Environmental Change Institute
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The Environmental Change Institute has 20 years’ experience in helping governments, business and communities anticipate and respond to the risks and opportunities of environmental change.

We do this through advanced measurement, analysis and simulation of environmental change and the drivers affecting it.

We operate at global, national and local scales, working in partnership with people who can make a difference.

We train the next generation of environmental leaders with the knowledge and critical thinking to do the same.

THE RESULT?

Better informed decision-making by our partners and world-class advances in the science of environmental change today and in the generations that will follow.

UNDERSTANDING CHANGE...

... INFLUENCING CHANGE
Message from our Director

The planet faces a convergent and interacting combination of challenges in energy, water and food security, coupled with ecosystem degradation and climate change. For 20 years, ECI has been at the nexus of these issues, pioneering a distinctive programme that spans an intellectual continuum from scientific enquiry into the processes of environmental change to the analysis of sustainable solutions and the promotion of change for the better through Masters and Doctoral education and through partnership with government, business and civil society.

I am honoured to have joined ECI as its Director in February 2011, in the year in which ECI celebrated its 20th anniversary. I have joined an institute of highly motivated individuals, a strong sense of identity, excellent research programmes and a network of alumni who are providing the global environmental leadership that is so urgently needed. I'm constantly impressed by the quality of people who we recruit to our educational programmes and research teams, and by our research fellows and scientific leaders who are facilitating those teams.

ECI brings together natural and social scientists and engineers, but for the most part my colleagues have left their disciplinary roots far behind them, adapting their outlook and methods to address challenges that span disciplines and scales. At ECI we are instinctive integrators who can’t resist grasping the interdependencies between the various dimensions of global environmental change.

ECI’s interdisciplinary approach is inspired by the needs of decision-makers who are striving to respond to global environmental change. Undeniably, our science is telling us that in many respects the prospects for global environmental change are profoundly challenging, often even bleak. Yet our approach is solutions-orientated, seeking to shape responses and carve out opportunities in the space between the necessary and the possible. Engaging seriously with the challenge confronted by decision makers is a constant stimulus for innovation in our research, education and engagement.

We can do nothing alone, and partnership-working is central to our mission and structure. ECI is located at the heart of the University’s Science Area, which is an ideal base from which to act as an integrator of disciplines, issues, people, sectors and approaches. Thus, within the University of Oxford, ECI is striving to cultivate, contribute to and, where appropriate, coordinate networks of purposeful interdisciplinary environmental research, working together in a diverse and rapidly evolving web of collaborations with like-minded intellects from across Oxford. Meanwhile, on a world stage we are leading, coordinating and contributing to global sustainability initiatives.

As befits an Institute with ‘change’ in its title, we ourselves are in a constant state of flux as we adapt to a changing world, never ceasing to learn about the environment we inhabit and constantly growing our network of partnerships and influence. Thus the snapshot presented in this publication is an ephemeral impression of ECI, but the principles and results of our purposeful environmental research and education are enduring.

Since 2001, ECI publications have been cited 16,000 times.

ECI income continues to rise year on year, reaching £4.8million in 2010/11, of which £3.8million was generated as research funds.
ECI in brief

ECI is a centre for research excellence and intellectual innovation with 20 years’ experience in leading agendas in environmental change science.

Who we are

- We have over 60 researchers and a further 60+ international graduate students.
- We have collaborated with over 350 partners, investors and funders from more than 40 countries.
- We have expert teams in:
  - biodiversity and climate adaptation;
  - climate impacts and adaptation;
  - ecosystem dynamics and ecosystem services;
  - energy demand management;
  - food security;
  - sustainable infrastructure systems;
  - tropical forests and carbon dynamics;
  - water security.
- We come from a wide range of disciplinary backgrounds, including natural and social scientists and engineers.
- We are interdisciplinary in our outlook and approach.

What we do

- Advance understanding of the processes and implications of change in coupled human and natural systems.
- Develop and analyse potential economic and social responses, policies and management practices of relevance to governments, business and communities.
- Lead and engage in large national and international consortia with research and stakeholder partners.
- Train international graduate students in strategic environmental leadership, management and decision-making.
- Commit significant resources to active engagement with a wide range of key audiences, including dissemination of our research insights.

Celebrating today’s success

Effective communication
In 2011 ECI produced over 80 peer-reviewed journal articles, which have been cited over 200 times. Our research was represented and debated throughout the media: NewScientist; Economist; Financial Times; Telegraph; front page of the Guardian; and across the BBC (UK and World Service), to name a few.

Pursuing academic excellence
Nature recently published ECI papers on the contribution of greenhouse gases to flooding in England and Wales (Prof Myles Allen) and on the changing climate for insurance (Prof Jim Hall). Two special editions of journals were also published on governing deforestation and implementing REDD+; and on Personal Carbon Trading.

Social enterprise
Our first commercial spin-out company, Pilio Ltd, was launched promoting savings of up to 40% on energy bills through building energy monitoring. Pilio’s clients include the Church of England and the Royal Albert Hall. The weather analysis data which underpins the spin-out remains the most visited research on the ECI website.

Breaking new ground
The collection of papers from the 4 Degrees and Beyond conference was published in the Philosophical Transitions of the Royal Society. The conference has opened up the debate on how to avoid major climate disruptions and how to adapt to the unavoidable impacts.

Influencing UK research strategy
Roger Street was appointed as Climate Change Knowledge Integrator for the Research Council’s Living with Environmental Change Programme.

Links with policy
ECI assists policy-makers by informing them of the latest research through invitations to speak at Parliamentary and Science Committee meetings and through positions such as Dr Nick Eyre’s recent appointment to Ofgem’s Sustainable Development Advisory Board.

Postgraduate education
Our alumni go on to achieve influential and varied careers. Mike Mason (1995) was made Energy Advisor to President Nasheed of the Maldives in 2011, and was tasked with facilitating the country’s ambition towards carbon neutrality.

Making connections
In January 2012 ECI hosted the first international science conference on climate change, deforestation and the future of the African rainforests, with media coverage on BBC News, World Service and in Africa.

Influencing UK research strategy
Mike Maseen (1995) was made Energy Advisor to President Nasheed of the Maldives in 2011, and was tasked with facilitating the country’s ambition towards carbon neutrality.

Senior appointments
Myles Allen, leader of the ECI’s climate programme, was appointed to the Statutory Chair in Geosystem Science. At the same time ECI welcomed Jim Hall as the new Director and Professor of Climate and Environmental Risks.
Evaluating environmental leaders

Our Environmental Change and Management MSc course is one of the most successful programmes in environmental science and leadership in the world.

