Resilience for Sustainable Development

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School of Archaeology, Geography and Environmental Sciences
Department of Geography
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The University of Reading

OBJECTIVE

> ***To provide insights into the theory and practice of resilience for sustainable development***

INTRODUCTION

Development and sustainable development thinking are faced with significant challenges in rethinking their futures amid global environmental change. In particular climate change has major consequences for governance and human livelihoods in developing countries. It poses challenges to the management of extreme events and exacerbates existing problems of water scarcity and degradation of natural resources. This lecture series is concerned with these consequences. Most importantly global environmental change has implications for the lives and livelihoods of millions of people around the globe. Uncertainty surrounds the environmental stresses that interact with human vulnerability, and the knock on effect on extreme poverty.

Against this backdrop we see increasing attention paid to resilient development and to policy strategies that include mitigation and adaptation to climate change. These actions have yet to demonstrate their benefits in tackling the stress and poverty dimensions of global uncertainty. For example, mitigation schemes through the Kyoto Protocol's Clean Development Mechanisms are often criticized for their failures of governance. The design of such schemes only provides benefit to single market actors while marginalizing a multitude of local actors, in particular the poorest. Meanwhile poorer communities reliant on natural resources for their livelihood are often locked into national policies, incentives and processes that continue to exacerbate the degradation of these resources. Similarly, adaptation interventions in response to climate change provide limited insights into how people should manage the interaction between 'surprise' events, such as flooding or cyclones, and human vulnerability. The question is whether there a trade-off between adapting/mitigating climate change and development? Can a reevaluation of development through a resilience lens square this circle?

'Resilience' has come to mean many things to many people and has raised strong opposition by some to the idea that it is possible to identify a desirable point at which societies could agree to stabilize emissions, deforestation or overfishing. In a world that is unpredictable and is marked by vulnerability and risk, people remain poor, marginalized, discriminated against and dependent on powerful elites. Yet, global environmental change offers the opportunity to act as a circuit

breaker in other words to rethink the way societies manage and govern the natural environment. Perhaps resilience can help scholars and practitioners to understand better how societies can continue to develop under the stress posed by global environmental change? For example, what policy responses and institutional changes are in train in anticipation of the threats of global environmental change? Can resilience help us to reformulate our thinking about the status quo and trigger ideas for transformation to avoid tipping points?

Aims:

The aim of this lecture series is to provide a unique and a systematic evaluation of resilience as both theoretical lens and operational concept, one through which to re-examine how varieties of development theory (e.g. modernism, neoliberalism) deals with global environmental change and uncertainty, with a particular focus on climate change and its consequences. Of particular importance is the effort to advance understanding of social change as part of the relationship between nature and society.

On completion of this module it is expected that students will be able to:

- Appreciate the range of interpretations given to the term resilience
- Understand how resilience is been approached, used and measured
- Critically examine the practical implications arising from a vision of sustainable development in both developed and less developed countries
- Synthesize both existing work and individual thought into a coherent, logically structured and well-written essay

TIMETABLE

Teaching will be by 10 x Lecture and 10 x Seminars

LECTURE TOPICS

Week	Date	Topic
		Unit introduction
		REFLECTIONS ON SUSTAINABLE DEVELOPMENT AND GLOBAL ENVIRONMENTAL CHANGE IN THE 21ST CENTURY: CHALLENGES
THEORIES AND APPROACHES TO RESILIENCE		
		A RESILIENCE APPROACH TO SUSTAINABLE DEVELOPMENT: CONCEPTS AND COMMON FRAMEWORKS
		RELEVANCE OF RESILIENCE FOR DEVELOPMENT THINKING
		UNDERSTANDING CRISES AND UNCERTAINTY ON A GLOBAL SCALE
RESILIENCE IN PRACTICE		
		DEVELOPING NETWORKS & KNOWLEDGE
		BUILDING INSTITUTIONS
		MAKING PARTNERSHIPS

NEW AVENUES, LIMITS AND DEVELOPMENT RECONFIGURATIONS
      ADAPTIVE GOVERNANCE, SOCIAL LEARNING AND TRANSFORMATIONS
      BARRIERS AND LIMITS TO RESILIENCE FOR SUSTAINABLE DEVELOPMENT
      RETHINKING DEVELOPMENT
      FINAL GROUP PRESENTATIONS

Lecture slides will be made available on Blackboard along with a list of further reading

ASSESSMENT

Assessment is a combination of coursework (50%) and examination (50%).

