

<p><b>Institution:</b> University of Oxford</p>
<p><b>Unit of Assessment:</b> 17B Geography</p>
<p><b>Title of case study:</b> <b>Enabling Climate Adaptation in the UK and Internationally</b></p>
<p><b>1. Summary of the impact</b></p> <p>The UKCIP Adaptation Wizard is an accessible decision-support resource that enables adaptation planning in the context of climate change within the UK, Europe and internationally at national, sub-national and organisational levels. The Wizard stems directly from research carried out by UKCIP researchers in Oxford. The Wizard is being promoted by the UK Climate Ready programme, is the basis of the European Climate-ADAPT adaptation support tool, and has inspired the development of decision-support tools in Australia, Germany and Slovenia. The impact of, and desire for, the Wizard stems from its basis in credible science and practical experiences of a wide spectrum of policy and practice users, as well as the co-production of its delivery through the UKCIP website.</p>
<p><b>2. Underpinning research</b></p> <p>Adaptation to climate change presents a complex methodological challenge. It requires decisions to be made by policy makers and practitioners in the face of significant and multiple uncertainties. It has the potential to result in very significant consequences, some of which may be irreversible on human timescales, and it involves complex webs of direct and indirect interdependencies. There is also urgency to act now to address existing adaptation deficits as investments being made now can shape future vulnerabilities. This complexity and uncertainty makes adaptation a ‘wicked’ or ‘unbounded’ problem, described as one where there is no clear agreement about what exactly the problem is, uncertainty and ambiguity as to how improvements might be made, and potentially no limit in terms of the time and resources it could absorb. Risk-based decision making approaches have come to be regarded as a valuable means of dealing with the ‘wicked’ nature of climate change adaptation. These approaches provide a means of addressing climate alongside the many other risks that need to be managed by organisations as part of their business, and the iterative nature of risk management processes allow for flexible and incremental changes to be made in continually changing circumstances.</p> <p>Based on this theoretical approach, UKCIP researchers based in Oxford in the Environmental Change Institute (ECI) worked with Dr Robert Willows in the Environment Agency to develop a novel framework to help UK organisations assess climate risks and make decisions on how to adapt. The research (2003-2011) produced the UKCIP Risk Framework, which was published as UKCIP’s “Risk and Uncertainty in Decision-making Framework” <b>[Section 3: R1]</b>, which has been well received, particularly in the international academic and practitioners’ community.</p> <p>In spite of this success, the Risk Framework was regarded by some practitioners as being too theoretical for non-technical experts <b>[R2]</b>. UKCIP researchers thus built on their original approach to develop the UKCIP Adaptation Wizard (2005-2012) to provide a more accessible version of the Risk Framework that shared its intellectual basis but was more action oriented and generally had a ‘lighter touch’. Major revisions were undertaken in 2008 and 2010 to reflect learning and experience acquired with the practical application of the Wizard, and to keep pace with the rapidly evolving literature and experience of adaptation in action <b>[R3, R4]</b>. The major research output is the online UKCIP Adaptation Wizard (<a href="http://www.ukcip.org.uk/wizard">www.ukcip.org.uk/wizard</a>) which is a web-based decision-support tool that covers all aspects of climate risk assessment and adaptation in one process. Its</p>

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context and development have been described in several academic publications [R5, R6].

UKCIP researchers involved in the research to develop the Wizard include: team leaders - Chris West (2002-2012), Roger Street (2006 onwards), researchers - Alistair Brown (2008-2010), Stephanie Ferguson (2002 onwards), Megan Gawith (1994-2012), Kay Johnstone (2006-2012), Kay Jenkinson (2003 onwards), Kate Lonsdale (2012-2013), Gerry Metcalf (2003-2011), Patrick Pringle (2013 onwards)..

**3. References to the research**

This research and the further development and delivery of the UKCIP Adaptation Wizard was undertaken under a grant from the UK Department for the Environment, Food and Rural Affairs (Defra) held by UKCIP, ECI, Oxford University during the period from 1997 to 2012. The grant (£15m) supported the development and delivery of the UKCIP Adaptation Wizard and other supportive decision-making tools and resources, including their publication on the UKCIP website.

**R1:** Willows, Robert and Connell, Richenda (eds.) 2003 Climate adaptation: Risk, Uncertainty and decision-making, UKCIP Technical Report (<http://www.ukcip.org.uk/wordpress/wp-content/PDFs/Risk.pdf>). Provides the intellectual backing for the UKCIP Adaptation Wizard.

**R2:** West, C.C. and Gawith, M.J. (Eds.) 2005 Measuring progress: Preparing for climate change through the UK Climate Impacts Programme, UKCIP, Oxford (<http://www.ukcip.org.uk/wordpress/wp-content/PDFs/MeasuringProgress.pdf>). pp. 61-62. Provides the context for the Wizard and basis for development.