Dr Thomas Thornton
Director, MSc in Environmental Change and Management
thomas.thornton@eci.ox.ac.uk

Class of 2011/12

<table>
<thead>
<tr>
<th>Nationalities:</th>
<th>21</th>
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<tbody>
<tr>
<td>International Students:</td>
<td>89%</td>
</tr>
<tr>
<td>Class size:</td>
<td>38</td>
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<tr>
<td>Scholarship funded students:</td>
<td>15</td>
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</tbody>
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Disciplinary Backgrounds:

- Natural Sciences: 37%
- Business, Law & Social Sciences: 32%
- Physical Sciences & Engineering: 16%
- Arts & Humanities: 16%

“The I took a risk and did not apply to any other courses: it was Oxford and the ECI or nothing.”

Edurne Ponce de Leon

The MSc in Environmental Change and Management has remained at the top of Oxford’s most subscribed science postgraduate list for two decades for good reason: it is more relevant today than ever before. We offer the quality, depth and breadth of training needed to create new generations of environmental leaders.

Since 1994 ECI has trained more than 600 environmental professionals in academia, business, government and non-governmental organizations. Each year we select an elite group of outstanding students from around the world with backgrounds in natural science, social science, humanities and law, to pursue this intensive one-year course. The course aims to improve understanding of, and responses to, environmental change through interdisciplinary education.

We strive not only to teach students to grasp the interdependencies between key issues and challenges relating to climate change, sustainable energy, ecosystem science and conservation, but also to provide them with the tools to deliver integrated solutions to society’s most pressing environmental management problems. We achieve this through dedicated teaching and support staff and unique partnerships with organisations that are similarly seeking solutions.

<table>
<thead>
<tr>
<th>Course schedule</th>
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<tbody>
<tr>
<td>Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep</td>
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<tr>
<td>MICHAELMAS TERM CORE MODULES</td>
</tr>
<tr>
<td>Climate change Interdisciplinary &amp; causal explanations Research design Development &amp; the environment Global environmental change &amp; biosphere International environmental legal frameworks</td>
</tr>
<tr>
<td>ELECTIVES</td>
</tr>
<tr>
<td>Students choose from 30 environmental change &amp; management topics including: Corporate, social &amp; env accountability Conservation &amp; biodiversity Energy policy Sustainable transport</td>
</tr>
<tr>
<td>HILARY TERM CORE LECTURES</td>
</tr>
<tr>
<td>Energy &amp; lower carbon futures Environmental economics Em values, behaviours &amp; governance Terrestrial &amp; marine ecology Environmental geography: issues &amp; forces</td>
</tr>
<tr>
<td>ELECTIVES</td>
</tr>
<tr>
<td>Topics include: Water &amp; development Forest governance Global political ecology Ecosystem valuation</td>
</tr>
<tr>
<td>DISSENTATION</td>
</tr>
<tr>
<td>Throughout the year a series of one-day workshops takes place. Topics include: Managing the triple bottom line of sustainable development Sustainable business Environmental education Ocean Symposium Geographical Information Systems and remote sensing Climate models</td>
</tr>
<tr>
<td>Career destinations</td>
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Our alumni are equipped to take on positions of influence in all sectors throughout the world.

Roles currently filled by our masters alumni include:

- Head of Management Support, UNDP, African Regional Bureau; CDM Transaction Specialist, Asian Development Bank; Deputy Regional Director for Europe, UNEP; Deputy Head, UNEP Finance Initiative; Assistant Vice President, Deutsche Bank; Environmental Manager, Cathay Pacific Airways Ltd, Hong Kong; Vice President, Fleishman-Hillard Beijing; CDM Manager, TÜV Rheinland, Hong Kong; Vice President of Global Operations, BroadReach Healthcare; Strategy and Policy Advisor, DEPA, UK Government; Deputy Secretary, Australian Government’s Department of Climate Change and Energy Efficiency; Advisor on Climate Change, Prime Minister’s Office/ Climate Policy Australia; Director of Sustainable Production and Consumption Ministry of Environment, Brazil – Secretariat for Institutional Coordination (SAIC), Associate Lawyer, Van Ness Feldman Law Firm, Washington; Lawyer, Client Earth; Attorney, Air & Climate Program, Environmental Defence Fund, USA; Associate Director, Earth Capital Partners, London, Director, People and Ecosystems Program, World Resources Institute.

Gareth Morgan, ECM alumnus, is Shadow Minister of Water and Environmental Affairs, and Member of Parliament for the Democratic Alliance of the Republic of South Africa. Gareth returned to Oxford to present at our Alumni Dinner in September 2011.
Centre for interdisciplinary doctoral training

Approaching 80 students have successfully completed their doctoral research through ECI. Currently around 30 doctoral students are conducting research which spans virtually every continent of the planet. We have students carrying out primary data collection on the functioning of forest ecosystems in pristine rainforests in remote Amazonia, developing frameworks for climate change adaptation costings in farming communities in Kenya; alongside projects in the UK, Europe, Asia and theoretical studies here in Oxford.

ECI doctoral students are a core and integral part of the institute. They are valued as researchers embedded within our teams and programmes, as highlighted by energy student Jan Rosenow (see profile opposite).

The academic achievements of our doctoral students are demonstrated by the numbers choosing to publish their thesis through peer-reviewed journals. Our students also have a good rate of funding success, attracting scholarships and bursaries from wide sources, including research councils, consultancy and increasingly from industry.

This rise in industry finance is a reflection of the applied nature and relevance of the subjects selected for supervision. Two new doctoral students, Kate Young and Scott Thacker, are part of ECI’s Infrastructure Transitions Research Consortium and are jointly funded by engineering consultants Arup and Halcyon. These scholarships are examples of our growing links to industry and help to foster a new generation of innovative systems thinkers.

“The academic robustness of our doctorals is demonstrated by the numbers choosing to publish their thesis through peer-reviewed journals.”

Daniel Cooper studies indigenous communities in rural Guyana to learn about indigenous ethnobotanical knowledge and skills. Traditional knowledge is rapidly losing value in the move from subsistence to a monetary economy. Daniel’s research aims to find a mechanism for valuing, conserving and developing this kind of situated ecological knowledge.

Meghan Bailey undertakes a participatory research exercise in Karamoja, northeastern Uganda as part of her doctoral study into climate adaptation options for vulnerable communities. Participants are asked to explain their daily labour and consumption patterns during times of scarcity, abundance and typical periods, and to provide information on the corresponding production, harvesting and herding cycles.

Malek Al-Chalabi examines how households and individual actors conceptualise their energy use in order to better understand the social aspects of energy use and comprehensive behaviour change. Malek won an award for the best presentation at the Sustainable Futures Tyndall-SCI PhD Conference at the University of Manchester in 2011.

“We value our students and recognise their potential as the greatest minds for tomorrow’s environmental challenges.”

