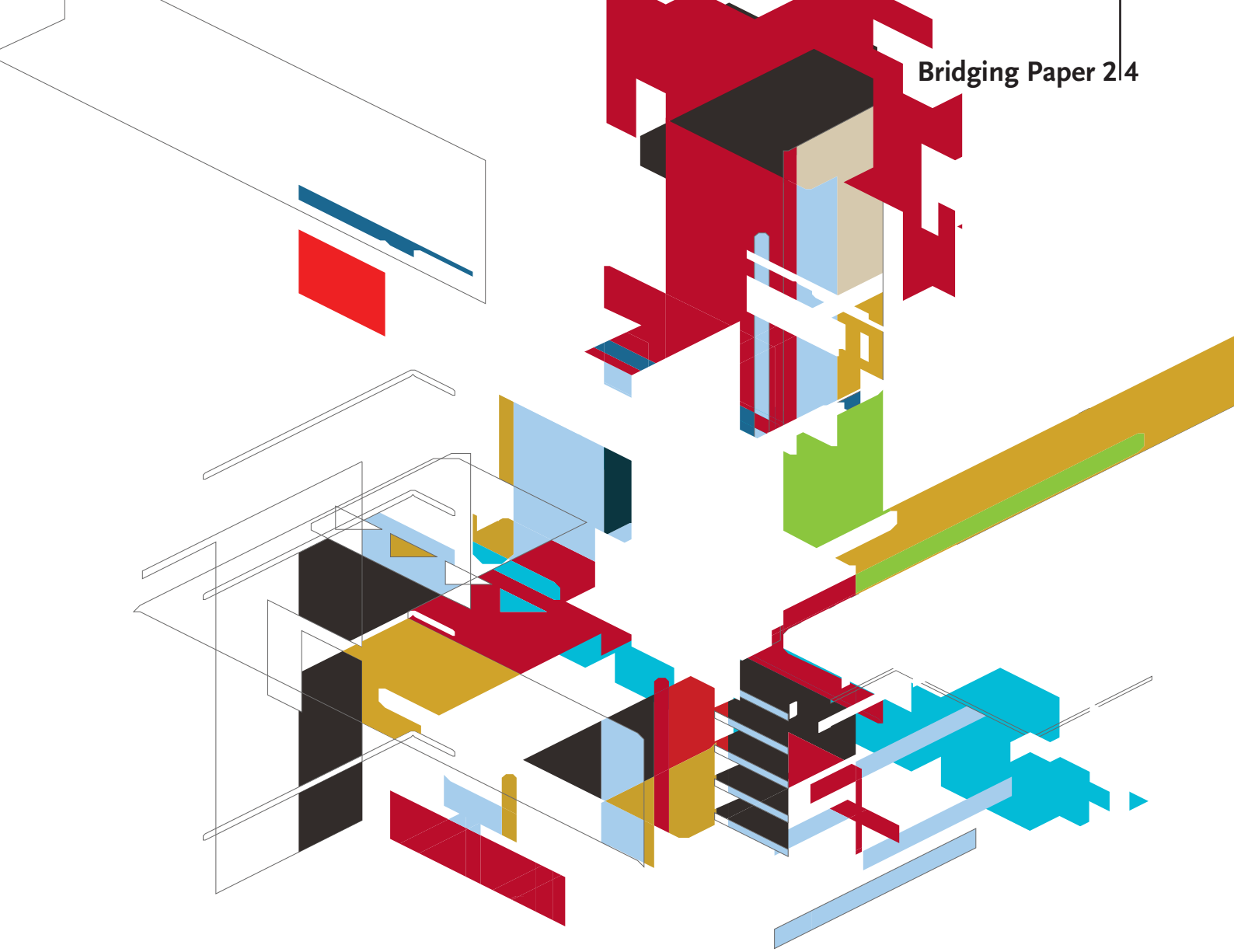


2 Tackling Poverty in a Changing Climate

Bridging Concepts and Practice for Low Carbon Climate Resilient Development

Andrew Newsham[+], David Satterthwaite*,
Alexandra Winkels[~] and Fran Seballos

The IDS–DFID Learning Hub aims to improve knowledge and information flows between DFID practitioners and experts in the field of low carbon climate resilient development. It is a new approach that combines practitioner learning networks, knowledge management capacity and reflective learning processes with bespoke research and analysis. The Hub has four interconnected 'learning cycles' (*Approaches to planning for climate change; tackling poverty in a changing climate; low carbon growth and development; and difficult environments*). Each cycle hosts a learning event which are safe, supported spaces for DFID staff who work on climate change and development to share individual learning and skills; engage experts in dialogue; develop new ways of thinking and working together; identify where there are knowledge and learning gaps and contribute to the co-creation of a common knowledge base around 'low carbon climate resilient development'. All the learning cycles are linked through various inputs and outputs that create an ongoing flow of knowledge and will lead to the development of theories of change for Low Carbon Climate Resilient Development.

This is the second Bridging Paper from the Hub's second learning cycle; *tackling poverty in a changing climate*.

This material has been funded by UKAid from the Department for International Development, however the views expressed do not officially reflect the department's policies.

Authors affiliation:
[+] Andrew Newsham is a Research Fellow and Fran Seballos is a Research Officer in the Climate Change Team at IDS.
* David Satterthwaite is a Senior Fellow in the Human Settlements Group at the International Institute of Environment and Development,
[~] Alexandra Winkels is a British Academy Postdoctoral Fellow at the University of East Anglia

Acknowledgements:
Thanks go to all DFID staff who participated in the Learning Hub event in Addis in March 2011; Catherine Arnold, Sandy Baldwin, Jane Clark, Emanuele Cucillato, Liz Fajber, Su-Lin Garbett Shiels, Charlotte Heath, Iris Krebber, Joanne Manda, Gareth Martin, Kirsty Mason, Chris Price, Mirzet Sabirovic, Praveen Wignarajah, Michelle Winthrop, and to Natasha Grist (CDKN). Thanks also go to the IDS Learning Hub staff team, Thomas Tanner, Fran Seballos, Blane Harvey, Patricia Curmi, Matthew Lockwood and to event facilitator Carl Jackson (WKG) for their support, feedback and organisation throughout the Learning Cycle

Designed by: The Ethical Graphic Design Company Ltd

Contents

Acronyms

CDKN	Climate and Development Knowledge Network
IPCC	Intergovernmental Panel on Climate Change
LAPA	Local Adaptation Plan of Action
LDC	Least Developed Country
MDG	Millennium Development Goals
PPCR	Pilot Program for Climate Resilience
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNRSID	United Nations Research Institute for Social Development

Introduction

The Learning Hub is a transformative way of learning and sharing, bridging academic knowledge with invaluable insights from frontline practical experience. The Hub's second learning cycle focused on perhaps *the* overarching challenge at the heart of climate change and development. **How do we ensure that we tackle poverty and its root causes in ways that are adaptive and low-carbon?** The two main ways that were used to explore this question were a) the framing paper and b) the learning event, held in Addis Ababa in March 2011. The purpose of this paper is to bridge the thinking and learning that came out of the framing paper and the debates sparked by it at the learning event.

The framing paper

The background paper for the learning cycle explored how livelihood changes happening autonomously across the global south – in response to multiple drivers – can lead to pathways of poverty reduction or reproduction (cf. Rigg, 2006). This linked very clearly to learning cycle one, 'Approaches to planning for climate change' where engaging with autonomous adaptation to climate change was recognised as a central part of the planning process – with planning playing a key role in creating an enabling environment to support autonomous adaptation. Whilst this is a critical insight, the framing paper for learning cycle two sought to look not just at autonomous adaptation to climate change, but also at broader processes of autonomous change and their implications for poverty reduction.

