

SIXTH FRAMEWORK PROGRAMME PRIORITY: ERA-NET
Coordination of National and Regional Activities (ERA-NET scheme)



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CIRCLE CA

Climate Impact Research Coordination for a Larger Europe

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**Position Paper on Tangible Short and Mid-term Approaches for Topical Transnational
Research Coordination**

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Executive Summary

- CIRCLE ERA-NET aims to facilitate climate impact analysis and adaptation research by enhancing collaboration and coordination between national research funding organisations and activities.
- This document offers a rationale for trans-national coordination of funding activities in the area of climate change impacts and adaptation research. It provides an interim report on the current state of progress and intermediate conclusions of the CIRCLE CA ERA-NET programme. It positions CIRCLE within the relevant institutional landscape. For this end, CIRCLE is also following closely the developments of international organisations and conventions that constitute important points of orientation for research funding strategies.
- CIRCLE fills a gap in the research funding landscape. It directly conveys the interests of the different CIRCLE member countries to a networking and coordination platform with a trans-national, sub-European level of operations. It involves groups of countries in differential collaboration on issues of joint concern in the area of climate impact and adaptation research, while at the same time providing a consistent overall framework for these activities.
- CIRCLE found a high level of awareness about the potential impacts, vulnerabilities and adaptation needs related to climate change throughout Europe. In most countries – with some white spots remaining mainly in Eastern Europe – funding agencies are setting up respective research programmes to guide concrete action. Most approach climate research in an integrated manner, connecting fundamental climate system research to issues of political, societal or economic concern. Integrated climate science is increasingly expected to help in guiding the development of appropriate responses and policies on how to deal with the consequences of climate change in different contexts.
- CIRCLE concludes that research funding is needed for interdisciplinary and trans-disciplinary approaches, and for applied research and development, as well as integrated assessments. Associated with these needs are new challenges of community building, networking and capacity building. Communication, cooperation and integration will not only have to take place between different scientific disciplines, but also with non-scientific stakeholders and policy-makers.
- This paper outlines some of the emergent consequences of trying to build a coherent funding strategy for climate change impacts and adaptation research. CIRCLE provides a unique forum to discuss such funding instruments. By means of transnational collaboration, CIRCLE can also contribute significantly to making the different concerns and interests, scales, views, values, and communities meet and to extending the knowledge base upon which impact and adaptation research rests.
- CIRCLE partners together with the Advisory Board have started to compile a list of specific areas of highest common strategic interest regarding climate impact assessment and adaptation. Though not claiming to be comprehensive, this list of topics may serve as the departure point for the formulation of a topical work programme for future trans-national activities.

Introduction

CIRCLE is the acronym for the programme entitled Climate Impact Research Coordination for a Larger Europe, which is funded under the Framework Programme (FP) 6 European Research Area Network (ERA-Net)¹. It is a Coordination Action (CA), which integrates the forces of research funders and their respective national programmes from 20 countries. CIRCLE contributes to the establishment of the European Research Area by focusing on the areas of highest common strategic interest, namely, Climate Impact Assessment and Adaptation.

The topic of climate change has received more and more attention. Effects on our environment are becoming increasingly noticeable, influencing our actions in society, economy and politics. Despite the many remaining uncertainties, we know that climate change will most probably affect almost every area of life and every place on Earth, even if to various degrees. Also, climate change is increasingly becoming a development factor for regions and for private enterprises. The IPCC's latest, Fourth Assessment Report (FAR) "Climate Change 2007" provides the most recent comprehensive assessment of the climate topic. We find that confidence in our knowledge on trends is ever growing and ways on dealing with climate change are in demand. Among its results, the report underlines the importance of enhancing research on climate impact and adaptation, especially on regional and local scales, as a basis for the development of measures for dealing with climate change that cannot be avoided any more even under conditions of strict mitigation.

Therefore, climate impact research and adaptation response must be informed by a coherent body of research. It is CIRCLE's primary objective to contribute to such efforts by enhancing collaboration and coordination among national research funding organisations and activities. CIRCLE wishes to support policy-makers in selecting specific options for an appropriate funding strategy by outlining fields which individual national programmes are unable to tackle owing to their size and complexity, and which most need transnational collaboration. This process will be a strong support for the overall goal of implementing a European Research Area (ERA) in the field of Climate Change Impact Assessment and Adaptation.