Since 1993

INTERNATIONAL STUDENTS: 63%  
NATIONALITIES: 25  
STUDENT PEEER-REVIEWED PAPERS PUBLISHED IN 2011: 15

New doctoral students in Oct 2011: 9

Doctoral student Jan Rosenow is a German national, fully funded by the UK Energy Research Centre and the Heinrich Bolll Foundation, now entering his 3rd year of study and with six years environmental consultancy experience. Jan is looking at UK and German energy efficiency policy in the context of long-term policy change.

Alongside his research he is active within ECI’s Lower Carbon Futures programme, recently compiling the official UK Energy Research Centre response to the UK Government’s Green Deal home energy efficiency policy. Jan appeared on BBC Radio 4 in November 2011 as an expert on UK and German energy policies on reducing carbon emissions from housing. In 2011 he also presented a research paper alongside senior researchers at the European Council for an Energy Efficient Economy conference.
A thriving graduate community

Our graduate students go on to a variety of careers after departing Oxford; from policy-making, to legal services and careers in fund management.

A flow of trained ECI graduates are moving into REDD+ policy-making and implementation roles at the United Nations.

Given the outstanding quality and interdisciplinary skillset of ECI's Ecosystem team, five of its members currently work directly for, or with, the UN FAO Forestry Department in the framework of the UN-REDD Programme in Rome. REDD+ is a means of establishing a functioning international climate change mitigation mechanism with regards to the reduction of emissions from deforestation and forest degradation.

The team, led by ECI Visiting Research Associate Dr Danae Maniatis (see right), works on aspects of remote sensing, the development of national forest monitoring systems, REDD+ policy development (nationally and internationally), development and implementation of national forest inventories to measure carbon stocks, and participates in the UNFCCC negotiations to provide technical support to country delegations.

The interdisciplinary training received by the graduate students whilst at ECI means the team in Rome can bridge publishing cutting edge science, applying the science to individual countries and directly supporting policy-making in crucial international mechanisms such as REDD+.

Dr Danae Maniatis
Lead Technical REDD Expert, United Nations Food and Agriculture Organisation.

ECI Visiting Research Associate MSc and doctoral graduate

Dr Danae Maniatis works as an expert for FAO’s Forestry Department supporting the development, implementation and operationalisation of REDD+ national forest monitoring systems. Within the UN-REDD programme, she is the lead technical adviser on forest monitoring systems for REDD+ to the Democratic Republic of Congo and is leading the development of national forest monitoring systems with a regional approach for the ten Congo Basin countries – which represents the world’s second largest rainforest. She has spent a significant amount of her time working in remote areas in Western and Central African forests.

Danae’s MSc dissertation at ECI focussed on developing principles, criteria and indicators to define and verify the legality of wood in Cameroon. The overarching question of her dissertation was how to produce and improve above-ground forest biomass estimates for the Congo Basin forests for REDD+ under UNFCCC. Danae continues to have an academic involvement with ECI as a Visiting Research Associate.

Client Earth recruits ECI alumni to work at the interface between law, science and policy.

Client Earth is an organisation of activist lawyers, with offices in London, Brussels and Warsaw, committed to securing a healthy planet. They work on practical solutions to complex problems at the intersection of law, science and policy.

Interaction between Client Earth and ECI has been a productive two-way process. Ed Walker (MSc), an Oxford-trained zoologist, is Director of Finance and Resources. Daniela Rey (MSc) is helping to develop a new programme on forest governance in Central America that aims to analyse needs, build capacity and design future legal policy and institutional frameworks for the area.

Two former students have worked as interns at Client Earth: Adela Maciejewski (MSc), who has gone on to study law at McGill in Canada, and Stephanie Spicer (MSc).

A new career in fund management

"ECI’s MSc course sparked in me an interest in energy – energy that is affordable, clean, sustainable and low-carbon. My dissertation was on rural, under-developed areas in India without electricity, which helped me see and understand, first-hand, the potential for solar energy.

Today I am a fund manager focused on renewable energy infrastructure investments and a partner in Earth Capital Partners, a London-based sustainable development focused asset management firm. I didn’t start off in financial services; in fact, it was probably the furthest thing from my mind when I embarked on the course. I did not know assets from liabilities or cash flow from balance sheets.

Now I work in an investment area where the intertwining relationship between environmental matters and financial outcomes is of utmost importance. I would be surprised if I ever have to consider a career alternative.”

Kunal Mehta (MSc)
Rethinking our research agenda

ECI’s research is structured by broad processes, which cut across our various research endeavours:

1. **Understanding the processes of change**, in which we undertake natural and social scientific enquiries into the drivers and impacts of global environmental change. The work spans local, national and global scales. It combines empirical analysis with modelling and simulation to explore potential future change in the context of societal and environmental drivers.

2. **Exploring sustainable solutions**, in which we creatively identify potential responses to environmental change and also develop the methods and tools to appraise, evaluate and communicate those responses. The responses we explore include governance, economic, technological and behavioural measures and strategies.

3. **Influencing change through partnership and education**, in which we deliver impact from our research and educational activities. We invest time and energy in exchanging knowledge with partners, working with them to improve decision-making. Our educational and research programmes interact synergistically.

To illustrate how these interactions operate in practice, our Ecosystem Dynamics group of leading environmental scientists now includes a team of experts looking at the governance of forests. In this interdisciplinary initiative, both ecosystems and governance issues span from the local processes in forests and villages to the global interactions of the carbon cycle and climate governance. Another example is UKCIP, which is building tools underpinned by the best scientific understanding of the threats posed by climate change and using these to inform, train and equip business and organisations as they adapt to a changing climate.

ECI’s largest research programmes are:

- **The Climate Programme**, led by Professor Myles Allen and Roger Street
- **The Ecosystems Programme**, led by Professor Yadwinder Malhi and Dr Pam Berry
- **The Lower Carbon Futures Programme**, led by Dr Nick Eyre and Dr Sarah Darby.

Demand for our research in each of these fields is high and we have growing research portfolios. We recognise and strive to understand better the interactions between these research domains and other sub-systems in the Earth system, notably in relation to food and water and their interaction with a changing climate.

The scope and achievements of these research and outreach activities is illustrated on the pages that follow.

“...more than 50 funded projects being worked on at any one time across ECI.”

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**Current research highlights**

- **Climateprediction.net**
  The world’s largest experiment for forecasting the climate of the 21st Century – engaging over 350,000 individuals in 150+ countries as citizen science partners and mobilising immense computing power for world-class climate research.

- **Climate Change, Agriculture and Food Security (CCAFS)**
  ECI leads the scenarios research in this 10-year global research initiative launched by the Consultative Group on International Agricultural Research (CGIAR) and the Earth System Science Partnership (ESSP).

- **UK Energy Research Centre (UKERC)**
  ECI leads the national energy demand research theme for UKERC, with extensive cross-sectoral and cross-disciplinary interaction at the technology/policy/behaviour interface. ECI’s Meeting Place provides a UKERC discussion forum for UK and international energy research and practice.

