

United Kingdom Climate Impacts Programme (UKCIP) Climate Adaptation: Risk, Uncertainty and Decision Making

Description	The report proposes a step-wise approach to vulnerability and adaptation assessment in a risk uncertainty decision making framework. The framework and guidance aim to help decision makers and their advisors in identifying important risk factors and to describe the uncertainty associated with each. It aims to help them judge the significance of the climate change risk compared to the other risks they face, so they can work out what adaptation measures are most appropriate. There are questions for the decision maker to apply at each stage, and tools that can be used. The report identifies methods and techniques for risk assessment and forecasting, options appraisal and decision analysis. There are eight stages in the framework: (1) identify problem and objectives, (2) establish decision making criteria, (3) assess risk, (4) identify options, (5) appraise options, (6) make decision, (7) implement decision, and (8) monitor, evaluate, and review. It prescribes a circular process in which feedback and iteration are encouraged, and emphasizes a sequential implementation of adaptation measures.
Appropriate Use	The UKCIP framework is applicable to any decision that is likely to be influenced by climate or made in specific response to climate, barring those related to mitigation. Diverse applications are possible. The methodology is particularly relevant to decision makers (1) who are responsible for areas or sectors that are sensitive to climate change, (2) who are responsible for managing the consequences of present day variability in weather or climate, (3) whose decisions could be vulnerable to assumptions about the risks associated with future climate, (4) who are responsible for commissioning or overseeing technical assessments of climate change vulnerability, impacts and associated adaptation options, or (5) who need to address the robustness of a proposed decision to assumptions associated with the nature of the future climate.
Scope	All regions, all sectors. Written from the UK perspective but applicable internationally.
Key Output	Preferred adaptation options (especially no regret and low regret options) based on evaluation criteria and information regarding optimal timing and extent of implementation. Feedback based on monitoring, evaluation, and review from the implementation of these options is an important output, and becomes a key input in the iterative process.
Key Input	Decision-makers' objectives, benchmark levels of climate risk, multiple climate and nonclimate scenarios, and feedback from already implemented adaptations.
Key Tools	See Appendix 4 of UKCIP Technical Report for complete listing. Includes cost-benefit analysis (see Section 3.2), decision/probability trees, stakeholder analysis (see Section 3.3), focus groups, multicriteria analysis, and simulation gaming, among others.
Ease of Use	Depends on specific application.
Training Required	Depends on user familiarity with prescribed tools. It is likely that some training is required to complete the eight steps.
Training Available	No formal training currently offered, but UKCIP Technical Report provides fairly detailed instruction.
Computer Requirements	No explicit requirements for employing framework, though use of some associated tools will require software (see Appendix 4 of UKCIP Technical Report).
Documentation	Willows, R.I. and R.K. Connell. (eds.). 2003. Climate Adaptation: Risk, Uncertainty and Decision-Making. UKCIP Technical Report. UKCIP, Oxford.

United Kingdom Climate Impacts Programme (UKCIP) Climate Adaptation: Risk, Uncertainty and Decision Making (cont.)

<i>Applications</i>	Most applications to date have been within the UK in the following sectors: land use planning, building and infrastructure construction and operation, water management, and environmental protection. Contact UKCIP's technical director Richenda Connell at Richenda.Connell@ukcip.org.uk for details of applications.
<i>Contacts for Framework, Documentation, Technical Assistance</i>	UK Climate Impacts Programme, Union House, 12-16 St. Michael's Street, Oxford, OX1 2DU, United Kingdom. Tel: +44.1865.432076; e-mail: enquiries@ukcip.org.uk . Copies can be downloaded from http://www.ukcip.org.uk/resources/publications/pub_dets.asp?ID=4 .
<i>Cost</i>	No cost to obtain documentation. Cost of implementing framework depends on nature of assessment.
<i>References</i>	Connell, R., Willows, R., Harman, J. and Merrett, S. A framework for climate risk management applied to a UK water resource problem. <i>Journal of the Chartered Institution of Water and Environmental Management</i> . Accepted, 2004. Willows, R.I., Reynard, N.S. and Connell, R.K. (2005) A framework for the incorporation of climate risks in routine decision-making and policy. (In prep.). Contact UKCIP's technical director Richenda Connell at Richenda.Connell@ukcip.org.uk for details concerning forthcoming publications.