This position paper provides a status report on the work that the CIRCLE ERA-Net has accomplished. Thus, CIRCLE is releasing this position paper based on its activities between November 2005 and April 2007. The goal of the document is the following:

- to position CIRCLE within the institutional landscape providing the framework for funding of research on climate change impacts and adaptation;
- to bring to the attention of national policy-makers and stakeholders the relevance of the work in research coordination that CIRCLE has set out to undertake.
- to provide an interim report on the current state of progress of CIRCLE, summarising the conclusions and the short and mid-term steps to be taken in topical research funding, with a particular view on the role of research for and on adaptation.

¹ <http://www.circle-era.net/>

Based on the goals mentioned above the position paper is divided into the following sections:

1. CIRCLE within the international and European research policy and funding landscape;
2. Funding strategies for adaptation research;
3. Suggestions for policy planning and investment in strategic areas of adaptation.

Annex: Interim results of CIRCLE and plans for the near-term future.

1. CIRCLE within the international and European research policy and funding landscape

It is important to position the activities of CIRCLE, especially the ones focusing on adaptation issues, in the context of the activities of international organisations and conventions. Some of the international agendas pursued by other organisations set frameworks for what CIRCLE is aiming at by establishing priorities or providing orientation, not least to ensure that efforts are not duplicated.

CIRCLE and the Intergovernmental Panel on Climate Change (IPCC)

The assessments of the Intergovernmental Panel on Climate Change (IPCC) provide a reliable overview on current knowledge about climate change. The assessments also reveal the strong and weak points in climate impact and adaptation research. From the three areas of research assessed in the IPCC FAR report (physical science basis; impacts, adaptation and vulnerability; mitigation of climate change) it can be concluded that

- Research on the understanding of climate systems and climate impact studies has reached an advanced level.
- In contrast, research for and on adaptation is at an infant stage and still leaves many important questions to be answered.

Even though there are many impact studies from Europe on both sectors and systems, there is not enough information on the local and regional level which could provide a good basis for adaptation. There is especially a lack of knowledge on adaptation measures from the perspective of methodology and implementation, and how such measures interact with ecological, economic and social systems.

Integrating the three areas of research assessed in the IPCC FAR, i.e. analysing impacts and adaptation in relation to the science of the climate system and the consequences of mitigation is a great challenge. This is a field where knowledge is still incomplete. There is an imbalance between our advanced scientific analysis and assessment of climate system dynamics and our still partial understanding of response options in different societal and ecological contexts.

Hence, the analysis of the IPCC assessment from a research funding perspective implies that CIRCLE should make an effort to target new research communities which have not yet addressed questions of climate change impact and adaptation to the extent necessary. If research facilitated by CIRCLE over the next years succeeds in installing a European-wide programme on effectively adapting to anticipated or ongoing changes, this could have a significant impact on coming IPCC assessments. CIRCLE could thus become an important future basis for the IPCC, especially since the IPCC has so far mainly focused on assessments on a global and continental scale, but will now advocate more investments in integrated regional studies on adaptation.

CIRCLE and the United Nations Framework Convention on Climate Change (UNFCCC)

The United Nations Framework Convention on Climate Change (UNFCCC) sets a framework for intergovernmental cooperation to combat the challenges of climate change and has increasingly stressed the necessity of implementing adaptation measures worldwide. CIRCLE is following UNFCCC developments in this area, such as the Nairobi work programme on adaptation, to ensure that its investments will promote knowledge, build capacities and lead to the strengthening of economies, which will then be able to meet the demands of a growing market for expertise and technologies in the field of adaptation. If CIRCLE succeeds in coordinating the implementation of efficient adaptation strategies between European countries it could become a leading group within UNFCCC.

CIRCLE and the European policy context

Adaptation is a primary issue within the framework of European Climate Change Programme (ECCP) I and II. The general objective of the Working Group on Climate Impact and Adaptation in ECCP II includes “making decisions about adaptation policy [which] involve risk assessments and assessments of costs and benefits.”² Also, the EC’s green paper on adaptation, which is currently being prepared, will provide an important orientation-point for CIRCLE as to the necessary direction that policy-making and investments in adaptation should take in the future.