- **UK Infrastructure Transitions Research Consortium (ITRC)**
  Working with utilities, engineering and insurance companies and over 50 partners, ITRC is analysing how to design long-term UK infrastructure for energy, water, waste, transport and ICT services, in response to strategic change and risk in drivers such as demographics, climate change and resource constraints.

- **Cross-Sectoral Assessment of Climate Change Vulnerabilities (CLIMSAVE)**
  A pan-European 18-partner project creating a web-based tool for stakeholders to assess climate change vulnerabilities across agriculture, forests, biodiversity, coasts, water resources and urban development.

- **Amazon Forest Inventory Network (RAINFOR)**
  Over 40 international research partners have created a systematic framework for long-term monitoring of Amazonia, which holds more biodiversity, water and vegetation carbon than any other region of the planet.

- **UKCIP (formerly UK Climate Impacts Programme)**
  UKCIP has enabled the UK to take “a leadership position in helping business understand the risks and opportunities from climate change”; “ground-breaking work in stakeholder-led engagement”; “seen by many in Europe as a role model of a boundary organisation that promotes bottom-up approaches”.

- **Understanding Local Energy Governance (UNLOC)**
  Finding insights into recent innovations in local energy governance in the UK, through collaboration with grassroots community groups and local government partners.
Understanding the functioning of forest ecosystems

Our pioneering monitoring network allows us to study the carbon and nutrient cycle in some of the most remote regions of the planet. Working with local partners we are seeing how pristine tropical forests are changing in response to climate change and informing policy on how best to protect them.

A major scientific focus of ECIs Ecosystems Programme is to understand how forest ecosystems function, and how they are responding and will continue to respond to climate change. We employ a number of techniques, including satellite remote sensing and computer modellling, but a major part of our effort has been the collection of primary field data.

We have a particular interest in tropical forests, and have pioneered the widespread comprehensive study of the carbon and nutrient cycle of tropical forests, in some of the most remote regions of the planet.

Working with local partners, we have developed a unique network of over 40 intensive monitoring sites within forests that now stretch from the Peruvian Andes, through the Amazon of Bolivia and Brazil, the forests of West Africa and the Congo Basin, and the heart of Borneo. Beyond the tropics the network now includes the unique temperate and montane forests of Chile, and Oxford University’s own research woodland at Wytham.

At each of these sites local partners, researchers and students spend several weeks per month collecting data on how the forest functions and responds to climate and environmental factors. We employ gradient studies to understand how variation in the environment affects forest function, most spectacularly in the Amazon-Andes where a 3,000-metre elevation transect is yielding fundamental new insights into how temperature controls the functioning of tropical forests.

Our studies have shown that even pristine tropical forests are changing in response to climate change. They are currently increasing in biomass and absorbing approximately 15% of global carbon dioxide emissions.

Beyond pristine forests, we are describing how human activities are altering the functioning of tropical forests, and conducting experiments to understand the threshold and resilience of tropical forests.

In Brazil we study forests that have been artificially droughted for 10 years, or are burnt every year.

In Malaysia we are involved in a 10-year programme (the Stability of Altered Forest Ecosystems) to understand how conversion of logged forests and oil palm plantations can be managed to minimise biodiversity loss and maximise ecosystem services.

In Ghana and Gabon we explore how logging, fragmentation and hunting affect forest ecosystem services. Across the planet, these forest sites are being monitored on a routine basis in a network coordinated by the Ecosystems Programme.

We also place a high priority on training tropical country students, either in their home country or through visits to Oxford. Our aim is to develop a community of tropical ecosystem scientists that will continue to monitor these forests through the large changes that are occurring over this century.

“Our studies have shown that tropical forests are absorbing approximately 15% of global carbon dioxide emissions.”
What is the future for Africa’s tropical forests?

Following the success of the earlier conference relating to Amazonian forests and climate change in 2007, the Ecosystems Programme hosted an international conference examining the fate of African tropical rainforests in the 21st Century in January 2012.

With news coverage on the BBC, the conference helped to widen the debate on this important region, synthesise existing knowledge and facilitate new collaborations among researchers. A synthesis paper and special edition journal will follow later in 2012.

What are the limits and opportunities for justice and equity in REDD?*

2012 is a busy conference year for ECI. Beyond Carbon takes a natural and social science perspective on the role of justice and equity in current debates on Reducing Emissions from Deforestation and Forest Degradation (REDD*).

REDD* has rapidly become a key pillar of international cooperation on climate change. Since its inception in 2005, REDD* has grown in scope. Once seen as a cheap mitigation option and opportunity to address the 15–20% of global greenhouse gas emissions attributed to deforestation, it now represents a wider set of activities. REDD* is now seen to have a role in forest carbon stocks, sustainable management of forests, forest conservation and poverty alleviation.

With a range of actors entering this policy field, this conference discussed the limits and opportunities in deriving co-benefits from REDD* activities.

Social networking and global science: GEMnet

ECI has recently launched GEMnet: a Global Ecological Monitoring (GEM) novel web application for showcasing our ecosystems projects and providing a platform for wider engagement with researchers working across continents.

GEMnet acts as a data portal, personal profile space and discussion forum for international participants to work together. Uniquely, visitors have the opportunity to engage directly with our expert scientists through this cutting-edge approach to exchanging knowledge.

Governance of the world’s tropical forests

Science alone cannot dictate how we manage our forests. Actions are based on often conflicting claims of knowledge and science, and involve the prioritisation of different environmental, social and economic goals and values.

Within ECI’s Ecosystems Programme, the Forest Governance group consists of social scientists who focus on how societies make decisions to use, exploit or conserve forest resources.

The group is particularly focused on tropical forests, where rapid expansion of logging, farming and mining activities feed growing global consumption, while displacing traditional forest dwellers and pushing developing countries beyond their capacity to govern and regulate.

The Forest Governance group is involved in international collaborative research covering four main themes. These are concerned with assessing “what works and what does not” in balancing local to global goals for forest use and conservation.

The multi-level forest governance theme examines the interaction of international forest governance—from global treaties to consumer based “eco-labeling” schemes—within domestic forest regulations and traditional, community-based forestry.

A key output of this theme is a book, Global Environmental Forest Policies comparing trends in forest policies across 20 countries worldwide.

The protected areas theme includes work to update and analyse the Protected Areas Management Effectiveness (PAME) database, which is linked to the World Database on Protected Areas. PAME holds information on the management and governance of over 6,000 protected areas worldwide.

The bushmeat theme involves in-depth field research on the harvest of wild animals for protein in Central Africa.

The equity theme involves collaboration with researchers in Africa, Latin America and Asia in a project funded by DFID, NERC and ESRC to define and measure the impacts of payment for ecosystem service schemes on social equity.

The group’s social scientists are actively engaged in outreach, presenting their work at numerous international conferences and expert panels, hosting a public talk-series, and holding regular meetings for researchers and practitioners.

