two pilot calls (CIRCLE-MEDiterranean and CIRCLE-NORDic) and we are currently evaluating the proposals submitted to its third (CIRCLE-MOUNTains). This last initiative is a perfect example of CIRCLE-2's belief in the benefits of cooperation. It was launched in the last days of CIRCLE CA by organisations that were already part of the network and others that wanted to take part in CIRCLE-2, and the call was managed during a period when CIRCLE-2 hadn't even been approved by the European Commission. In order to achieve this level of integration, there is a further key component that, in my opinion, is the core of our project: trust between persons, organisations and, ultimately, countries.

What pilot projects are you hoping to support and how important do you believe these schemes are?

CIRCLE-2 will support transnational joint research projects that are focused on climate change impacts and adaptation. Both basic and applied research projects can be funded, with the decision being taken by the consortium and expressed through CIRCLE-2's strategic research agenda. Following the pattern of already supported projects, funding



transnational research through CIRCLE-2 is of clear added value over nationally funded projects. Some of the benefits include a powerful networking and multiplier effect, resource spending optimisation, addressing of common research needs, and the alignment with the European scale. We believe the ERA-Net scheme can play a very important role in the setting up of a true ERA and of a European Programme for Climate Change Adaptation.

How important is a collaborative approach to the mission of CIRCLE-2?

CIRCLE-2 will be entirely based on a collaborative approach. It will be supported by a flexible work programme of four work packages: LEAD related to the project coordination; DESIGN dealing with the development of a strategic research agenda; FUND addressing joint calls and the funding of transnational research; and SHARE looking to strengthen the climate science-policy interface and sharing knowledge on adaptation. As a second generation ERA-Net, CIRCLE-2 develops around the sound cooperation between its partners and contributing partners and follows a clear but complex multidisciplinary approach: 'science meets policy on climate adaptation'.

CIRCLE-2 ERA-Net

CLIMATE IMPACT RESEARCH
& RESPONSE COORDINATION
FOR A LARGER EUROPE

OBJECTIVES

- To coordinate and consolidate European transnational funding on Climate Change Impact, Adaptation and Vulnerability (CCIVA) research
- To facilitate the research outcomes that European and national decision makers need to design effective yet economically efficient adaptation initiatives and strategies
- To foster collaboration, and to share good practices on CCIVA research and research management

FUNDING

EC Seventh Framework Programme (FP7) and national funds

DURATION

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FCT: Foundation for Science and Technology, Portugal
CMCC: Euro-Mediterranean Centre on Climate Change, Italy
MEEDDM: Ministry of Ecology, Energy, Sustainable Development and Sea, France
MICINN: Ministry of Science and Innovation, Spain
SMHI: Swedish Meteorological and Hydrological Institute, Sweden
KvK: Knowledge for Climate Research Programme, the Netherlands
AKA: The Academy of Finland, Finland
SEPA: Swedish Environmental Protection Agency, Sweden
EPA-I: Irish Environmental Protection Agency, Ireland
PT-DLR: German Aerospace Center Project Management Agency, Dep. "Environment, Culture, Sustainability", Germany
MKF: Mariolopoulos-Kanaginis Foundation for the Environmental Sciences, Greece
FORMAS, The Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning, Sweden
MEW: Ministry of Environment and Water, Hungary
TÜBİTAK: Scientific and Technological Research Council of Turkey, Turkey
ETF: Estonian Science Foundation, Estonia
IME: Israel Ministry of Environmental Protection, Israel
EVFH: Public Agency Flanders Hydraulics, Belgium (Flanders)
DEFRA: Department for Environment, Food and Rural Affairs, United Kingdom

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REFERENCE

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