CIRCLE in the European research funding landscape

In FP7, adaptation issues are not put to the fore within the 10 main themes listed under the heading of environment and climate change. In this sense, CIRCLE fills a gap with its focus on coordinating research funding activities on climate change impact and adaptation in Europe. Within the next year it has to be clarified whether CIRCLE aims at an ERA-Net plus, which would result in taking over parts of the research fields covered by the FP so far. This might make sense in the field of adaptation to climate change.

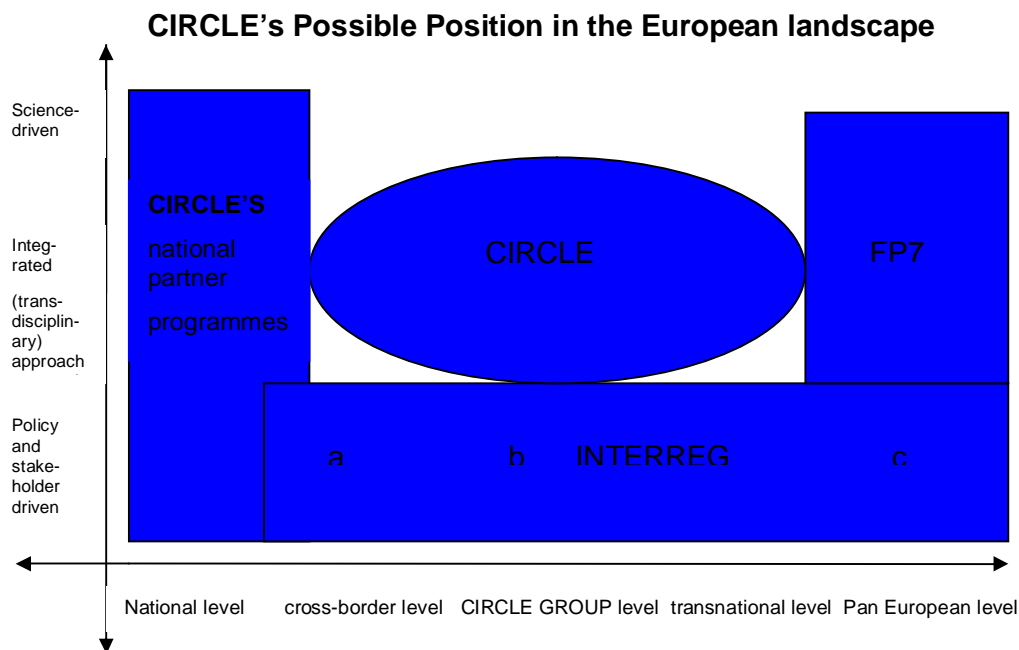
Interreg³ I, II and III, although not specifically concerned with climate change, may indirectly share concerns with CIRCLE through specific economic, social or regional issues. The projects funded under this scheme aim to strengthen economic and social cohesion, regional development and integration. ClimCHalp under the Alpine Space Programme within Interreg IIIb is an example for a project which attempts to establish a platform for an integrated adaptation strategy for the alpine region and also initiates assessment of research activities and gaps. CIRCLE can draw on the results of this programme as a departure point for future activities within the Alpine/Mountain regional group. The Central Eastern European group within CIRCLE can rely on the Northern Eurasia Earth Science Partnership Initiative (NEESPI), which provides a basis for linking up with researchers of the Eastern European and Russian region. The CIRCLE Nordic group will aim for a

² http://ec.europa.eu/environment/climat/eccp_impacts.htm

³ A European Union Community Initiative for cross-border, transnational and interregional cooperation.

close link with Interreg IIIb “Developing Policies & Adaptation Strategies to Climate Change in the Baltic Sea Region” (ASTRA), which assesses regional impacts of ongoing global climate change with the aim of developing adequate adaptation strategies and policies together with relevant stakeholders, such as planners and decision makers (<http://www.astra-project.org/cms/>).