* The research for this paper was generously supported by the Environmental Change Institute.
Modelling new patterns of change in species distributions across Europe

Building on 10 years of experience of modelling the impacts of climate change on species’ distributions, ECI is fostering new partnerships across Europe to model the sectors and regions most vulnerable to environmental change and review the adaptation measures needed.

Climate change is likely to be a significant driver of future environmental change with important impacts on biodiversity and consequences for conservation. These impacts are often assessed by modelling a species distribution in relation to current climatic parameters and projecting how this would change under future climate scenarios.

The SPECIES model was developed by ECI’s Biodiversity and Climate Adaptation research group and has been used in a number of international and national projects (e.g. ACCELERATES and MONARCH) to inform stakeholders and policy-makers, both about what climate change could mean for biodiversity and conservation, and to indicate species possibly at risk.

Climate, however, is only one driver of change and one factor affecting species distributions. The group has been involved, in partnership with other academic institutions across Europe, with the development of a web-based model which integrates outputs from models for different sectors, including agriculture, forestry and water (CLIMSAVE). Stakeholders can use the model to identify sectors and regions which are vulnerable to various drivers of change, explore the effectiveness of adaptation measures, and inform their policy decisions.

Adaptation is important for dealing with the impacts of climate change, while mitigation addresses the causes. Both are now being undertaken across several socio-economic sectors. A review of these and their impact on biodiversity (MACIS) showed that there were some measures, such as wetland re-creation and green spaces in urban areas, which can offer triple wins, offering: (1) adaptation; (2) mitigation; and (3) being good for biodiversity.

These insights were used in the European Community’s White Paper on Adaptation and since then we have been involved in several projects looking at what could be achieved through using ecosystems as means of addressing climate change and other environmental challenges. Ecosystems provide many other benefits and services to humans including food, fibre, water and recreational opportunities. They regulate many aspects of the biophysical environment, such as water and air quality. We have been involved in reviewing and developing concepts of ecosystem dynamics and services, as well as a framework for combining ecosystem service management with conservation (RUBICODE).

We were involved with the UK National Ecosystem Assessment, which informed the UK Natural Environment White Paper and the new biodiversity strategy for England (published August 2011). We are embarking on a new project, BESAFE, which seeks to improve understanding of the different ways in which concepts for the ‘value of biodiversity’ can be used to improve biodiversity policy-making and analysing the use and effectiveness of various types of arguments for biodiversity protection.

“The CLIMSAVE web-platform will allow stakeholders and interested citizens to analyse climate change impacts, vulnerability and adaptation options themselves.”

Dr Pam Berry, Senior Research Fellow
pam.berry@eci.ox.ac.uk

“The UK National Ecosystem Assessment is the first attempt to value the UK’s natural environment and has informed the UK Natural Environment White Paper and the new biodiversity strategy for England.”

Dr Pam Berry, lead author England chapter
Energy generation and demand in a lower carbon future

Providing a better understanding of the role of energy demand within the wider energy system.

The LCF programme has made a big impact in UK policy discussions, with agenda-leading contributions on aspects of housing refurbishment, energy feedback, fuel poverty and personal carbon trading. We are analysing the issues associated with switching demand from fossil fuels to electricity, as well as reducing it. We are researching the role of small enterprises in the construction sector, which will be key agents of change in any radical refurbishment of the built environment. With Oxford Brookes University we are taking the first systematic look at the effectiveness of new low carbon community groups that are increasingly taking root across the UK.

The role of energy demand within the wider energy system is the developing context for LCF’s work. Increasingly we also want to understand the role of energy within wider systems, both the broader physical infrastructure and natural systems through energy’s links to the carbon cycle and other critical systems, such as water and food. We are beginning to work with researchers across ECI and the wider university on these challenges.

Already we are studying the impacts of very small-scale generation that threatens the traditional distinction between energy users and energy providers. We are analysing the issues associated with switching demand from fossil fuels to electricity, as well as reducing it. We are researching the role of small enterprises in the construction sector, which will be key agents of change in any radical refurbishment of the built environment. With Oxford Brookes University we are taking the first systematic look at the effectiveness of new low carbon community groups that are increasingly taking root across the UK.

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Commercialising research: ECI’s first spinout company

ECI’s first commercial company, Pilio Ltd, was launched in 2011 offering energy management tools for businesses (sMeasure: www.smeasure.com) and households (iMeasure: www.imeasure.org.uk). Over 400 building managers currently use sMeasure, which helps them achieve potential savings of up to 40% off energy bills.

Developed over four years by ECI researchers, these applications integrate our building energy research in order to support businesses, people and communities in reducing their energy use and carbon emissions.

Without weather analysis it is not possible to determine if energy savings have been achieved simply because of the weather conditions (e.g. a mild winter) or through some intervention (e.g. replacement of the boiler). The software makes available to business and householders degree-days analysis, which is critical for assessing the effectiveness of energy efficiency interventions over time.

Pilio has received funding to monitor and benchmark energy use for a wide variety of customers comprising over 100 theatres, including the Royal Albert Hall; 50 churches in a pilot study for the Church of England; and it has been licensed for the development of a German and Californian version.

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Energy-efficient buildings will reduce carbon emissions faster if we – the users – become energy conscious citizens.

Dr Kathryn Janda’s research: “Buildings don’t use energy - people do!” was published in Architectural Science Review in 2011 and appeared in Britain in 2012 magazine. Her research argues that building users play a critical but poorly understood role in the built environment. Her work forms part of ECI’s influential portfolio of research relating to building users and energy demand.

A ‘meeting place’ for energy minds

Since 2004, over 80 UK Energy Research Centre (UKERC) Meeting Place events have attracted more than 3,000 people from at least 35 countries. All these have been run by trained event staff, facilitators and knowledge exchange specialists housed within ECI.

The UKERC Meeting Place is an event management service for the sustainable energy research community and its key stakeholders. It enables interdisciplinary knowledge exchange, ideas generation and collaboration to advance understanding of the complexity of energy and society and how to achieve a sustainable energy future.

International conference: A cross-disciplinary dialogue on future energy practices

In September 2011, the UKERC Meeting Place helped ECI to host a pioneering conference: “Energy and People: Futures, complexity and challenges”, attracting a wide range of participants from policy, industry and academic circles.

The conference was among the first to focus specifically on the relationship between society and energy use, particularly in the context of a major transition to a low carbon energy system.

To what extent does public communication around climate change lead to changes in behaviour?

Encouraging sustainable behaviour change at home, work and during leisure activities is one of the collective challenges of climate change. To understand and help address such challenges, ECI Research Fellow, Kersty Hobson, is exploring practices within their socio-cultural and political contexts.

For example, she is developing methodologies to examine how public perceptions of climate change scenarios have enabled researchers to offer unique insight into how different forms of communication and engagement do, or do not, affect subsequent practices.

