

ORGANIZATION OF RESEARCH

The effective organization of research is a key element in most climate impact studies, but especially so in large, multi-disciplinary projects. Two aspects are important to consider: the co-ordination of research, and research collaboration.

4.1 Co-ordination

Experience suggests that the executive responsibility for co-ordinating research activities is usually best assigned to a single location, group or person. Overall guidance is sometimes provided by a panel of experts or steering committee, including the co-ordinator. Subordinate responsibilities can be delegated to other researchers, but the structure should preserve a framework of accountability.

Several tasks can be identified that should normally be the responsibility of the co-ordinator, involving the planning of the research, identification of stakeholders, selection of common approaches, initiation of studies and monitoring of the research.

4.1.1 Planning of the research

Regardless of the nature of the study, the source of funding or the client being served, it is necessary, at an early stage of preparation, to formulate a research plan. This usually comprises a statement of the research objectives, a description of the main tasks, the research methods, the intended outputs and a preliminary schedule. A research plan can serve several functions:

- It provides a framework for initiating the research and making preliminary arrangements for elements such as excursions and meetings.
- It is helpful for identifying resource requirements such as staff, working space, equipment and data.
- It can be distributed to other experts for comments and advice.
- It can be used as a working document for discussing possible research collaboration, additional funding, publication or other co-operation.

4.1.2 Identification of stakeholders

The most successful impact studies are often those which involve a broad cross-section of the community in the study region. Thus, a valuable element of study design is the identification of important 'stakeholders'. Some possible stakeholders to consider are listed here:

- Policy makers, who commission the impact assessments in order to obtain information that can be used to guide policy.
- Experienced climate impact researchers, who are familiar with the issues and the analytical methods. It may be primarily their responsibility to formulate the methods, gather and collate the data, and analyse and report the results of the study.
- Other researchers, who may have no experience in climate impact assessment, but may possess local knowledge, analytical tools or data that could be valuable in an impact assessment.
- Government officials and local advisers, who may be able to assist by supplying data, exercising judgement or identifying key regions or persons.

- Persons of regional influence, such as village elders, industrial executives and landowners, who might be able to provide advice, resources, access or other assistance to the study.
- Communicators, such as teachers, newspaper editors and radio and television producers, who can describe the research to the community.
- Other members of the community, whose cooperation may be required in conducting surveys, field experiments and other research activities.

4.1.3 Common approaches

The co-ordinator may also bear responsibility for enforcing some commonality of approach in research. This ensures that the results of an assessment are readily comparable, both within the project, and relative to other projects. It may entail, for example, the adoption of standard scenarios, use of standard projection periods, and consistency in the reporting of results. Consistency is especially important in cases where results from one part of the study are used as inputs to another.

4.1.4 Initiation of studies

As a preliminary stage of research, some projects carry out pilot studies to explore the feasibility of the methods (Section 3.3.1). In some cases, pilot studies may have to be conducted as a prerequisite for the receipt of funding or of development loans. Other projects may hold a meeting of researchers, to exchange ideas, forge new links, agree on the workplan, allocate tasks, and decide a schedule. Where research is being conducted at multiple sites or in different countries, another option is for co-ordinators to travel to meetings at each centre. This has the advantage of exposing the co-ordinator to a wider range of researchers, to local conditions and to local problems. Finally, in some projects, particularly commissioned studies, where the goals are clear and deadlines tight, it may be sufficient to despatch guidelines to the participants so that they can begin work immediately.

4.1.5 Monitoring of the research

It is often a contractual requirement for projects to provide funding agencies with regular reports on progress. Although these reports do not always receive close scrutiny from funding bodies, they are a useful method of assessing progress, achievements, and financial status. They can also form a basis for the publication of results. It is common for international projects to receive a mid-term review by independent experts, where researchers are required to present their work, justify their methods and report preliminary results. Even if this is not a formal requirement, a mid-term review can be a valuable aid to project co-ordinators, as a means of assessing progress to date, and future goals.

4.2 Collaboration

Collaboration in conducting an assessment can be required at up to four levels: between researchers, between stakeholders, nationally and internationally.

4.2.1 Collaboration between researchers

Climate impact assessment is interdisciplinary, involving the collaboration of researchers who, in many cases, may not have worked together before. The identification of researchers who understand the goals of the research, and are willing to work together, often under tight time constraints, can be a major undertaking in the planning and execution of many assessment studies. The effectiveness of collaboration may also be influenced by the working environment. At one extreme, some international projects purposefully bring together researchers to work at a single site. At the other extreme, studies may be conducted with no direct contact between researchers. A useful framework for interdisciplinary and interjurisdictional collaboration at a regional scale is provided by Integrated Regional Impact Assessment (see Section 2.3.3, above). Studies have been aided considerably in recent years by the establishment of international networks of researchers, common databases and newsletters.

4.2.2 Collaboration between stakeholders

The involvement of other stakeholders in the assessment process has many advantages but also some drawbacks. Local knowledge and experience can be very useful in conducting the study; mobilising resources, interpreting results and in gaining regional acceptance of the results and recommendations. In addition, the monitoring of a project by funding agencies can be helpful in focusing the goals of the research. However, policy makers should beware of jeopardising the integrity of the research by excessive participation, whilst researchers should ensure that their work meets the needs of policy as much as possible.

4.2.3 National programmes

Under the auspices of the World Climate Programme (WCP), many countries have now organized their own national climate programmes. Within these programmes most have made provision for climate impact studies, and have set up committees for directing research and channelling funding through national scientific bodies and government departments. Examples of countries with national programmes include: Australia, Canada, Finland, Hungary, Netherlands, Japan, Switzerland, UK and USA.

Other national initiatives can build on existing climate programmes. For example, as part of the Government of Canada's Green Plan, three Integrated Regional Impact Assessments have been launched: a) Mackenzie Basin; b) Prairies; and c) Great Lakes-St. Lawrence Basin. In each case, the regional focus is being used to attract researchers and stakeholders into the planning and execution of these studies.

4.2.4 International activities

Internationally, there are different levels of co-operation and organization. Some important activities at global scale include:

- The World Climate Impact Assessment and Response Strategies Studies Programme (WCIRP), which is run by the United Nations Environment Programme (UNEP), is one component of the WCP. Projects receiving funding from UNEP are generally international in scope, and innovative in content.
- The United Nations Regional Economic Commissions, which liaise with national meteorological services in assessing the socio-economic and population impacts of climatic variability and change.
- The Intergovernmental Panel on Climate Change (IPCC) Working Group II (Impacts), which was established by WMO and UNEP for reviewing research on the impacts of future climate change.
- The International Geosphere-Biosphere Programme (IGBP) of the International Council of Scientific Unions (ICSU), which has a number of elements devoted to climate change and its impacts. Its function is to promote international collaboration in research. Funding is provided by national governments.
- The Scientific Committee on Problems of the Environment (SCOPE), which is also organised by ICSU, and directs particular attention to the needs of developing countries.
- The Man and the Biosphere Programme of the United Nations Educational, Scientific and Cultural Organization (UNESCO).
- The Organization of Economic Cooperation and Development (OECD)

At an international scale, several organizations, institutes and programmes are active in promoting climate impact studies. They include:

- The Commission of the European Communities (CEC)
- The North Atlantic Treaty Organization (NATO)
- The Joint US/Canada Great Lakes Impacts Programme
- The Nordic Environmental Research Programme
- The International Institute for Applied Systems Analysis (IIASA)