In summary, the following diagram illustrates the position of CIRCLE in the European research funding landscape:



CIRCLE has a complementary and gap-filling function within the European research funding landscape, which other major programmes do not fill. CIRCLE is unique since it directly conveys the interests of the different CIRCLE member countries to a European networking and funding platform. The general focus and the large areas covered by Interreg, or FP7, or the limited national and in-country regional focus of the national programmes support other functions. CIRCLE is peerless in the trans-national, sub-European level of operations. It also groups its member countries in transnational sub-groups of cooperation on issues of joint concern in the area of climate impact and adaptation research (e.g. the Mediterranean focus of the MED group), while still providing a consistent umbrella function. In this way CIRCLE is also different from the approaches of the 15 other ERA-Nets in FP6 that focus on related environmental issues. CIRCLE’s roots in the national funding bodies will enable effective coordination of trans-national collaboration and promises success in promoting joint efforts on research on climate impact and adaptation.

2. Funding Strategies for Adaptation Research

The results of the CIRCLE inventory and assessment phase reveal a high level of awareness about the potential impacts of climate change, the key vulnerabilities and the need for adaptation in all European Countries. Funding agencies meeting in CIRCLE have reacted to these concerns by setting up research programmes and activities to guide concrete strategies and decisions on how to deal with climate change impacts.

By doing so, all CIRCLE partner countries have gradually moved away from defining climate research as primarily research on the dynamics of the climate system. For quite some time, impact scenarios and vulnerability assessments have become important elements of climate science, aiming to generate integrated knowledge on climate change and its consequences in different ecological and societal contexts. We find that adaptation research goes even a step further. Integrated climate science is increasingly expected to help in guiding the development of appropriate responses and policies on how to deal with the consequences of climate change.

It is important to note that the more these shifts of focus progress, the more matters of political, societal or economic concern come into the fore. This results in a number of direct consequences and challenges for funding policies:

1. Climate research needs to open up to social science communities and paradigms and also to include humanities to tackle issues concerning institutions and decision-making, behaviour, perceptions and values.
2. Applied research and development as well as assessments are gaining importance, drawing on fundamental climate research as knowledge base. The scientific networks e.g. in atmospheric sciences or on impact scenarios are comparatively well connected globally. Those communities addressing the social science, economic and cultural questions related to climate change are in many cases less mature and rather heterogeneous. The same accounts for communities integrating different approaches for the development of adaptation strategies for specific sectors or regions.
3. The need for inter- and transdisciplinary approaches⁴ includes the great challenge to communicate, cooperate and integrate not only between different *scientific* disciplines, but also with *non-scientific* stakeholders and policy-makers.

However, we still find considerable gaps between various research communities in climate change, partly as a consequence of different disciplines with different paradigms. When considering the challenges of adaptation research funding, it is useful to recognise certain distinctions, for example, between anticipatory and reactive approaches to adaptation or between research *for* and research *on* adaptation. Another non-trivial task will be to bridge the different scales of operations and analyses when integrating scientific knowledge on climate change.

⁴ We refer to approaches as 'transdisciplinary' when different parts of society (incl. academia) are cooperating, in order to meet complex challenges of society. Solutions are devised in collaboration with multiple stakeholders. Through mutual learning, the knowledge of all participants is enhanced. Transdisciplinarity is a new form of learning and problem-solving.

To facilitate communication and closer cooperation between the various research communities contributing to an integrated understanding of climate change, it will be useful to invest in the following:

- Transnational networks of adaptation researchers. Considering the geographical, cultural and climatic commonalities and differences within Europe, clusters of such networks might be considered rather than one pan-European network;
- A consistent design of the adaptation process which integrates a diversity of approaches. As above, geographical, cultural and climatic commonalities and differences within Europe should be considered;
- Common adaptation research and implementation resources, such as climate and socio-economic data & scenarios, best practices and tools;
- Integration (geographical, cultural, sectoral) of case studies;
- Coordination of perspectives across scales. Adaptation research is mostly regional or even local in scale while climate system research is usually operating globally.

These are but a few of the emergent consequences of trying to build a coherent funding strategy in the search of ways to deal with climate change impacts and adaptation. CIRCLE provides a unique forum to discuss appropriate funding instruments aiming to bridge the concerns of rather different communities and their interests. Most of the organisations participating in CIRCLE have their own experiences in funding projects which integrate across disciplines and in trying to make sure that results of research are usable for practitioners and also for other research activities.