The exam will last 2 hours, and you will be required to answer 2 questions from a choice of 5.

> **Please note that any of the topics covered in the unit lectures can potentially be included in the exam.**

The coursework will consist of an essay – **maximum 2,000 words and a group case study.** Please note that although this is an essay, you are encouraged to make good use of tables, graphs, diagrams etc.

You're free to choose one of the following 4 essay questions:

1. What is the definition of resilience and where does it originate?

2. How do the key concepts vulnerability and adaptation relate to resilience?

3. What role do networks play in building resilience? Refer to a case study from the literature.

4. How useful is resilience theory for the practice of environmental management? Use examples from the literature.

Group work case study

The group work assignment should be presented as poster and should examine a case study to understand 'what works' and what is resilient about a given example. The case should focus on a successful initiative or co-management either in rural or urban context. Can you find an example of a network where the institutions have been particularly successful at creating new opportunities or outcomes that are both 'green' and 'development' focused? Can you find a case of how information and knowledge is channelled to different actors through leaders or networks in ways that makes a difference to the practical outcomes of managing the environment for

people? Examples could include the co-management of a nature reserve, the management of the green spaces campus at the University of Reading, or it could focus on a network process where municipality and scientists are interlinked in important ways to prepare for early warning. Can you find ways that people are measuring resilience? You will work in groups of 3-5 people. The poster should try to examine one key aspect of the system and should introduce the concept, present the key method of assessment, the findings, analysis (strengths and weaknesses) and conclusions, and illustrate with photographs and images.

<u>Deadline for all coursework submission</u>

13.00 on 27 March, 2015

All work must be handed in to the Geography and Environmental Science Department with a front sheet confirming that it is the work of the student.

The front sheet is stamped with the date/time of submission.

INTODUCTORY TEXTS

As you will soon be aware there is a huge literature on resilience for sustainable development, and in a series of lectures such as this it is really only possible to scratch the surface. This is good news and shows the urgency and vitality of the topic, but can be problematic as important publications are likely to emerge during the teaching of the unit. The following is but a small selection of key introductory texts:

Introductory texts

Adger, W.N., 2006, Vulnerability, *Global Environmental Change*, 16, 268-281

Berkes, F &Folke, C (Eds.), 1998, Linking social and ecological systems: management practices and social mechanisms for building resilience, Cambridge, Cambridge University Press

Boyd, E. and C. Folke (eds), 2012: Adapting Institutions: Governance, Complexity and Social Ecological Resilience. Cambridge: Cambridge University Press.

Folke, C. Resilience. *Global Environmental Change*, 16.

Folke, C, Carpenter, S, Elmqvist, T, Gunderson, L, Holling C.S. & Walker, B, 2002, Resilience and Sustainable Development: Building Adaptive Capacity in a World of Transforamtions, *AMBIO: A Journal of the Human Environment*, 31:5, 437-440

Handmer, J.W. & Dovers, S.R., 1996, A Typology of Resilience: Rethinking Institutions for Sustainable Development, *Organisation Environment*, 9, 482-511

Maler, K, 2008, Sustainable Development and Resilience in Ecosystems, *Environmental Resource Economics,* 39, 17-24

Perrings, C, 2006, Resilience and Sustainable Development, *Environment and Development Economics*, 11, 417-427

Walker, B.H. & Salt, D, 2006, Resilience thinking: sustainable ecosystems and people in a changing world, Washington DC, Island Press

Walker, B, Holling, C.S., Carpenter, S.R. & Kinzig, A, 2004, Resilience, Adaptability and Transformability in Social-ecological Systems, *Ecology and Society*, 9:2, 5

Online resources

The Resilience Alliance - http://www.resalliance.org/
This website has explanations of basic concepts such as resilience, adaptive capacity and panarchy. Also has a range of case studies in urban and marine environments.

Stockholm Resilience Centre - http://www.stockholmresilience.org/
This website focuses on research into the governance of social-ecological systems and has a wide range of publications to read on resilience and other climate change related topics.