The analytical focus did not, and could not, cover the whole of tackling poverty in a changing climate. It centred on livelihood vulnerability, exploring four broad processes already happening autonomously but which do not currently receive enough attention in the climate arena:

1. **deagrarianisation (a long-term shift away from rural agricultural livelihoods)**
2. **migration**
3. **urbanisation**
4. **inequitable patterns of economic growth.**

The paper sought to understand both the consequences of processes of autonomous change, and to tease out how different groups of people (by ethnicity, age or gender, for instance) experienced autonomous change in different ways. For some, processes such as migration or urbanisation could lead to poverty reduction, whilst for others such processes were as likely to reproduce poverty and to expose them to new risks and vulnerabilities. It is critical then, to ensure that climate change interventions contribute to reinforcing the pathways of poverty reduction, and to helping people get out of or avoid pathways of poverty reproduction, including those that stem from changes in how people make a living.

"Greater attention needs to be paid to strategies that strengthen the resilience and adaptive capacity of societies as a whole"
Hedger *et al.*, 2011:26

The learning event

Participants in the Tackling Poverty in a Changing Climate learning event broadly embraced the importance of processes of autonomous change, much as had been acknowledged in the previous learning cycle. Yet they also underlined that these considerations have to be linked to a wider framework for tackling poverty in a changing climate. Participants were keen to explore the **practical implications of engaging with autonomous change, or in other words, how this engagement would help in concrete terms with tackling poverty in a changing climate**.

A central concern emerged around the role and benefit of sectoral and systems-based approaches. In particular, participants expressed a concern that whilst sectoral approaches – such as working out the impacts of climate change on agriculture or water – were perceived to receive significant attention, in reality they were not sufficiently covered. In response it was proposed that a systems perspective – which locates specific sectors within an understanding of broader social-ecological systems – was necessary for effective action to tackle poverty in a changing climate (a theme that had also featured prominently in the first learning cycle). On a more practical level two key debates emerged through the learning event; differentiating between 'good' development and adaptation, and the need to put poverty at the heart of climate change programming.

The learning event dialogue focussed on:

- **Understanding how climate impacts on different groups and systems / sectors**
- **Differentiating between development and adaptation**
- **Putting poverty at the heart of climate change responses**
- **Ensuring the needs of the poorest and most vulnerable to climate change are voiced and reflected in interventions from the local to the global**

The results of bringing together the framing paper and the discussions from the learning event are in many ways encapsulated in the ten dimensions of tackling poverty in a changing climate (see box one on following page and section 5). But core issues from the learning event are pulled out and explored in more detail throughout the paper.

The paper is divided into four further sections. **Section 2** explores the social vulnerability framing of climate change as developed in the background paper. The following two sections engage with the two key debates that participants centred on during the learning event. **Section 3** considers the relationship between adaptation and development, whilst **Section 4** explores issues around putting poverty at the heart of the climate change response. In **Section 5**, the paper draws together ten critical dimensions for tackling poverty in a changing climate that emerged through the learning cycle process.

Box 1: Ten critical dimensions of tackling poverty in a hanging climate

1. Be pro-active in ensuring that poverty issues are centre-stage in the global climate change debates
2. Build resilience in developing countries (not carbon-intensive development)
3. Explore how to square the relationship between poverty reduction, a low-carbon future and economic growth
4. Strengthen governance for reducing poverty and vulnerability to climate change impacts
5. Engage with the private sector
6. Link the 'bigger picture' with the local level
7. Ask how poor people are empowered by efforts to tackle poverty in a changing climate
8. Embrace autonomous change
9. Strike the balance between sector and system
10. Construct a strong, persuasive narrative on climate change adaptation to push internally and externally

2

Applying a vulnerability framing to tackling poverty in a changing climate

Section digest...

Vulnerability is not simply a matter of exposure to a specific hazard (climate-related or otherwise). We've got to look at the broader structural factors that affect people's assets, entitlements and capabilities to respond to that hazard.

Disaggregating 'the poor' according to factors such as gender, age, ethnicity, location (rural or urban), and according to exposure to climate change impacts will help us grasp the multi-dimensional approach needed to understand any relationship between poverty and climate change.

There is a need for more equitable forms of economic growth and complementary approaches to reducing poverty. If these can be made to address the underlying causes which keep many in poverty they are likely also to reduce vulnerability to climate change impacts.

Vulnerability, poverty and climate change

Much of what we already know about tackling poverty is still relevant in the context of a changing climate. Here we flag in particular the concept of vulnerability: it was coined long before its use in the climate change arena, but is now one of the key analytical tools for dealing with climate change impacts.

It is critical to disaggregate, or separate out, when discussing 'the poor' or 'the vulnerable', principally because neither poverty nor vulnerability is a single, uni-dimensional experience distributed evenly across age, gender, ethnicity, class, location or other factors. Taking a disaggregated approach improves understanding of how climate impacts are experienced in different ways across these groups. Box two provides a snapshot of how climate impacts different groups in different ways.

Box 2: A snapshot of socially differentiated climate impact

Gender: Women Watch (2009) argues that both women and men are vulnerable to climate change impacts but in different ways and that for this reason gender-sensitive climate policies must be followed.

Age: Literature on children's relative vulnerability to extreme events points towards higher mortality and morbidity rates among children for climate stresses and extreme events (Bartlett, 2008), with research in the USA finding considerable differences across age groups for different types of hazard (Zahran *et al*., 2008).

Temporal: Some people are usually or always – chronically – poor, whilst others might be cyclically poor and others again might only occasionally dip beneath the poverty line (Hulme and Shepherd, 2003). Tanner and Mitchell (2008) point the way forward in this regard by matching up different adaptation options for people at different points on the 'poverty continuum'.

Spatial: Urban and rural populations experience climate impacts differently and this must likewise guide adaptation and mitigation. Poverty reduction initiatives designed with rural populations in mind cannot be assumed to work for urban populations and vice versa. However the inter-linkages between the two must not be overlooked, for example lower agricultural productivity impacting food availability in urban markets; migration of rural citizens to cities seeking income opportunities to remit money back to families.

However it is important to recognise **there is no complete overlap between poverty and vulnerability to climate change**; vulnerability to climate change does not always equal vulnerability to poverty. Evidence suggests some poor people are less vulnerable to climate change impacts than others who are relatively better off (Eakin, 2005 , Ziervogel *et al*., 2006). 'Poor' people may be less exposed to climate impacts, more able to move and have knowledge that can give them considerable adaptive capacity in the face of climate impacts (Folke 2004; Salick and Ross 2009). So, when we attempt to reduce vulnerability to climate change impacts, it may have unintended consequences – actually leaving poverty untouched or even exacerbating it (Adger *et al*., 2005).

Although being poor does not automatically mean heightened vulnerability to climate change impacts, vulnerability to poverty and climate change frequently share the same root cause; the (in)ability to withstand a multiplicity of shocks and stresses. Ability to withstand shocks and stresses is not just a result of different levels of income – it can be explained more fully with recourse to access to assets, entitlements and capabilities (Sen, 1999). Access to productive assets such as land, transport or tools is clearly important. However, the assets, entitlements and capabilities framework also brings access to social networks, human rights, health and education into the analysis thus revealing the multi-dimensional causes of poverty and vulnerability.