Needless to say that, parallel to adaptation, research on climate change mitigation has to continue. As the speed and the magnitude of climate change impacts increase, the “beneficial” effects of adaptation will decrease. Natural ecosystems may not be able to adjust or migrate with the speed at which climate change is taking place. Hence, due to the strong interdependency between the various fields of climate change sciences and the basic sciences upon which they are built, the implementation of adaptation research strategies cannot be in competition to any of the other fields. Moreover, synergies may be found in a number of cases and places.

It is also obvious that in adaptation “one size fits all” will not work. At the same time, we are convinced that all adaptation efforts can probably learn from each other. One common CIRCLE goal could therefore be the coordination of funding of research, which could feed into consistent and comprehensive National Adaptation Strategies. Such efforts are pursued on the European level just as in a number of CIRCLE partner countries and as small-scale adaptation strategies that are unique to local places and specific stakeholders in a particular system. CIRCLE can contribute significantly to making the different concerns and interests, scales, views, values, and communities (researchers, stakeholders, policy-makers) meet and to extending by means of transnational collaboration the knowledge base upon which adaptation research can draw.

CIRCLE can also draw attention to the need to evaluate the economic costs of the impacts of climate change and adaptation, and provide possible ways of managing this difficult issue. Adaptation itself can pose (economic) risks to stakeholders, which may be the reason they hesitate to act. Scientists and policy makers are often not aware of these types of risks.

Nevertheless, adaptation can be a cost-effective method (when all costs are included) as the latest IPCC reports suggest.

3. Suggestions for Policy Planning and Investment in Strategic Areas of Climate Change Research

The CIRCLE Advisory Board, consisting of distinguished European global change researchers, policy-developers and stakeholders, has compiled a list of specific strategic areas which could serve as the topics of future transnational activities.⁵ We have developed this list further and present here a first draft of recommended research topics for future CIRCLE related activities (e.g. calls):

- Some general suggestions for Research & Development projects on Climate Change Impacts and Adaptation:
 1. Climate change impacts need to be considered jointly with other ongoing environmental and socio-economic pressures (e.g. land use changes, atmospheric pollution and deposition);
 2. National borders should not define study areas when climate impacts cross these borders, e.g. international water catchments;
 3. Multiple scenarios of the future should be analysed whenever future projections are used, to account for scientific uncertainty and to reflect the range of behavioural options;
 4. Assessments should be based on historical and present state data, as well as future projections;
 5. Environmental and socio-economic aspects of climate change need to be considered jointly;
 6. Research and assessments should include representatives of all stakeholders from the beginning, transdisciplinary approaches are needed;
 7. Research and assessment products should be targeted at transdisciplinary audiences and at an iterative process of social learning;
 8. Research and assessment products to inform policy-making and management should be of the highest possible scientific quality, salient, credible and legitimate;
- Challenges that may require special research instruments like overarching ‘meta-projects’:
 1. Bridging the gap in scale from European-wide research efforts (such as those in FPs) and specific local implementations;
 2. Considering the multiple links between different sectors, e.g. water, agriculture, nature conservation and so on;
 3. Understanding the local, regional and European policies and regulations from a diversity of ministries and governmental bodies that affect environmental management and climate change adaptation on local, regional and European scales;

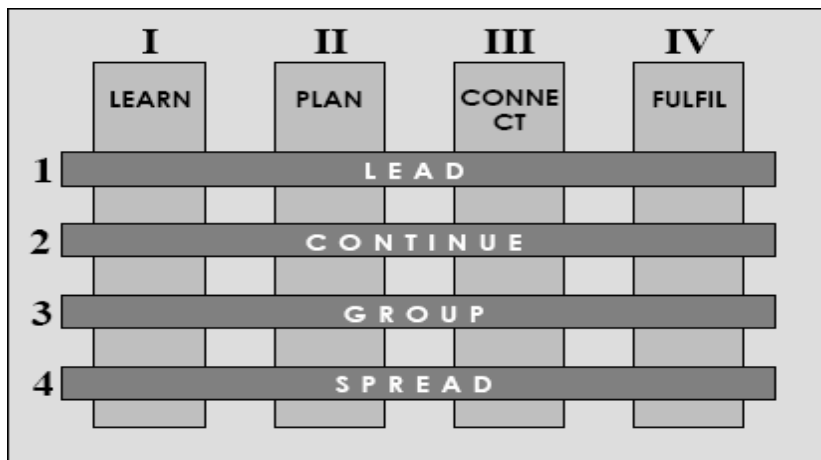
⁵ These examples are based on the discussions of the CIRCLE Advisory Board in Vienna 2006