Eldis - http://www.eldis.org/go/topics/resource-guides/climate-change/key-issues
This website is part of a family of knowledge services provided by the Institute of Development studies in Sussex. It has information and resources on a wide range of climate change related topics including resilience, adaptive social protection, and community involvement in climate change strategies.

Climate Centre: Partners for Resilience - http://www.climatecentre.org/site/partners-for-resilience
This website is based on collaboration between five organisations (The Dutch Red Cross, the Red Cross Climate Centre, CARE Netherlands, Cordaid, and Wetlands International in order to help improve the resilience of vulnerable communities

Gaia Foundation - http://www.gaiafoundation.org/climate-change-resilience
This organisation argues for a holistic approach to climate resilience through the integration of communities and ecosystems.

UNISDR (International Strategy for Disaster Reduction) – Making Cities Resilient - http://www.unisdr.org/campaign/resilientcities/
A UN campaign aimed at educating people about urban resilience and encouraging individuals to take action wherever they can.

IUCN (International Union for the Conservation of Nature) -
http://www.iucn.org/cccr/resilience_to_climate_change/
This website places particular focuses on improving the resilience of coral reef ecosystems.

LifeMosaic - http://www.lifemosaic.net/en/home.php
LifeMosaic is an organisation determined to help indigenous communities become more knowledgeable and thus resilient to the possible impacts of climate change.

Living with Environmental Change – Adaptation and Resilience to Climate Change -
http://www.lwec.org.uk/activities/arcc
Living with environmental change is an organisation trying to address a series of environmental challenges, including that of climate change. One of its key activities is the Adaptation and Resilience to Climate Change programme.

Adaptation and Resilience in a Changing Climate – Co-ordinating Network - http://www.arcc-cn.org.uk/
The Adaptation and Resilience in a Changing Climate Co-ordinating Network brings together a wide range of stakeholders to work on multiple resilience projects, for example with regards to water resource sustainability, urban climates, and resilient transport networks for the future.

Natural England -
http://www.naturalengland.org.uk/ourwork/climateandenergy/climatechange/default.aspx
Natural England works with the research community to develop and implement mitigation, vulnerability, adaptation, and drought based projects.

National UK Government Sites

UK Climate Projections (DEFRA) - http://ukclimateprojections.defra.gov.uk/

Wales 'Building resilience to climate change' -
http://wales.gov.uk/consultations/environmentandcountryside/climatechangeresilience/?lang=en

Foreign & Commonwealth Office article on building global resilience to climate change -
http://www.fco.gov.uk/en/news/latest-news/?view=Speech&id=657334482
The Joint Nature Conservation Committee are key advisors to the government -
http://jncc.defra.gov.uk/page-3910

Scottish biodiversity and ecosystem resilience -
http://www.scotland.gov.uk/Publications/2009/12/08130729/1

UK Local Government

London mayoral climate change adaptation strategy - http://www.london.gov.uk/who-runs-london/mayor/publications/environment/london-climate-change-adaptation-strategy

Local governments and climate change - http://www.local.gov.uk/climate-change

Climate resilience partnership in Yorkshire and Humberside - http://www.yourclimate.org/pages/about-climate-change-partnership

West Midlands climate adaptation partnership - http://www.sustainabilitywestmidlands.org.uk/projects/?/Public+Sector+-+Climate+adaptation+partnership/1622

Climate Local initiative - http://www.local.gov.uk/web/guest/the-lga-and-climate-change/-/journal_content/56/10171/3574359/ARTICLE-TEMPLATE

US Government Sites

The US Environmental Protection Agency's CREAT (Climate Resilience and Awareness Tool) - http://water.epa.gov/infrastructure/watersecurity/climate/creat.cfm

NOAA (National Ocean and Atmospheric Administration) Coral Reef Conservation Programme - http://coralreef.noaa.gov/

NOAA Climate Project Office linking climate science with practical challenges in coastal areas - http://www.cpo.noaa.gov/cpo_pa/sarp/index.jsp?pg=./cpo_pa/cpo_pa_index.jsp&pa=sarp&sub=coast.jsp

Other Sites

Climate change and parks in Australia - http://www.environment.gov.au/parks/publications/climate/index.html

Australian Government Department of Agriculture, Fisheries and Forestry - http://www.daff.gov.au/climatechange

Government of India Ministry of Environment & Forests climate change vulnerability and adaptation - http://www.envfor.nic.in/cc/adapt.htm