**R3:** Olhoff, A. and Schaer, C. 2010. Screening tools and guidelines to support the mainstreaming of climate change adaptation into development assistance – a stocktaking report. UNDP, New York ([http://www.preventionweb.net/files/13122\\_UNDPStocktakingReportCCmainstreamin.pdf](http://www.preventionweb.net/files/13122_UNDPStocktakingReportCCmainstreamin.pdf)). pp. 24-32. Provides a comparative overview of the Wizard relative to other tools, including reference to the process of development.

**R4:** UKCIP (2011) Making progress: UKCIP and Adaptation in the UK. UK Climate Impacts Programme, Oxford UK ([www.ukcip.org.uk/wordpress/wp-content/PDFs/UKCIP-making-progress-Final.pdf](http://www.ukcip.org.uk/wordpress/wp-content/PDFs/UKCIP-making-progress-Final.pdf)). pp. 23-26. Provides further background on the origins, description, uptake of the Wizard and lessons learnt.

**R5:** Webb, R, Beh, J, 2013 *Leading adaptation practices and support strategies for Australia: An international and Australian review of products and tools*, National Climate Change Adaptation Research Facility, Gold Coast, pp.120 (<http://www.nccarf.edu.au/publications/leading-adaptation-practices-and-support-strategies>). pp. 40-48. Explores the utility of different adaptation tools and the rationale behind their relative strengths from the perspective of utility.

**R6:** Climate UK – Review of Adaptation Tools (2012) – independent review of tools available in the UK including the UKCIP Adaptation Wizard. ([www.sustainabilityeast.org.uk/index.php?option=com\\_content&view=article&id=57&Itemid=54](http://www.sustainabilityeast.org.uk/index.php?option=com_content&view=article&id=57&Itemid=54)). pp. 4-5. Provides background on the Wizard, as well as utility and use considerations.

**4. Details of the impact**

The UKCIP Adaptation Wizard, as the major output of the academic research, described in section 2, has had significant impact on a wide range of stakeholders. The research and its dissemination were interlinked and co-produced by researchers engaging with intended users which therefore enhanced the impact of the research. It is designed for application by a broad range of users and can be applied equally to a plan, a project, a programme or a policy. A questions-driven approach takes users through a 5-step process to assess their climate risks, develop and implement adaptation responses and continually monitor their progress. Background information, templates

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and resources are provided alongside tasks for users to complete to help them develop their adaptation plan. The UKCIP Adaptation Wizard has been well received in the UK and internationally. Wizard web pages are amongst the most frequently visited pages on the UKCIP website attracting 4000 unique visitors per year of which 50% are returning visitors and, on average, 20 page views per day (2012-2013 data). The impact can be illustrated in three areas:

**a) National and local level adaptation tools.** The UKCIP Adaptation Wizard has inspired the development of national level adaptation support tools in Germany [C1] and Slovenia [C2] and is acknowledged as a key influence on the development of the Adaptation Support Tool (2012) available within Climate-ADAPT (the European Climate Adaptation Platform). The Adaptation Support Tool (and consequently the Wizard) forms the basis for the European Commission Guidelines on developing adaptation strategies [C3] that was published to support the delivery of the European Adaptation Strategy (2013). It has been adapted to form local level adaptation support tools in both the UK (in Norfolk and Lancashire) and abroad, for example, the Climate Adaptation Wizard that has been developed for the State of Victoria, Australia (2011). Elsewhere, it has been described as “an inspiration for those developing similar computer-based tools and resources adjusted to a developing country setting” [R3] and consideration is presently being given in developing countries of ways of adapting the tool for application in those countries, specifically southern Africa. A review commissioned by the National Climate Change Adaptation Research Facility in Australia [R4] concluded that “the UKCIP [Adaptation] Wizard could be a good basis on which to develop a core product for Australian use, being up to date, user-friendly, reflecting good principles, and widely used and recognised in the UK and internationally”.

**b) UK policymaking.** In the UK, the Wizard has informed the methodologies of those submitting evidence under the Climate Change Act’s Reporting Power Authority [C4] and formed the methodological basis of the Government’s 2010 Departmental Action Plans (DAPs). It has also had a major influence on revisions undertaken to HM Treasury’s Green Book Supplementary Guidance on Climate Resilience in 2009 [C5] and updated in 2011. Similarly, Adaptation Scotland produced guidance to Scottish businesses on how to adapt to climate change [C6] is based almost exclusively on the UKCIP Adaptation Wizard and UKCIP’s Business Areas Climate Impact Assessment Tool (BACLIAT). The influence of the Wizard in decision and policy-making is evident in the fact that several organisations submitting evidence in 2011 under the Climate Change Act’s Reporting Power Authority have based their climate risk assessment on the Wizard process [C7]. In addition, the Wizard has informed the planning and development of a new primary school in Worcestershire [C8]. The UKCIP Wizard is the basis for the Climate Ready Adaptation Wizard [C9] provided to support organisations in assessing their risks and planning adaptation.