4. Assessing the socio-economic costs and opportunities of climate change impacts against costs and opportunities of adaptation, as well as mitigation;
- Specific focus areas are drawing much attention by researchers and stakeholders alike and could serve as a departure point for defining research priorities:
 1. Focus area 'Water':
 - § Increasing risks of drought and desertification;
 - § Water conservation, use, availability and quality;
 - § Cross-border water management;
 - § Forecasting of flash floods, and measures of risk reduction;
 - § Impacts expected along the edges of a receding wintertime snow cover and receding permafrost;
 2. Focus area 'Coastal zone'
 - § Coastal zones and climate change (topic of the Mediterranean group's first joint call in CIRCLE);
 3. Focus area 'Tourism':
 - § Winter tourism (connecting, e.g. the Alpine region and the Nordic region);
 - § Summer tourism (connected, but different effects in the south and in the north);
 - § Sustainable tourism and adaptation;
 4. Focus area 'Urban areas'
 - § Urban environments;
 - § Spatial planning and management practices in urban landscapes;
 5. Focus area 'Agriculture'
 - § Food security (here: agricultural products) under changing temperature and precipitation conditions
 - § Role of organic farming practices in climate adaptation (environmental, economic and social benefits and risks);
 - § Potentials and trade-offs of growing biomass crops in Europe;
 6. Focus area 'Nature conservation'
 - § Gradient ecosystem reserves;
 - § Warming effects in present-day cold winter climates;
 - § Warming (and drying) effects in present-day warm summer climates;

Clearly this list of topics is far from comprehensive and needs further discussion and elaboration. Providing policy makers and stakeholders with scientific knowledge for sustainable management starts with the joint definition of gaps and research needs. This process will have to involve scientists, policy makers and stakeholders of various fields of expertise, whom we will continue to consult in the weeks to come. At the end of this process, a CIRCLE topical work programme will provide a wide and diverse knowledge base for joint research activities and calls.

Annex: Interim results of CIRCLE

The results achieved so far by CIRCLE are closely related to its operational mode. Activities are based on a vertical and horizontal division of strategic aims that lead ultimately to the main goal: facilitating climate impact analysis and adaptation research by enhancing collaboration and coordination between national research funding organisations and activities.



Operation on a horizontal level :

WP1 LEAD: Operationally, projects are managed at consortium level, ensuring high output quality, strategically guiding the creation of a vision among partners.

WP2 CONTINUE: Platforms are created which ensure that coordination work will go on after the project has finished and future joint project activities are prepared.

WP3 GROUP: Groups within the consortium that wish to address similar issues related to their geo-climatic or socio-economic situation such as neighbouring countries are supported (e.g. Mediterranean, Atlantic/coastal, Nordic, Central Eastern European, developing countries groups).

WP4 SPREAD: A bilateral dissemination approach is applied, in order to identify target groups and their need and appropriate methods are put to use to exchange information with them.

The group approach seems so far to be a successful way of clustering the activities from both a horizontal and vertical perspective. In many countries, for instance, the awareness about the challenges of climate change is closely linked to a particular interest in collaboration on the regional level on questions of joint concern (for example between the Nordic Countries, the Mediterranean region or the countries bordering the Alps). Within CIRCLE there are several geographical groups, such as the Mediterranean and Nordic which have begun strategic planning

of short and mid-term activities with the purpose of coordinating research funding. Both groups have decided to launch joint calls in 2007. The Mediterranean (MED) group has decided to select *coastal zones and climate change* as the subject of their first pilot joint call to be launched over the summer. There is also a Central and Eastern European group which is planning to establish closer links between the Eastern European countries not part of the consortium by organising meetings and workshops. The other geographical groups (Atlantic, developing countries, etc. are not fully active yet.

The operation of CIRCLE on a vertical level ensures that the inventory and assessment tasks that are necessary for the success of future joint activities are carried out.