"the ability to shift strategies depends...on the ability to access flows of knowledge, information, people, goods, services, finance and social support. When populations lack access to such flows, they face fundamental constraints in their ability to shift strategies and are, as a result, confined to more basic coping and survival," Hedger *et al*., 2011:26

Vulnerability is not simply a matter of exposure to a specific hazard (climate-related or otherwise). It also relates to the broader structural factors which affect the assets, entitlements and capabilities available to people to respond to that hazard. A focus on disaggregation – of 'the poor' according to gender, age, ethnicity, location (rural or urban), and according to exposure to climate change impacts – leads to a multi-dimensional approach to understanding any relationship between poverty and climate change. Indeed, unless we ensure that we understand the differentiated impacts of climate change across different types and degrees of poverty, it will be hard to know whether intervention reaches the poorest, and how well it works for different groups. These responses have to engage with changes that are happening autonomously – such as deagrarianisation, increasing inequality, increasing informal settlement in urban spaces. These processes may offer the prospect of poverty reduction for some even as they threaten to consign hundreds of millions to entrenched poverty.

Figure 1 Pathways of Poverty

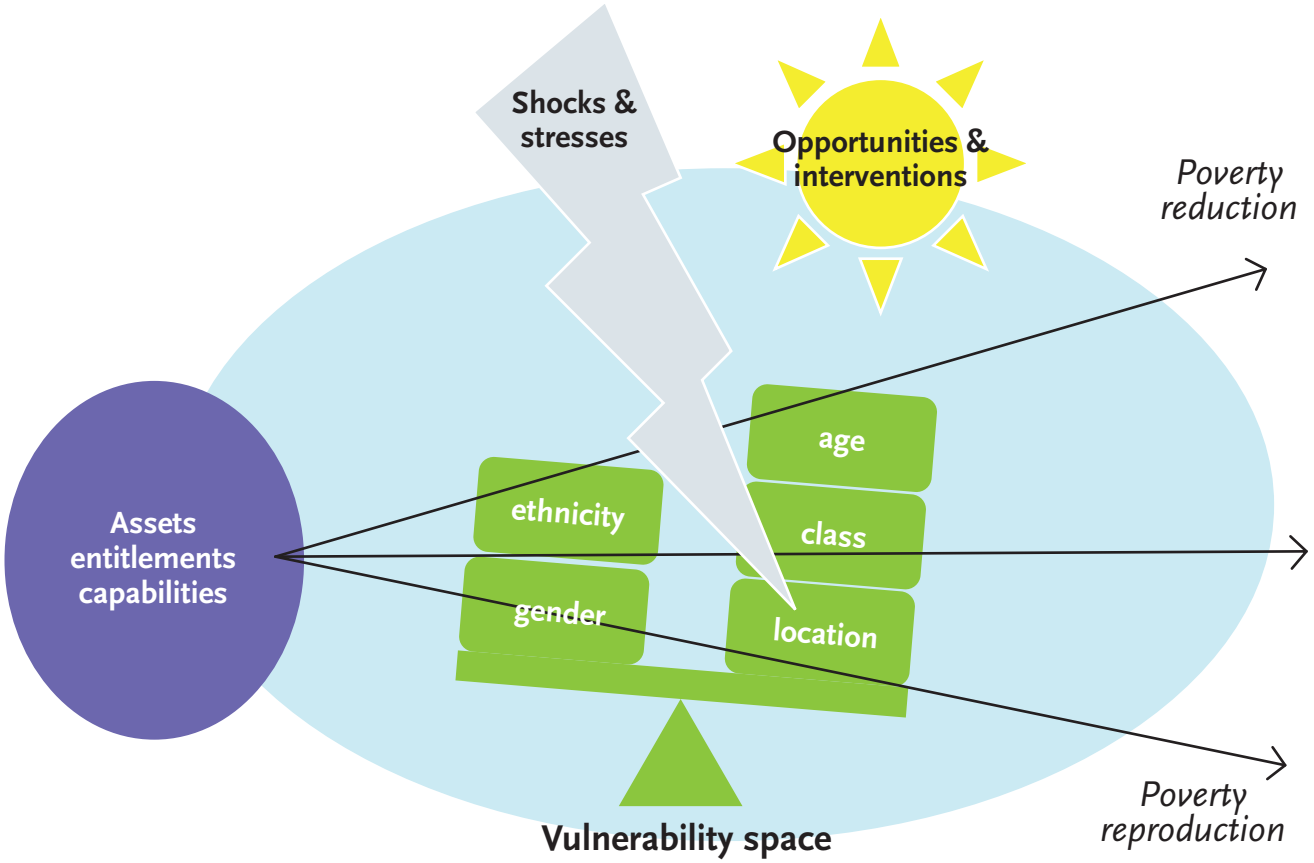


Figure one illustrates how pathways of poverty can, in the context of autonomous change, lead either to poverty being reduced or reproduced. At the outset it recognises the influence of the assets, capabilities and entitlements that people use as the basis for making a living; the arrows represent pathways which can lead either towards poverty reduction or poverty reproduction but where these pathways lead is mediated by the factors balanced in the 'vulnerability space'. Into this space intercede not only shocks and stresses (climatic and others) but also opportunities and interventions.

"Deagrarinisation, urbanization, migration and equity issues can all play an important role in people's ability to either move out of poverty, or, on the flip side, to entrench their positions of marginalization and exclusion from opportunities that may help to forge a more resilient livelihood."
Winkels 2011

In learning cycle one two broad approaches – which are mutually reinforcing – are identified for responding to the adaptation challenges associated with climate change:

1. **Developing specific strategies for responding or adapting to specific projected impacts, and**

2. **Building the resilience and adaptive capacity of society as a whole to create the enabling environment necessary for adaption to occur**

From a poverty reduction perspective specific planned interventions to reduce vulnerability to the changing climate (adaptation) – such as introducing drought resistant crops or installing adequate storm drains – are recognised as necessary yet it is considered that these cannot substitute for broader structural change that can enhance adaptive capacity.

"It is important that we do identify and support initiatives where there are co-benefits between poverty reduction and climate change adaptation but not to assume that all poverty-reducing measures necessarily qualify as climate change adaptation"
Satterthwaite 2011

At the same time we cannot shy away from the extent to which the most central plank in mainstream poverty reduction efforts – economic growth – continues in its current guise to push us towards dangerous climate change. Moreover, some forms of economic growth can produce inequitable outcomes. And yet there clearly are many ways to make the energy that fuels growth much, much greener, provided the right national energy investment incentives can be put in place. Likewise, there are a number of exciting examples – most recently from a wave of Latin American countries – which combine increases in economic growth with reductions in inequities in the distribution of national wealth (see also the framing paper and section 5).

Box 3: The framing paper's six proposed principles for tackling poverty in a changing climate

1. **Make equality and low emissions a strong focus of economic growth.**
Countries like Brazil and Mexico are working on reducing inequity, whilst countries like the UK have very strict emissions targets.

2. **Manage structural changes to the ways people make a living to ensure better pro-poor outcomes**
The UNRISD (2010) argues the countries which most quickly reduced poverty in the twentieth century have used industrial and agricultural policies fostering "employment-centred" structural transformations.

3. **Support and empower poor peoples' own efforts at poverty reduction and adaptation to climate change**
Urban slum dwellers in India have started their own associations claiming rights and services from the government (see Satterthwaite 2011)

4. **Focus on building governance capacity in ways which recognise and support autonomous change**
Nepal's Local Adaptation Plans of Action are designed to be simple, flexible, catalytic, rooted, practical and meso-level focused (see Dixit's support note for learning cycle one)

5. **Place more emphasis on pro-poor, inclusive social policy whilst working to ensure that such policy is more explicitly serving low-carbon objectives**
Efforts to 'climate-proof' social protection, and to see how it can contribute to adaptation, are being researched by IDS (Davies *et al.*, 2008) and the World Bank (Heltberg *et al.*, 2009). It is less clear that we have examples of social policy which also serve mitigation purposes.

6. **Consider wellbeing and alternative perspectives of poverty**
Wellbeing can be addressed through measures which reduce poverty and have little or no carbon footprint; such as making intra-national and intra-regional migration easier, or extending the access of marginalised people to basic health services, or indeed to vote.