**c) UK private sector.** The Wizard has been successfully applied by a number of large UK based companies to help them adapt to a changing climate. Between 2008 and 2011, UKCIP worked closely with public and private sector organisations to: test the value and utility of the tool in real application; better understand how organisations are approaching the issue of climate change adaptation; and to inform further developments to the Wizard based on the lessons learnt through critical analysis of each application. Participating organisations included the Port of Felixstowe, National Association of Cider Makers, Midcounties Cooperative, Gentoo Housing Association, and Kingfisher Plc (owner of 900 DIY-related stores in 8 countries). These test cases [C10] have greatly enhanced understanding of the adaptation process of private sector organisations, generated valuable refinements to the Wizard, produced case studies that share learning more widely, enhanced the capacity of those organisations to adapt to climate change, and, in some cases, resulted in real adaptation actions. For instance, for most of these organisations, using the Wizard has increased their awareness of risks which have then been introduced into their risk

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registers and are being used to empower employees and colleagues to bring forward adaptation options. The results are also being used to improve the resilience of existing facilities and operations and in the design of new facilities (e.g., stores and properties).

### 5. Sources to corroborate the impact

**C1:** Klimatolse (German Adaptation Support Tool) – modules within the approach are based on the UKCIP Adaptation Wizard

[www.klimatolse.anpassung.net/klimatolse/DE/02\\_Intensivdurchlauf/0\\_home/home\\_node.html](http://www.klimatolse.anpassung.net/klimatolse/DE/02_Intensivdurchlauf/0_home/home_node.html)

**C2:** Cegnar, T. (2011) Slovenian Environment Agency – understanding adaptation recognises the UKCIP Adaptation Wizard [http://presentations.copernicus.org/EMS2011-808\\_presentation.pdf](http://presentations.copernicus.org/EMS2011-808_presentation.pdf) Wizard identified on p. 10.

**C3:** Climate-ADAPT Adaptation Support Tool (2012) – recognised that it borrowed from the UKCIP Adaptation Wizard <http://climate-adapt.eea.europa.eu/web/guest/adaptation-support-tool/step-1> (specific reference to borrowing from the UK Adaptation Wizard) and [http://ec.europa.eu/clima/policies/adaptation/what/docs/swd\\_2013\\_134\\_en.pdf](http://ec.europa.eu/clima/policies/adaptation/what/docs/swd_2013_134_en.pdf) (pp. 40 - 41)

**C4:** Adaptation Reporting Power, Frequently Asked Questions and Answers (January 2011) – Defra support to those organisations responding to the Adaptation Reporting Powers, including the role of UKCIP and link to the UKCIP Moodle that links to the UKCIP Adaptation Wizard <http://archive.defra.gov.uk/environment/climate/documents/interim2/report-faq-110126.pdf>

**C5:** Accounting for the Effects of Climate Change: Supplementary Green Book Guidance (June 2009) – UKCIP Adaptation Wizard is identified as a tool to be used <http://archive.defra.gov.uk/environment/climate/documents/adaptation-guidance.pdf> See specific reference on p. 6

**C6:** Adapting to Climate Change: A guide for Businesses in Scotland – acknowledges the use of UKCIP resources, including the UKCIP Adaptation Wizard (2010) [www.adaptationscotland.org.uk/Upload/Documents/AdaptingtoClimateChangeScreenFINAL2.pdf](http://www.adaptationscotland.org.uk/Upload/Documents/AdaptingtoClimateChangeScreenFINAL2.pdf) pp. 3-7

**C7:** Anglian Water Climate Change Adaptation Report (January 2011) under the Adaptation Reporting Powers – recognised the support of UKCIP in preparing report including the use of the UKCIP Adaptation Wizard <http://archive.defra.gov.uk/environment/climate/documents/adapt-reports/02water-comp/wc-anglian.pdf>; Felixstowe Dock and Railway Company Climate Change Adaptation Report (April 2011) under the Adaptation Reporting Powers – used the UKCIP Adaptation Wizard <http://archive.defra.gov.uk/environment/climate/documents/adapt-reports/07ports/felixstowe-dock-railway.pdf> pp. 9-16

**C8:** Designing a Sustainable School (Worcestershire County Council) – used the UKCIP Adaptation Wizard in re-designing school buildings [http://www.worcestershire.gov.uk/cms/pdf/wcc-sustainability-designingsustainable\\_school-mar2009.pdf](http://www.worcestershire.gov.uk/cms/pdf/wcc-sustainability-designingsustainable_school-mar2009.pdf) p. 38 and also see UKCIP Case Study at <http://www.ukcip.org.uk/wizard/wizard-case-studies/redhill-school/>

**C9:** UK Climate Ready Adaptation Wizard (2013) – updated the UKCIP Adaptation Wizard as one of the practical resources provided to support assessment of risks and plan adaptation [www.environment-agency.gov.uk/research/137639.aspx](http://www.environment-agency.gov.uk/research/137639.aspx)

**C10:** UKCIP Adaptation Wizard Case studies – examples of use of the UKCIP Adaptation Wizard by different types of organisation within the UK [www.ukcip.org.uk/case-studies/](http://www.ukcip.org.uk/case-studies/)