WP I (LEARN)

By autumn 2006 most of the individual tasks within “vertical” Workpackage I (LEARN) had been completed and the results published. The aim of these tasks was mainly to exchange knowledge and experience about the national programmes, their areas of focus, and their scientific and management practices in order to collect the data necessary for possible joint activities.

The results taken from the Extended Country Report (Del. Ia-1), for instance, indicate that there is a shared set of strong thematic concerns: Most (89%) of the investigated European countries (18) have a national programme on climate change impacts and adaptation.⁶ Almost all the programmes support basic climate science; more than three-fourths of them focus on climate change impacts assessment and more than half cover adaptation issues as well. In other words, the investigated countries reveal a high level of awareness about the necessity of research on potential impacts of climate change, key vulnerabilities, as well as the need for adaptation.

We also compiled Reports on Administration and Management, Projects Evaluation and Selection Practices, Dissemination Practices, an overview on Globally Operating Networks and Organisations, all aimed at collecting the necessary data for future joint activities.⁷ Here are some results from the analyses conducted:

- stakeholders are involved in most of the national programme processes of preparation, development, evaluation and dissemination;
- international cooperation is important for all programmes;
- Only about 40% of the programmes can fund project partners from other countries;
- 42% of the projects are not flexible for a joint call;
- 47% of the programmes prefer a two-step evaluation process;
- 37 % of the research topics are selected on a top-down basis (32% uses a combination of top-down and bottom-up);

⁶ *Extended Country Report* (Del I.a.1.). Eds. S. Medri, S. Castellari and M. König. http://nfp-at.eionet.eu.int/Members/irc/eionet-circle/circle/library?l=/deliverables/final_versions&vm=detailed&sb=Title

⁷ All deliverables can be found at the following website: http://nfp-at.eionet.eu.int/Members/irc/eionet-circle/circle/library?l=/deliverables/final_versions&vm=detailed&sb=Title, public-relevant deliverables are available at www.circle-era.net/results

- 68 % of the programmes have their own website;

As it can be seen, the huge differences and similarities in the structure of the programmes in the area of programme administration and management, evaluation and selection practices make the coordination of efforts towards transnational cooperation a difficult, but not insurmountable task, one of the challenges CIRCLE has to deal with.

WP II (PLAN)

Most of the tasks in Workpackage II (PLAN) were completed by February 2007, partly in a final, partly in a draft version. Primarily, these tasks resolved strategic issues through determining ways to collaborate and by defining specific activities for mutual support in the future. A list of barriers, as well as enablers and restrictions for transnational research cooperation were identified (Del. II.a-1). Relying on the results of WPI, the programmes were clustered into thematic groups (Del II.b-1). The comparison of national programmes clearly demonstrated that climate science, climate impact and adaptation research, vulnerability and adaptive capacity assessments are a common research interest of the CIRCLE consortium.

The climate impact group forms one of the largest national programme clusters, in which particular research areas are fairly evenly distributed. Within the major field of climate impact research more than three quarters of the national research programmes are concerned with water ecosystems and socio-economic aspects of climate change, more than two thirds with biodiversity, human settlements and soil degradation.

Involvement in the major areas of adaptation research is also fairly even. More than half of the national programmes are involved in nature preservation, biodiversity, agriculture and forestry; and at least half of them support research in water management and natural disasters. More than half of the national programmes in CIRCLE support vulnerability and adaptive capacity assessments.⁸

A report (Del. II c-1) on current understanding and research practices related to socio-economic aspects of climate change impacts with recommendations for future related research in this area was compiled, pointing out the tendency of the national programmes to focus more and more on socio-economic aspects of climate change and the necessity of selecting topics for transnational activities in this area as well (e.g. socio-economic vulnerability, the costs and benefits of impacts, etc.).