Working with local climate change groups and partnerships, researchers like Kersty, are exploring how to effectively deliver sustainable emissions reductions through diverse forms of collective governance.

Kersty Hobson, Senior Research Fellow, kersty.hobson@ouce.ox.ac.uk

Dr Kersty Hobson
Senior Research Fellow
kersty.hobson@ouce.ox.ac.uk

“We have used sMeasure for three years. It is an inexpensive, simple and extremely effective tool which allows businesses to get a snapshot of their energy consumption and then take appropriate energy-saving actions.”

Chris Cotton, Chief Executive, Royal Albert Hall
Planning the transition to sustainable infrastructure systems

Infrastructure systems (energy, transport, water, waste, ICT) are amongst the most visible ways in which humans interact with their environment. ECI leads the £4.7 million UK Infrastructure Transitions Research Consortium (ITRC) - developing a new generation of assessments and simulations to help plan the transition to sustainable infrastructure systems.

Infrastructure systems are essential to human wellbeing. Transformation of these systems is central to mitigation of greenhouse gas emissions. At the same time, infrastructure systems need to be adapted to deal with the impacts of climate change.

Interdependencies with the natural environment are complex, but include the role of linear infrastructures in fragmenting ecosystems, limiting natural adaptation in a changing climate.

Traditionally, infrastructure has been dealt with from sector-specific perspectives, so an integrated view of the relationship between infrastructure and food, water and energy security and ecosystem services has not been fully explored. This is now changing, thanks to a £4.7 million EPSRC grant to the ITRC, which is led by Jim Hall, ECI’s Director and Professor of Climate and Environmental Risks.

The energy demand research in the ITRC is the responsibility of ECI’s Lower Carbon Futures programme, led by Nick Eyre. The modelling and simulation techniques that the ITRC is developing will enable the future performance of national infrastructure (NI) systems to be better understood and strategies for NI provision to be tested in a virtual environment.

These NI strategies will be assessed with respect to a range of metrics, such as reliability, security of supply, cost, carbon emissions and flexibility to adapt to demographic and climate change.

The ITRC research programme was designed in collaboration with 43 organisations in government and industry, including utility companies, engineering consultants and the insurance sector. Close collaboration with these organisations throughout the research programme will assist with the transfer of research results into practice.

The research programme has begun with a ‘Fast Track’ analysis, based on pre-existing datasets and models, to explore the scope of future NI challenges and to demonstrate new concepts in long term analysis of infrastructure systems.

Two further cycles of national infrastructure assessment, conducted in close collaboration with our industry and government partners, will put us in the best possible position to realise our ambition of a revolution in the strategic analysis of NI in the UK, whilst at the same time becoming better understood and strategies for NI provision to be tested in a virtual environment.

The report recommends closer working across different sectors to provide coordinated infrastructure systems as their networks become increasingly interdependent and complex. It also recommends the introduction of new measures to manage growing demand, like smart electricity meters, water meters and road pricing.

Reliable power systems with deep emission reductions

ECI Research Fellow Matthias Fripp studies the potential for deep greenhouse gas emissions reductions via renewable energy, as part of an ECI research partnership with Texas Christian University and NextEra Energy Resources.

A topical debate in energy research focuses on the question of fossil-fuel back-up generators for wind power, and the extent to which the emissions reductions from widespread wind generation might be undone by the need to maintain fossil-fuel power stations on stand-by. Matthias Fripp’s work suggests that 5-10% of the benefit from wind farms might be eroded in this way.

Additional research by Matthias shows that wind and solar power can be used to reduce power-sector emissions by 90% or more with a moderate increase in power costs (left), and that life-cycle emissions from carbon-capture power plants are so high that these resources cannot provide more than half of the power in future clean power systems.
Are human influences to blame for extreme weather?

Climate change primarily affects people through changing risks of extreme weather. We are involved in pioneering techniques to quantify how external drivers of climate are “loading the weather dice” towards some kinds of damaging events and away from others.

Whenever a damaging weather event occurs anywhere in the world, the question of whether human influence on climate is somehow “to blame” inevitably arises. Less frequently asked, but equally important, is the question of whether human influence should be thanked when a damaging weather event does not occur.

The only way to answer such questions is using the language of risk and probability. Professor Myles Allen proposed the idea of Fraction Attributable Risk while watching the floodwaters of the Thames approach his back door back in 2003, and it has since been applied to quantify the role of human influence on climate in such events as the European summer heat–wave of 2003 and the UK autumn floods of 2000.

In both cases, past anthropogenic greenhouse gas emissions were found to have increased the risk of such events occurring, although in the case of the autumn floods the magnitude of the increase in risk was very uncertain.

A collaboration with the NERC Centre for Ecology Hydrology in Wallingford also found that a hypothetical Spring flood, similar to that which devastated the UK in 1947, has been made less likely by anthropogenic warming. Quantifying changing risks of inherently unpredictable events can only be done using computer simulation: these events are simply too rare to work out if their frequency is changing based on observations alone. The most rigorous approach is to simulate global weather both as it was, given the conditions that obtained at the time a weather event actually occurred, and as it “might have been”, given an estimate of how climatic conditions would have been different had human influence never occurred.

These simulations must be carried out many times in order to build up a sample of rare events and to allow for uncertainty in how the climate might have been. By far the most efficient way of doing this is using Public Resource Distributed Computing, which we have been using through the climateprediction.net initiative since 2003.

Our attribution work is channelled through the ‘weatherathome’ project, supported by Microsoft Research and the Environment Guardian. These projects allow members of the public to make a tangible contribution to frontline climate research, as well as providing a wealth of information for meteorologists, climate researchers and climate impact studies.

With Myles Allen’s recent appointment to ECI and the School of Geography and the Environment, alongside his appointment in the Department of Physics, this work brings together climate specialists from across the University. Together we have an opportunity to quantify the impact of changing risks of extreme weather on new sectors, such as infrastructure and ecosystems, and new regions, such as Africa. Ultimately, we aim to support the development of a global inventory of climate change impacts to complement existing inventories of climate change drivers.

“Warming of over 4°C could result in the total collapse of systems or require transformational adaptation out of systems, as we understand them today.”

The collection of papers from the 4 Degrees and Beyond conference was published in the Philosophical Transactions of the Royal Society.

The conference was the first to face up to the challenges posed by global warming on a scale that politicians have resisted publically acknowledging. It has opened a debate on how to avoid major climatic disruptions and how to adapt to the unavoidable impacts.

“Climate change is contributing to changing risks of extreme weather events, like the 2000 UK floods and the 2010 Russian heatwave.”

A new study by Professor Myles Allen, published in Nature in 2011, was the first to make a direct link between rising greenhouse gas levels and a specific extreme precipitation event. Understanding these links is essential to quantifying the true cost of climate change.