There is then, a need for more equitable forms of economic growth and complementary approaches to reducing poverty. If these can be made to address the underlying causes which keep many in poverty they are likely also to reduce vulnerability to climate change impacts.

The common basis for all such approaches should be a focus on the value of protective, redistributive and transformative efforts to reduce poverty. To this end, the framing paper proposed six principles for tackling poverty in a climate of change (see Box 3 above).

3

Differentiating between good development and adaptation

Section digest...

Thinking about 'what's new' in climate change might easily lead to an over-focus on the impacts. Any exploration of tackling poverty in a changing climate should emphasise the need to combine approaches on dealing with vulnerability to specific impacts with approaches to tackling the underlying causes of vulnerability.

'Good development' – defined here as that which addresses the root causes of people's vulnerability to enduring poverty and powerlessness – can be an effective adaptation strategy when it is poverty-reducing, low-carbon and climate-resilient

Poverty is not a largely rural phenomenon. It is as much about lack of entitlement and visibility in informal urban settlements as it is about natural resource access in rural areas.

Of the many reactions to the principles proposed by the framing paper, two linked ones stand out in particular. First, they do not deal sufficiently with uncertainty.

> Uncertainty relates to our understanding of what and when changes in climate will take place; uncertainty in the models to assess these changes; and uncertainty in our understanding to assess the capacity to cope with these changes due to the multiple drivers of vulnerability
> Hedger *et al.*, 2011:35

Second, and emerging from the focus on uncertainty is the strong concern that many of the principles and instruments discussed are not new. By bringing existing development thinking to climate change issues, the risk is that new thinking for new problems will not emerge.

Such reflections open up a core question, common to many actors:

Does much of the work that donors and development NGOs already do serve as good climate change adaptation?

Or to put it another way:

If climate change really is a game-changer, do adaptation and mitigation actually require changing the 'rules of the game'? If so, which rules?

Box 4: Tipping points and non-linear change

Over the last couple of years, the science has started to suggest that it is very unlikely that we will be able to keep global temperature rises below the 'guardrail' of 2°C (Anderson and Bows, 2011), in order to avoid 'dangerous' climate change. As a 4°C rise in temperatures – by as early as 2060 (Betts *et al*., 2011) – becomes more likely, there is a higher risk of reaching tipping points in climate and large ecosystems. Once crossed, these could lead to non-linear climate change that is not reversible within timescales relevant to human societies, and whose consequences are much less predictable (New *et al*., 2011 , Richardson *et al*., 2009). Reaching such tipping points would likely leave us confronting a range of climate-related impacts that may be very damaging and for which there is little or no precedent in human history.

These considerations demonstrate how climate change poses new challenges which our current development models will not necessarily help us to deal with.

See also section three in Bridging Paper one for a discussion on the challenges to planning for climate change from both scientific uncertainty and from economic uncertainty around decision-making for climate adaptation investment.

Development = adaptation if...

One of the motivations for this focus on 'what's new' about the climate change challenge is the concern that current development (or development thinking at least) is held to be good enough for doing adaptation – we would and sometimes do end up proposing the same measures. There clearly are overlaps between adaptation and development to the point that is still difficult to define them separately. Many development actors already have a lot to contribute to poverty reduction in a changing climate. However, if this assertion is left unchallenged, there remains a risk that climate change will be under-prioritised. So, how much do we need to change?

The first challenge is to define 'good development' in order that it cannot be confused with all current modes of and approaches to development.

In the authors view, **'good development' is defined as that which addresses the root causes of people's vulnerability to enduring poverty and powerlessness**. This it does as a foundation for building resilience to the broader shocks and stresses which intersect with and increase vulnerability to climate change impacts in the first place.

"...concerns over people's vulnerability, equity, capacity and emphasis on economic growth, remain key in addressing well-known (poverty, equity, welfare) as well as less well defined (environmental change, globalization, security) issues in development."
Winkels 2011

There are, of course, new challenges from climate change, not least in the speed and scale at which impacts are to be felt – and these look set only to increase as we continue to do so little to reign in carbon emissions. But the roots of existing vulnerability often have little to do with climate change even though they will be affected by its impacts (Eakin and Luers, 2006 , Ribot, 2009).

Even if our existing thinking on dealing with underlying vulnerabilities has to be altered in view of climate change implications, it has to remain the starting point for our views on adaptation. **Thinking about what is new in climate change can quite easily lead to a focus on the impacts, and distract attention away from underlying causes of vulnerability, if it is not grounded in our existing thinking on root causes**.

For this reason, any exploration of tackling poverty in a changing climate should emphasise the need to combine approaches on dealing with vulnerability to specific impacts with approaches to tackling the underlying causes of vulnerability. Another way of putting it is, if root causes of vulnerability are addressed, then "adaptation represents a practical means of achieving sustainable development in the longer term" (Smit, 1993:1).

Whilst this emphasis on vulnerability-reducing development has many supporters, there's just one problem: for hundreds of millions of people, it's not actually happening. Not only is it not happening in less-developed countries (LDCs) but, judging by recent work on the global distribution of poverty, it's not even happening in many Middle-Income Countries (MICs), like India. Andy Sumner recently pointed to the 'new bottom billion' – the 960 million poor people, or 72% of the world's poor, who live in the economically wealthier middle-income countries, but still endure persistent poverty, which increases their vulnerability to a range of shocks and stresses (Sumner, 2011).

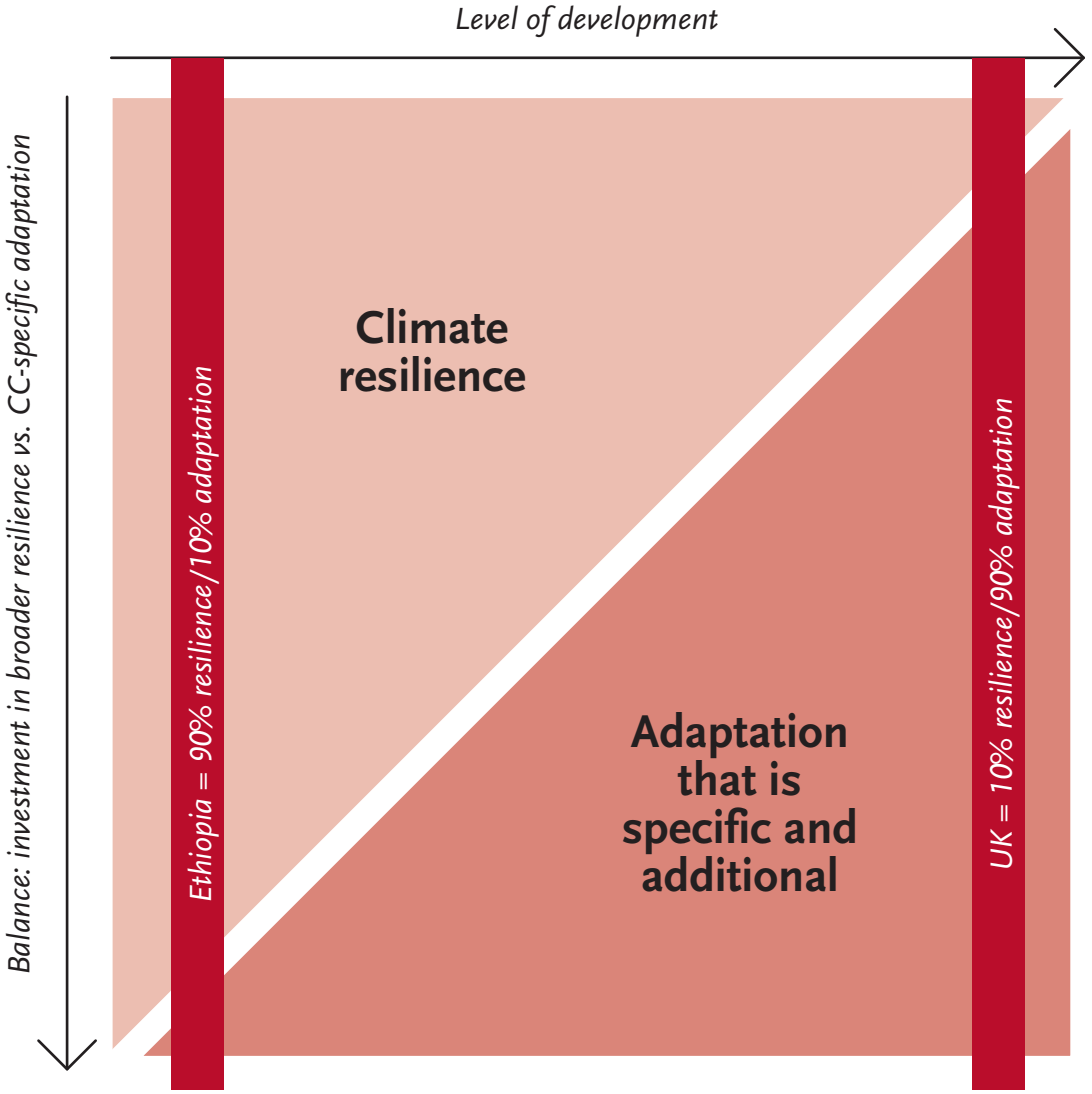
Satterthwaite (2011) argues that much of the development that has happened in high-income countries, in terms of the development of infrastructure, the development of effective governance institutions, and the diversification of livelihoods away from agriculture, has reduced vulnerability to climate impacts both directly and indirectly. Therefore, putting in place the broader institutions and infrastructure that are part and parcel of 'good' development is a foundation to building resilience to a wide range of shocks and stresses. We need to do similar things today, but **where we need new thinking is on how to do them in ways which respond to likely climate impacts and to do them in ways which vastly reduce carbon emissions**.