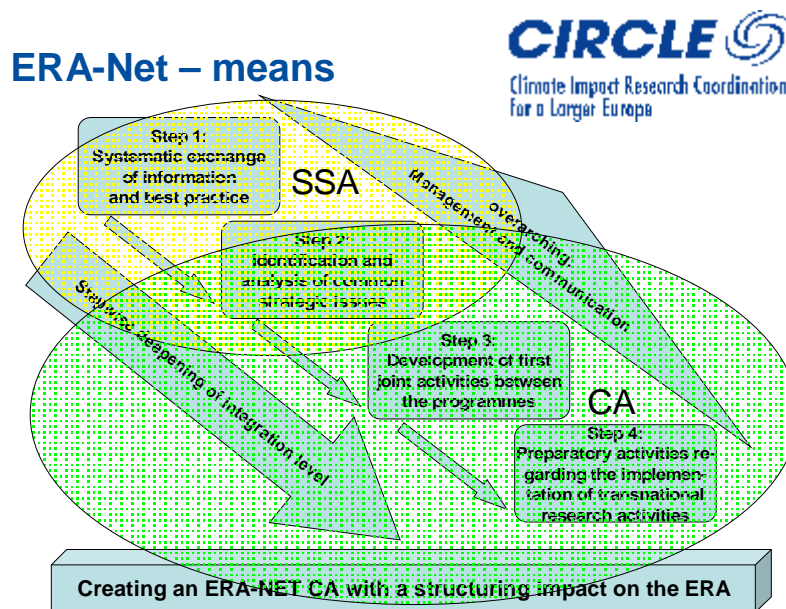
Conclusion: there is a distinct tendency in all CIRCLE partner countries to move away from targeting primarily climate system research. There is a shift towards focusing on integrated knowledge on the consequences of climate change in different environmental and societal contexts. Research is targeted at providing the necessary guidance towards the development of appropriate responses and policies on how to deal with these consequences.

⁸ Vulnerability here is meant according to the definition given by the IPCC (2007): "the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes". *IPCC WG II, Fourth Assessment Report. Summary for Policy-makers*. <http://www.ipcc.ch/SPM6avr07.pdf>

WP III and IV

These packages have just launched their activities. The tasks of Workpackage III (CONNECT) focus on establishing operational links between the programmes by putting plans into action and creating solutions that produce mutual benefits.

The aim of workpackage IV (FULFIL) is the practical implementation of transnational research calls, including a central management framework, and a comprehensive list of research topics, as well as the final call texts. We have started this process by analysing existing research call management frameworks and summarising the requirements for a common CIRCLE management framework. We have also started exploring the topics of climate change impacts and adaptations that CIRCLE wishes to fund research on. For this the CIRCLE advisory board has drafted a preliminary list during a CIRCLE workshop in autumn 2006. Since then, the task leader has further developed the list by literature review and interviews with a larger network of experts. Since the first draft list of topics was made, the IPCC has published its Fourth Assessment Report, which continues to be a valuable resource for identifying research gaps. Over the coming months, the management framework, the topical work programme and the actual call texts will be further developed and discussed. The successful implementation of various transnational research activities through the tasks in Workpackage IV (FULFIL) will finally produce the first strategic restructuring of the European Climate Impact and Adaptation Research funding landscape. The picture below illustrates the intended progress of CIRCLE activities based on the ERA-Net scheme:



The first and the second stage of cooperation are covered by the Tasks of WPI and II and partly WPIII, which, once achieved, make it possible to move on to the next stages. All consortium members participate in the first three stages. In the ultimate stage participation mainly depends on the topic of the joint call. A short time span for the launching of a joint call can result in a looser, albeit useful, more economic type of cooperation, whereas more time dedicated to the details can

result in a more elaborate joint call scheme with a possibly broader range of topics based upon a topical work programme. Both types involve hard work and are necessary, and will be attempted by CIRCLE.

CIRCLE partners and observers share a common intent in translating the challenges associated with climate change into a meaningful research funding policy. For most of the partners, participation in CIRCLE means the exchange of experience and the international exposure of national research. ERA-Nets, like CIRCLE, are seen as potentially suitable instruments for achieving the internationalisation of national research. The national entities responsible for funding CIRCLE related research are as varied as the countries involved. The larger the scope of the transnational activity, the more legal and operational barriers there will be to deal with. CIRCLE's experience with the different types of joint calls will also help in the tackling and removing of future barriers before European research cooperation and funding. Developing international calls, actions and strategies starting from national issues through cooperation between national funding agencies, is one of the most ambitious objectives of CIRCLE. By providing a meaningful research funding policy which would serve as a solid base for long-term forms of cooperation and the development of national, but interlinked, adaptation strategies, CIRCLE sees itself in the role of coordinating and promoting the success of this objective.