A further paper in Geophysical Research Letters, 2012, examines the 2010 Russian heatwave and shows how the same event can be “mostly natural” in terms of size, but still “mostly human induced” in terms of risk.
Pioneering practitioners in climate risks and adaptation

UKCIP is recognised globally for its innovative approach in fostering adaptation and is seen by many in Europe as a role model of a boundary organisation that promotes bottom-up approaches, stimulates local initiatives and searches for pragmatic solutions.

In the late 1990s, debates on climate change focussed on tackling the urgent issue of reducing greenhouse gas emissions. Adaptation to climate change was barely acknowledged as having a role and was even seen as an admission of failure.

It was in this context that UKCIP was created with funding from the UK Government to persuade decision-makers to think about the unavoidable impacts that climate change might have on the UK, and what this would mean for our society, economy and culture. UKCIP was never a traditional academic project, instead it worked at the fluid and dynamic interface between research, policy and practitioner: a boundary organisation.

Since then, adaptation has become a significant area of enquiry with a substantial body of research and practice, and it is the subject of statutory requirements – much of this inspired and guided by the work of UKCIP. Questions about the value of adaptation and its role in the climate change debate have now largely vanished.

UKCIP has united the best climate change impacts research with the people and institutions that needed to use it. UKCIP has found ways in which researchers, policy-makers and practitioners could work together to develop those practical adaptation responses that would ensure our society was prepared for the climate changes ahead.

UKCIP’s principal achievements include its portfolio of tools, many available online, that assist organisations in developing adaptation strategies and actions. These tools are informed by both academic research and the input of practitioners, and they have been widely taken up in the UK and further afield. They have made important contributions to the adaptation achievements of organisations in the public, civil and private sectors.

“UKCIP’s strategy is to remain working at the boundary between research, practice and policy, to develop new ways to share its experience and learning on adaptation and to engage with a wider range of stakeholders.”

Networking Oxford’s climate capability

Understanding and predicting climate and climate change, and using this knowledge to inform decisions on adaptation, mitigation and remediation, is one of the defining challenges of the 21st Century.

Oxford University boasts a world-class concentration of research spanning the climate issue, from advanced climate observation systems and fundamental climate processes, through modelling and prediction to detailed analysis of impacts and policy implications.

The University has recently formed the Oxford Climate Research Network to bring together the broad range of disciplines fostering both fundamental research and direct engagement with those affected by climate change. ECI has a prominent role in this network through Professor Myles Allen who leads the initiative.
Enhancing global food security policies

ECI leads an international effort between policy-makers, business, NGOs, media and civil society to determine plausible socio-economic futures for key developing countries.

There is an urgent need for concerted action to enhance food security and livelihoods in the developing world, while also improving environmental conditions. This is a major challenge, further complicated by climate change interacting with rapid political, economic and social changes in many regions.

The use and development of participatory scenarios provides a powerful way to bring a wide range of stakeholders together to challenge preconceptions and consider potential options in the face of an uncertain future.

A team in ECI leads an extensive scenarios process as part of the Consultative Group on International Agricultural Research (CGIAR) programme on ‘Climate Change, Agriculture and Food Security’ (CCAFS). This involves working with key regional policy-makers, private sector actors, civil society organisations, media and researchers in three regions: West Africa, East Africa and South Asia. The partners identify key socio-economic uncertainties for the next 30 years at the regional level - such as the degree of political and economic integration. These uncertainties shape plausible alternate futures - termed scenarios – that are explored through quantitative means (global economic models, food security maps) and qualitative means (narratives, visualisations).

The scenarios are used by key regional actors for strategic planning. ECI is involved in testing the plausibility of the scenarios and hosting a series of high-level regional policy meetings where stakeholders use the scenarios to test the robustness of new policies for better food security, environments and livelihoods under different plausible futures. The implementation of these policies will then be carefully tracked, based on collaborative action amongst these stakeholder communities.

Another important role of the CCAFS scenarios process is to support research spanning spatial levels. To this end, ECI’s scenarios team has developed collaborative partnerships working from strategic planning with farmer communities at the local level to the global-level, socio-economic development pathways of the Intergovernmental Panel on Climate Change (IPCC).

Oxford establishes new cross-university network on the Future of Food

The work carried out by CCAFS forms part of a new university-wide network on the Future of Food led by Professor Charles Godfrey in the Department of Zoology. ECI representatives sit on the steering group of the Oxford Martin School programme on the Future of Food.

The network is part of a series of environmental initiatives attempting to harness the intellectual capacity across the University. ECI has a leading role in three further networks: climate, energy and water, and is an active participant in the food and biodiversity networks.

Involving communities in climate adaptation strategies

A recent study by Dr Ariella Helfgott (ECI Visiting Research Associate and formerly Senior Research Fellow) and students from ECI’s MSc course sought to find out what really matters to people in vulnerable communities when experiencing climate change.

The pilot study with CCAFS used a novel participatory methodology allowing participants to identify and rank their favoured adaptation and mitigation responses.

These insights have been used to estimate the costs of the impacts of climate change and the costs of adapting to them from a community perspective, helping to plan suitable adaptation and mitigation strategies for the communities.

Photos from the research (right) appeared in The Guardian newspaper and were exhibited at the Agriculture and Rural Development Day during the United Nations Framework Convention on Climate Change (UNFCCC) Conference of Parties meeting in 2011.

Oxford contributes widely at the ‘Planet under Pressure’ conference

In 2012 ECI made a significant contribution to the Planet under Pressure conference in London. The conference discussed possible solutions to move societies on to a sustainable pathway - across all scales. It provided scientific leadership towards the 2012 UN Conference on Sustainable Development - Rio ’20.

ECI convened four parallel sessions, presenting eight papers and seven posters. Researchers from across Oxford University presented a further seven papers and 12 posters.

The conference was organised by the International Council for Science, representing science bodies from 140 countries.

We also had a key organisational role in the 2500+ capacity conference, with responsibility for the facilitation of developing country participants and supporting the Scientific Organising Committee.
Analysing water risks in a changing climate

Water security is defined as a tolerable level of risk at any scale and for any actor. Human and climatic changes are making societies worldwide more vulnerable to water related risks including floods, droughts and pollution. ECI is working to put the principles of water security into practice by developing concepts, methodologies and technologies that will help to manage water risks.

Floods and droughts are features of coupled human and natural systems. Climate change will influence their frequency, but the severity of the risk is shaped by a range of factors, including the way in which incidents are managed and the vulnerability of the affected populations.

These are complex problems, so in the past risk was managed by allowing an ample margin between safe operating conditions and harmful extremes. This approach is no longer tenable: we recognise more clearly the environment’s needs for water and we wish to allocate resources more fairly and avoid wasting them wherever possible. Risk-based approaches provide a basis for more rational water management decisions.