> Policies that support the entitlements, systems and institutions that underpin adaptive capacity, and that enhance people's ability to take autonomous adaptive actions, are likely to have the greatest positive impact on local adaptation to climate change
> Hedger *et al* 2011:35

Putting the money where the effort is needed

If we accept that development which builds resilience more broadly will also contribute to resilience to climate change impacts, one next step could be to consider how to strike the right balance in allocating climate change funding between 'broad' resilience measures, and climate-specific adaptation measures. One way of thinking about this is captured in the 'Balance of Effort' model in figure two, presented at the learning event by Praveen Wignarajah.

Figure 2: 'Balance of Effort' Model



NOTE: This model posits how investment in climate change can be balanced between investing in broader climate resilience (infrastructure, institutions, processes, etc.) and investing specifically in additional adaptation activities (hard and soft).

The model's main hypothesis is that as overall levels of development and income rise, the share of investment that should be directed at strengthening underlying resilience will decrease and a greater percentage is directed at adapting the established infrastructure, institutions, processes, etc. to the anticipated impacts of climate change.

The examples of Ethiopia and the UK are given as points of comparison. According to this model, the UK, with high existent levels of resilience to climate impacts, should focus 90% of its funding on adaptation that is specific and additional. Ethiopia, with much lower levels of broad resilience, should spend 90% of funding on these broad measures, and 10% on additional adaptation measures.

NB: the figures of '90% funding towards resilience' for Ethiopia, and '10% of funding toward resilience in the UK', are notional and for illustration only.

Whilst this model provides a useful way of thinking about a) what to take from current development practice and what to add, and b) how to prioritise funding, there are reasons for using it with caution. First, the relationship between resilience and adaptation must be specified. The model seems to take adaptation measures as incremental adjustments which contribute to keeping the system in a resilient state. But adaptation can also be – and might also need to be – thought of in terms of transformation of the system, not of maintaining its resilience. An example would be switching from farming to landscape tourism in a particular area, to avoid depleting the water resources that climate change (and other factors) may put at risk (see also Nelson *et al*., 2007).

Another potential issue is the assumption that we can quantify the percentage of resilience to climate impacts a country already has, which would be a necessary precondition to prioritising funding. This might run into the same difficulties as have national indices of vulnerability; namely that vulnerability can only be measured by proxy, and choosing the right proxy is ultimately subjective (see also Brooks *et al*., 2005, Füssel, 2010, Vincent, 2006). Moreover, quantifying resilience could duplicate a key problem with quantifying vulnerability, which is that there is an undue emphasis on phenomena that are easily quantified, such as biophysical impacts, and insufficient attention paid to less tangible phenomena such as social capital (Eakin and Luers, 2006).

Thus, whilst the difference between measures that increase resilience and/or adaptation may be somewhat fluid, such thinking advocates adaptation that is rooted in reducing underlying vulnerabilities and as such is a good way to think about striking the resilience/adaptation balance. In this regard, **'good development' as an adaptation strategy might clearly be distinguished from current development by being a) poverty-reducing, b) low-carbon and c) climate-resilient.**

Is the 'green' economy a vision of 'good' development?

One emerging pathway for 'good development' as both adaptation and mitigation is through supporting the 'green economy'. A recent United Nations report (UNEP, 2011) makes a strident case that a green economy is not only more environmentally sustainable than the 'brown economy' we have now, but can also pull off the remarkable feat of reducing poverty whilst keeping global warming below 2°C by 2050. From this perspective, there is a need to understand better the potentially strong economic and employment advantages of the green economy (see Box 5).

"In [the city of] London climate change has been repackaged – adaptation as resilience, security, green jobs and economic competitiveness. If the needed shift to 'the green economy' can be mapped out, shown to bring strong economic and employment advantages and policies identified that actually make private investors invest in the green economy, then low-carbon, climate-resilient development may be more feasible"
Satterthwaite 2011

Impressive though the report is as a visioning exercise to give some idea of what a green economy might look like and for showing that it is – in the abstract at least – quite feasible, it is less instructive on how to get there. Moreover, the report's analysis of poverty and equity is problematic, not least because it has a very rural bias. A common recognition from this learning cycle is that **poverty is not a largely rural phenomenon and is as much about lack of entitlement and visibility in informal urban settlements as it is to natural resource access in rural areas**. Likewise, a focus on the root causes of vulnerability to poverty and climate change impacts, in the context of broader processes of autonomous change, has profound implications for thinking on a transition to a green economy, and who would benefit or not. But such considerations are absent from the report.

Box 5: What would a green economy look like?

The report argues that a green economy:

1. **Recognizes the value of, and invests in, natural capital, because investment in forestry, for instance makes economic sense and can support rural and agricultural livelihoods**
2. **Is central to poverty alleviation. The report cites Pretty *et al*'s (2006) review of 286 'best practice' initiatives across 12.6 million farms in 57 developing countries, which found that using resource-conserving practices increased yield whilst making critical environmental services more available. The report also cites the Grameen Shakti Programme in Bangladesh as an instance of the cost-effective role renewable energy can play in poverty alleviation.**
3. **Creates jobs and enhances social equity, if policies are targeted at small and medium size enterprises through green investment in agriculture, buildings, forestry, transport and energy sectors**
4. **Substitutes renewable energy and low-carbon technologies for fossil fuels, with government playing a key role in the provision of incentives for investment in renewable energy technologies.**
5. **Promotes enhanced resource and energy efficiency, with a focus on the imperative of decoupling growth absolutely from material and energy intensity.**
6. **Delivers more sustainable urban living and low-carbon mobility. The report cites examples of green transport policies reducing emissions in London, Singapore, Lagos, Ahmadabad, Guangzhou and Johannesburg.**
7. **Grows faster than a brown economy over time, while maintaining and restoring natural capital, positing that a green investment scenario of 2% of GDP can deliver growth which matches business as usual scenarios whilst mitigating climate change and avoiding the loss of ecosystem services (ibid:6-23).**

Source: (UNEP, 2011)

4

Putting poverty at the heart of climate change adaptation

Section digest...

Global climate change is usually framed as a scientific problem which requires changes to how we use energy and other carbon-intensive resources. This has implications for what kinds of interventions do or do not receive climate finance. Attention should also focus on adaptation measures and strategies and the many key linkages these have with poverty reduction.

Situating sectoral approaches in a more systematic perspective inevitably raises the question of what is left out of the 'system', and whether this might not be more important, when it comes to tackling poverty in a changing climate, than what it includes.

Whilst climate change does present new challenges for development: power and influence remain enduring considerations. In relation to tackling poverty there is a danger of specific interests capturing the adaptation agenda – to the detriment of poor people.

If tackling poverty in a changing climate requires investment in systems which support poor people to be resilient in the face of a range of shocks and stresses – then the poverty agenda needs a sharper focus in the global narratives on climate change.

Representing poverty in the broader climate change arena

Both in the UK and internationally, climate change is often framed as an environmental problem which requires scientific and technological intervention to bring emissions under control. Whilst a science-technology framing must certainly be part of the solution, it has implications for what kinds of interventions do or do not receive climate finance and may also limit the scope for framing the problem in terms of its poverty dimensions. A potential concern here is that investment in clean technologies, for instance, may be easier to 'sell' than other issues which are just as central both to tackling poverty and reducing vulnerability to climate change impacts.

It is important to take climate change beyond environment ministries, and ensure that the focus on mitigation, legitimate as it is, also responds to poverty reduction imperatives. Attention should also focus on adaptation measures and strategies and the many key linkages these have with poverty reduction.

An example of the relatively low profile of poverty in the broad climate change debates was its lack of prominence in the IPCC's Fourth Assessment Report (2007). Although the Fifth Assessment, currently underway, gives more prominence to poverty, there remains scope to push poverty further up the climate change agenda.

Although low-carbon technologies have many potential advantages for transforming the lives of poor people, it is more than a case of bringing a 'pro-poor' lens to questions of energy provision. There is a need to make space for issues which may yield big poverty reduction dividends, even if they look somewhat 'messy', i.e. governance or reducing social exclusion. For example, investing in measures that facilitate the kinds of migration which reduce poverty – and which may become more necessary if climate change undermines the viability of agricultural livelihoods – may look a less straightforward option for intervention than investment into technological solutions.

Whilst there is no clear relationship between poverty and migration, there are instances where migration has led to poverty-reducing outcomes. Bangladesh has a long history of high labour mobility, with relatively stable migration owing to agricultural intensification, diversification and urbanisation. These migration patterns coincided with rapid poverty declines, suggesting that the (capital-intensive) development of agriculture, diversification and lower poverty incidence limits the need to find work elsewhere (de Haan, 2000). The UNDP (2009) has released a report which considered what migration-sensitive policies might look like. Amongst a raft of proposals, they advocate finding solutions that benefit both destination communities and the migrants they receive; as well as ensuring basic rights for migrants. Migration is at once, then, a promising and a messy phenomenon. If the broader framing of responses to climate change remains centred around energy and clean technology the broader means of resilience building, poverty reduction and ultimately adaptation may not be given sufficient attention.

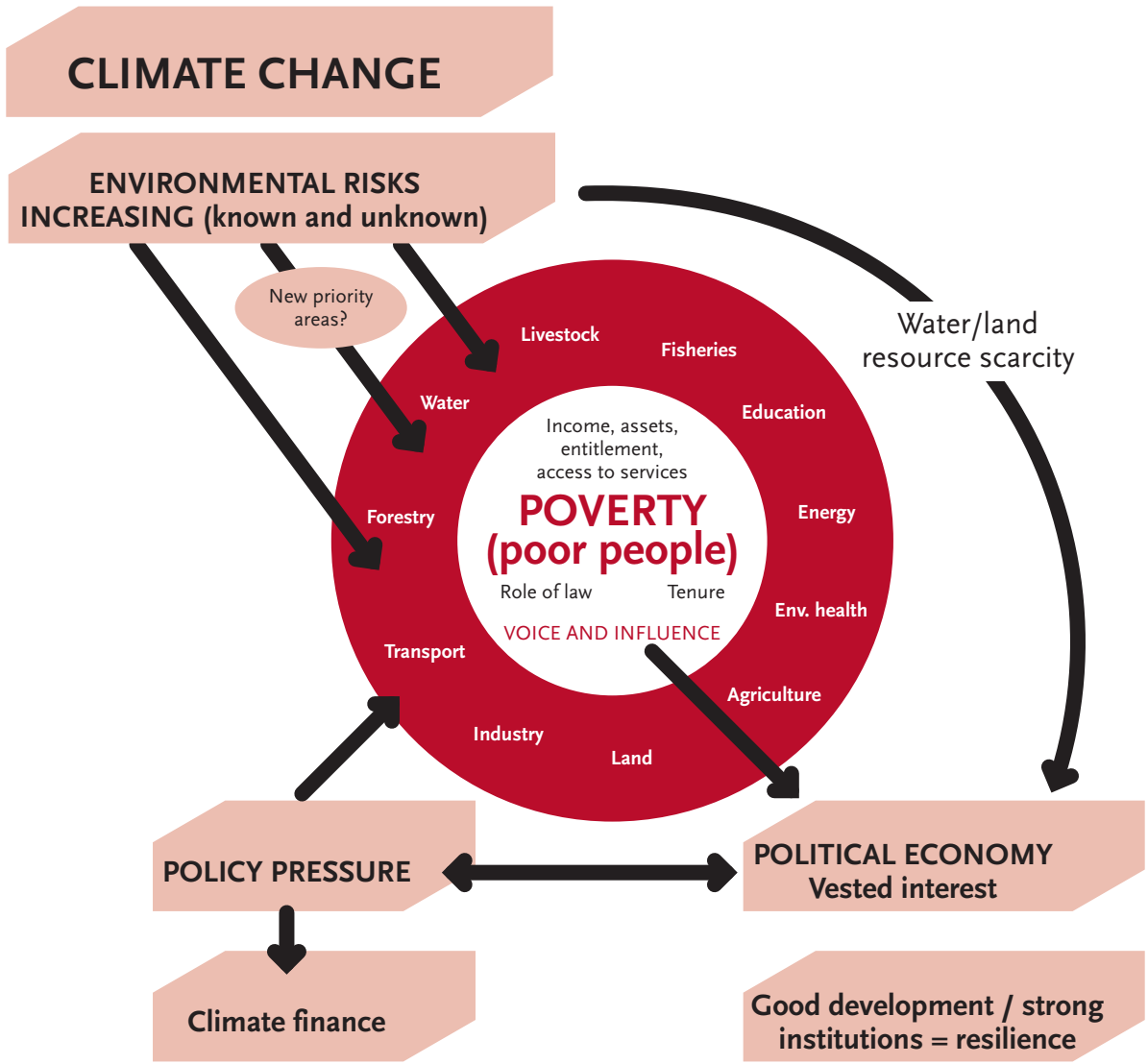
However, these points are relevant beyond the provision of low-carbon technology. The problem may be that "the international aid (and climate finance) system is not well-equipped to respond to such messiness, and needs to develop new ways of working, and take operational risks to do so effectively" (Winthrop pers. Com, see also Box 7).