We have been working on methodology and decision support technologies for flood risk management for many years - most recently as part of the UK’s Flood Risk Management Research Consortium, in which we have been analysing the flood risks to London posed by rising sea levels.

We have been refining the concept of adaptation pathways, which allow forward-planning under conditions of uncertainty by including flexible alternatives which are triggered by observed or predicted changes. We are particularly concerned about the proper treatment of uncertainty in flood models and have recently developed an improved methodology to tackle this uncertainty.

The world’s leading thinkers from science, policy and enterprise gathered in Oxford to better understand the challenges of water security.

In April 2012, ECI and the newly formed Oxford University Water Security Network hosted an international conference on Water Security, Risk and Society. With funding across industry, academia and government, the conference offered a platform for academics, policy-makers and business leaders to respond to society’s pressing water security challenges.

The conference explored three overarching themes:

1. Framing the water security challenge from a risk perspective;
2. Understanding the status of water security;
3. Pathways to enhance water security.

Delegates from over 32 countries presented over 50 papers, which include plenary presentations from leading scientists and practitioners, including the UK Chief Scientific Adviser, Professor Sir John Beddington.

Oxford University Water Security Network

The Oxford University Water Security Network is led by Professor Jim Hall and works to bring together the diverse portfolio of outstanding water research, distributed across more than 10 different university departments.

The network seeks to harness Oxford’s strengths, advance scientific inquiry and inform policy choices by developing an evidence base about the status of, and pathways to, water security in terms of multiple risks, scales and actors.
A history of achievements

1991-1992
14th February, the Environmental Change Unit (ECU) was launched with generous support from IBM UK Trust, Cohen Foundation, Dulverton Trust, Environment Now, Merton College and hundreds of Oxford alumni.

ECU’s first research report is published: Climate change and vulnerable places: global food security and country studies in Zimbabwe, Kenya, Senegal and Chile, and generates The Times headline: Climate shift puts 360m more at famine risk.

The UK’s first Fellow in Energy Efficiency, Dr Brenda Boardman, is appointed and publishes ECU’s first energy report: DECADE 2MtC – a guide to saving 2 million tonnes of carbon in the UK.

1993-1994
ECU hosts Climate Change and World Food Security, a NATO conference that identified the agricultural vulnerability of local populations to climate change.

New MSc in Environmental Change and Management begins and rapidly becomes Oxford’s most popular postgraduate science course.

“Developing countries will suffer most from climate change” – New York Times reports ECU research published in Nature.

1995-1996
ECU hosts “Transport and the environment: the great debate”, led by UK Secretary of State for Transport, with 500 delegates from organisations across the UK.

ECU hosts “Greening the kitchen” bringing together manufacturers, retailers, consumers and government to discuss energy efficiency.

ECU is awarded £1 million from the EC to continue leadership of Europe’s largest network on climate change and agriculture.

1997-1998
UK Government appoints ECU to host the UK Climate Impacts Programme – the first of its kind in the world – and it publishes their first report on regional climate change impact and response studies in East Anglia and North-West England.

ECU leads EU project on institutional preparedness for drought and floods in Europe.

1999-2000
ECU changes name to Environmental Change Institute (ECI) in recognition of its role in promoting Oxford’s environmental work.

Ecosystems group examines the impact of a proposed titanium oxide mine on the coastal forests of Madagascar in partnership with Rio Tinto and the Darwin Initiative.

The Trapnell family fund the Trapnell Fellowship in African Terrestrial Ecology. ECI’s first permanently endowed post, as a flagship for Oxford’s considerable activities in researching the African environment.

2001-2002

2003-2004
ECI becomes founding partner in the UK Energy Research Centre and becomes conference programme host through the Meeting Place, which in its first year hosts a G8 energy conference of 200 international delegates.

ECI becomes part of the Tyndall Centre for Climate Change Research and coordinates a work programme on international action on climate change post 2012.

2005-2006
ECI launches the 40% House report at the Royal Society in London and receives widespread media coverage. The report proposes how to reduce emissions in the UK housing sector by 60%.

ECI wins EC funding to coordinate 23 partner organisations in a £1.3 million project “Rationalising Biodiversity Conservation in Dynamic Ecosystems”.

ECI is selected to host the Global Environmental Change and Food Systems programme.

ECI takes over the coordination of the network for advancing science in Amazonia with the appointment of ECI’s Statutory Professor, Yadvinder Malhi.

“Transforming world-class research into genuine impact doesn’t happen overnight. It involves building relationships with influential individuals and organisations to help them identify sustainable options when confronted with complex problems. We are constantly adapting to the needs of decisions makers and the changing policy and economic landscapes ...”

2007-2008
ECI hosts an international conference on climate change and the fate of the Amazon which leads to a major paper in the journal Science and a thematic issue of the Philosophical Transactions of the Royal Society.

Papers by Dr Dave Frame are published in the journals Science and the Philosophical Transactions of the Royal Society on the uncertainty around climate sensitivity.

2009-2010
ECI ideas are selected for the Sustainable Development Commission’s event: Breakthroughs for the 21st Century and presented to Prince Charles.

ECI hosts the “4 Degrees and Beyond” international conference which led to papers in Nature and Philosophical Transactions of the Royal Society.

Professor Yadvinder Malhi publishes Nature paper on increasing carbon storage in intact African tropical forests.

The UK Government launches UKCIP’s new climate projections: UKCP09, providing users with climate information designed to help them plan how they need to adapt to a changing climate.

Professor Andrew Goudie, ECI’s founder, delivers his final lecture to ECI students, who include Indonesian environmental leader and ECM graduate Yuyun Ismawati, recipient of the first Ancora Foundation Graduate Fellowship.
The University of Oxford is immensely grateful to the benefactors who enabled the founding of the Environmental Change Institute in 1991 and have invested in its development.

Ancora Foundation
Andrew W Mellon Foundation
BOC Foundation
Charterhouse Charitable Trust
ClimateCare
Dr James Martin
Dulverton Trust
EcoSecurities
Environment Now Foundation
Esmée Fairbairn Foundation
IBM United Kingdom Trust
John S Cohen Foundation
Loke Wan Tho Foundation
Merton College, Oxford
MOA International
Mr and Mrs Colin Trapnell
Nuclear Electric
Powergen plc
Rhodes Trust
Riche Monde
Solar Century
Thames Water plc
The Higgins-Trapnell Family Foundation
The Jackson Foundation
The Strachan Donnelley Family Trust
TSB Lloyds Bank plc
and over 1,000 graduates of the University of Oxford.

“Whether on the level of international government and business or that of individual human beings we are increasingly recognising that going it alone will not work. Instead, in our search for environmental solutions, the most significant contributions will come from better, more innovative and more diverse partnerships between researchers, decision-makers, entrepreneurs, practitioners and ordinary people.”

Sir Colin Lucas, former Vice Chancellor, Oxford University