Centring the narrative on reducing poverty

Whilst many development actors have made significant progress in developing poverty-centred adaptation narratives it is clear that perhaps some of the dynamics of reducing poverty in a changing climate are harder to turn into quickly digestible storylines. This is in sharp contrast, for instance, with investment in low- or zero-carbon energy technology. Compelling stories remain a central driver to take key actors on the journey leading to low-carbon, climate-resilient development with poverty reduction at its heart. In this regard, the 'poverty layer diagram' (or the 'onion'), instigated by Su Lin Garbett-Shiels, emerged as a useful tool for organising thinking on tackling poverty in a changing climate (see figure three).

At its centre figure three has poor people, their voice and influence (or lack therein) and the context affecting their poverty. Arranged around the centre, in the second of the layers, are the sectors through which governments work and, subsequently donors, in efforts to reduce poverty and build resilience. At the top of the diagram is climate change, the environmental impacts of which have implications for each of the sectors. Underneath are some of the intermediating factors that affect concrete responses to climate change impacts, such as policy pressure, political economy, as well as forms of and systems for disbursing climate finance.

Figure 3: Locating poverty at the heart of the climate change response



With its multiple layers, the diagram is a useful way of thinking through how to tackle poverty in a changing climate for the following reasons:

1 **It brings together the sectoral approaches (water, energy, agriculture etc) into a more system-oriented understanding of the problem, showing visually that climate change impacts across all of these sectors.**

2 **Understanding the impacts within and across different sectors can help actors prioritise interventions, partly through seeing where the 'gaps' in sectoral understanding or action are, and what their implications are for vulnerability to poverty and climate change.**

3 **It has a strong focus on the political economy of climate finance which will have critical implications for any intervention which seeks to reduce poverty and build resilience to climate impacts (see Box 6 in Bridging Paper One)**

In many ways then, the diagram could be at the centre of a strong, poverty-focussed climate change narrative, as a way not just to explain what tackling poverty in a changing climate will involve, but also because it organises what needs to be done around the core value of putting poor people at the centre of the issues. However, it should be recognised that it is perhaps a deceptively simple way to bring together a great many complex elements. Getting joined-up thinking and action on climate change across all of these sectors, and gauging the collective impact of them on poverty reduction and resilience building, is an enormous undertaking. As Learning Cycle one emphasised, it requires levels of coordination and capacity to deal with complexity that, perhaps, do not currently exist and may require structures at the meso level for coordinating action on critical issues.

> "Coordination is necessary to avoid duplication, reinventing the wheel and for practices to be effective. Catalysing real change requires coordinated action at multiple levels and in multiple sectors. This is a multi-scale challenge"
> Hedger *et al* 2011:35

Box 6: Dealing with complexity: considering a systems perspective

Holistic perspectives have much to offer those dealing with climate change, and indeed are necessary to capture the interlinked patterns of interactions between sectors and across different scales. Action undertaken without regard for the consequences for the broader 'system', or without a longer-term vision beyond immediate vulnerability and resilience, can prove short-sighted and counter-productive. Moreover, current systems perspectives take human-environmental systems as their starting point. It is hard to envisage solutions to climate change adaptation or mitigation or poverty reduction which fail to understand that elemental set of inter-relationships.

Whilst covering sectors, such as natural resources, is vital – not least because tipping points in livelihood viability implies major sectoral change – promoting sectoral agendas runs the risk of fostering a silo mentality to climate change, which is a fundamentally cross-cutting issue. Systems analysis therefore has a lot to offer large organisations dealing with complex issues.

Yet there are tradeoffs and constraints that are likely to be faced by any organisation attempting to embrace a systems perspective. Trying to keep all (or even just some) of a system in view risks sacrificing focus and clarity precisely because of the greater levels of complexity involved. Ultimately, even with systems thinking we end up drawing boundaries around what we focus on because reality is too complex to take in all at once. As a result, the question of where such boundaries are drawn can start to look as arbitrary as defining sectors.

Moreover, putting sectoral approaches in this more systematic perspective inevitably raises the question of what is left out of the 'system', and whether this might not be more important, when it comes to tackling poverty in a changing climate, than what it includes.

There is no straightforward way of deciding where to delineate the 'cut-off' point of what to include or not in the analysis of the system. Yet the 'onion' diagram can support a deeper interrogation of what is and is not excluded, and stimulate thinking on how to strike the balance between sectoral focus and cross-sectoral coordination.

Engaging with political economy

Political economy perspectives feature prominently in any discussion of climate change. Whilst climate change does present new challenges for development, power and influence remain enduring considerations. In relation to tackling poverty there is a danger of specific interests capturing the adaptation agenda – to the detriment of poor people. Agriculture for example is now a key component to be funded by climate finance, but is by no means automatically pro-poor; poorer farmers have been pushed off land by members of the agri-business sector which, at the same time, is often positioning itself to receive climate finance. The same is true for forest protection and afforestation. Moreover, much climate finance may be channelled through relatively weak environment ministries with little or no expertise or capacity in poverty reduction.

How, for example, do we comprehensively address the social dimensions of climate change without thinking through the different ways in which social policy is viewed and implemented in the various ministries? Winkels 2011

In addition finance is sometimes channelled into infrastructure projects which are not thought through with low-carbon or climate impact criteria taken into account. The risk is, then, of contributing to locking countries into carbon-intensive development pathways which would be expensive and inefficient to retro-fit.

The challenge is twofold:

1. **to address the mismatch between the national and international levels in which many of the climate finance decisions are taken, and**

2. **to get finance to the local level to support processes from which poor people could benefit more directly and influence the decision-making process.**

Box 7: Approaches to making climate finance pro-poor

Delivering for the poor in a changing climate is chaotic, complex and messy; it requires responses which are mutually supporting across scales. Stories from programmes which build collective capacity for grassroots action should directly inform policy to strengthen the support and commitment to pro-poor climate finance.

There are examples of funds made directly available and accountable to citizens, such as slum dwellers (see http://www.sdinet.org/upfi/ or http://www.achr.net/) and forest groups from which learning can be generated.

However it is unlikely that donors will be able to reach the poorest every time. Learning from challenges and successes in existing programmes is key to understanding how to increase donor engagement with those most vulnerable to climate change impacts and to improving the accountability of funds. Programmes such as the Pilot Programme for Climate Resilience have much to learn from on both accounts.

See for example the Mozambique study from Shankland and Chambote, 2011, in the IDS bulletin on the political economy of climate change.

5 Learning lessons for tackling poverty in a changing climate

The learning hub process recognised that much of what is known about tackling poverty and addressing the root causes of vulnerability is still relevant in the context of a changing climate. There is an additional need to respond to specific climate impacts through planned adaptation interventions. Yet tackling poverty in a changing climate is dependent on having the building blocks in place. It also requires using strategies which strike the right balance between building the resilience and adaptive capacity of poor people to a range of shocks and stresses.

> "...because there are no clear dividing lines between what is new and additional over development effort ...working at the local level and supporting autonomous efforts can be more clear-cut"
> Hedger *et al* 2011:30

Placing an increased emphasis on the scale and exponential character of the problem (see box four) is needed to generate the political will for:

1. **building resilience in existing sectors, and;**
2. **for developing new planned programmes that respond directly to projected climate shocks and stresses in neglected areas, such as natural resource management.**

The key challenges of weak governance and institutions will be further explored in learning cycle four – difficult environments.

Significant links between 'approaches to planning for climate change' (learning cycle 1) and 'tackling poverty in a changing climate' (learning cycle 2)

- **the central necessity of engaging with and understanding the political economy of climate change finance, low carbon and adaptation**
- **the core challenge of dealing with uncertainty**
- **the notion that building resilience is a core foundation for developing adaptive capacity**
- **the challenge of increasing governance capacity for coordination and cross-scalar working.**

These central challenges will be built upon in the forthcoming cycles.

Ten critical dimensions of tackling poverty in a changing climate

1. Be pro-active in ensuring that poverty issues are centre-stage in the global climate change debates

Both in the UK and internationally, climate change is often framed as an environmental problem requiring scientific and technological intervention, in order to bring emissions under control. Whilst this framing must certainly be part of the solution, the discussion noted that it might limit the scope for framing the problem also in terms of its poverty dimensions. It is important to take climate change beyond the environment ministries, and ensure that the focus on mitigation, legitimate as it is, also responds to poverty reduction imperatives (an issue developed further in learning cycle 3). Rather, attention should focus on adaptation measures and strategies and the many key linkages these have with poverty reduction.

2. Build resilience in developing countries (not carbon-intensive development)

In order for poor people to be resilient in the face of climate change impacts they need infrastructure, services and local governance processes that prevent natural hazards from becoming disasters; access to adequately-paid, climate-insensitive or resilient employment opportunities; institutions that respond quickly in emergencies, and so on.

> Much more attention needs to be given to critical sectors such as water, food and human health, more attention also need to be paid to the basic energy, transport and communication systems that enable higher level systems to function and, in doing so, contribute to adaptive capacity
> Hedger *et al* 2011:27

These things are taken for granted in higher-income areas and societies that have already made the necessary investments. On the surface, this can be taken as an argument that development, as high-income countries have known it, is a good model for resilience. But making development low-carbon, whilst responding to the causes of poverty in differing developing countries, requires fundamentally different ways of achieving these objectives. Partly it requires energy and productive infrastructure to be much lower-carbon than those found in high-income countries, but it also means rethinking what it is that developing countries aspire to – especially to the extent that this entails consumption-fuelled growth.

3. Explore how to square the relationship between poverty reduction, a low-carbon future and economic growth

Perhaps one of the most fundamental reasons why governments the world over put economic growth at the centre of policy objectives is that no-one has come up with a viable, accepted alternative. Neither DFID nor any other donor agency can be expected to settle what is surely one of the biggest questions of our time. But DFID can position itself to ensure that pro-poor perspectives and solutions are centrally voiced in the debate, however it is resolved.

It has been argued – and on the basis of extensive historical evidence – that economic growth reduces poverty (Dollar and Kraay, 2002). But what kinds of growth do this best and under what circumstances? Global economic growth has been accompanied by greater inequity in income distribution for five centuries now (see Basu, 2006). This suggests that driving down inequity whilst maintaining economic growth is not going to be easy. Nor, clearly, do we have a resounding track record in this area. Yet there is evidence from the countries that have, against this global trend, managed to reduce income inequality on the back of economic growth, and there is analysis of the measures that appear to work best (see Cornia, 2010).

Even if we do this, we still have to make such growth low-carbon. And even if we do that, we must still bear in mind that the new impetus for making growth low-carbon is not automatically going to be pro-poor. It should take into account questions of equity and leave sufficient space for both material and non-material aspects of wellbeing. These thoughts could fruitfully be a central plank in our thinking on what low-carbon development is or should be.

4. Strengthen governance for reducing poverty and vulnerability to climate change impacts

Poverty reduction in a changing climate makes the challenge of strengthening national and local governance all the more urgent, even as it raises questions about whether current governance arrangements will fit the bill. Good national and local governance is prerequisite for building the resilience in developing countries, as discussed above, and a major part of this is capacity to make the necessary changes.

> Many countries with significant adaptation deficits require both a national policy framework to mobilise resources, and high resolution local plans to target those resources into the hands of those who need them
> Hedger *et al* 2011:34

For instance, given urban population trends and the tendencies for residents of informal settlement to be more vulnerable to climate impacts, the capacity of local government to provide basic infrastructure is going to be central to adaptation strategies. Better relationships with local government can enable community organizations to undertake locally appropriate measures to reduce poverty and climate change risk (e.g. small-scale drainage, community disaster evacuation routes). Before any of this can happen, though, these residents have to be 'visible' and entitled to access the provision of government services which contribute to building resilience (Satterthwaite, 2011).

5. Engage with the private sector

The state cannot do everything, which means that our focus should also look to 'unusual suspects'. The private sector does not always have the greenest of images when it comes to climate change. The reason for this is that the private sector is a central part of a global economic system which, to this day, continues to drive up the greenhouse gas emissions that are at the heart of the climate change problem. To be fair, though, so are we all, and there are many within the private sector who feel as frustrated by the lack of an international political regime for action as do environmental campaigners. Therefore, the ways in which private sector actors are brought into efforts to tackle poverty in a changing climate are critical because:

a The private sector can be a source of climate change and poverty solutions, i.e. providing the technology and investment for green energy, as well as green economy employment opportunities which reduce poverty. This could be happening a lot faster if, for instance, there were more secure regulatory environments which gave the energy sector the incentives and security to invest long-term in renewable technologies.

b We are already, whether we like it or not, in an era of decreasing state power and responsibility, and a correspondingly greater emphasis on market mechanisms. Rather than trying to reinvent the global economic order, it may be more productive to try to make it work better in terms of reducing poverty and carbon emissions. In development terms, this involves reaching out to the private sector as well as falling back on more established development sector actors such as civil society.

c It is crucial to remember that many poor people work in or otherwise comprise the 'private sector' (although this does not necessarily hold for the poorest, who are frequently poor owing to their exclusion from labour markets). There is a sense, then, that some of the alliances we may seek to build with the private sector are intrinsically pro-poor.

> Much autonomous adaptation occurs in the informal sector and, though visible and available at the household level, it is invisible at the national and international levels of planning
> Hedger *et al.*, 2011:25

6. Link the 'bigger picture' with the local level

The 'meta-level issues', that is the bigger climate change picture, are not well-linked to a poverty agenda (hence the importance of the first dimension discussed above). Three points can be made here:

a The potentially adverse consequences at the local level of focussing on the global level. For example, the international interest in African land as a means to grow export crops and biofuels has led to restrictions on the land access of pastoralists and also evictions of small-scale cultivators in Kenya's Tana River Delta (Abdirizak, 2011)

b Conversely, action at the local level is not enough to deal with the underlying causes of vulnerability poor people frequently face, which are embedded in broader societal, economic or political dynamics at national and global levels. Therefore, the ways in which we link-up between levels on a scale and across different scales are crucial to the effectiveness of our efforts to reduce poverty and vulnerability to climate change impacts.

c The need to confront the political economy of global, national and local interests, which clearly do not always coincide. This requires an awareness of the politics, interests and narratives which drive policy processes, so that spaces for influencing on behalf of poor people can be identified or created.

One factor affecting all of the above issues relates to how we negotiate the complexities of cross-scale and cross-level interactions. Climate change is a global challenge and demands effective interactions between various actors and institutions at different levels within and across different scales (geographical, temporal, jurisdictional etc).

7. Ask how poor people are empowered by efforts to tackle poverty in a changing climate

It is imperative to ensure that poor people's own perspectives and capacities directly impinge upon efforts to tackle poverty in a changing climate. It is one way of ensuring that heterogeneous groups of people affected differently by climate change are not aggregated into a uniform category of 'the poor'. It is an important way of recognising and using the adaptive capacities many people already have, and thereby facilitating autonomous change (see below). It is also a way to address concerns around the connection between the local level and the 'bigger picture'. One concrete suggestion for including poor voices is to ensure that some of the international climate finance available finds its way to groups founded and run by poor people themselves (see box seven). This would also provide an opportunity for co-constructing knowledge for tackling poverty in a changing climate.

8. Embrace autonomous change

How do we deal with climate change in view of the ways that the rapid growths of informal settlements – often driven by access to labour markets – affect the vulnerability of large parts of the population? How do we get migration outcomes that reduce poverty and vulnerability to climate change? How do we facilitate livelihoods diversification which reduces poverty whilst being low carbon?

Engaging with autonomous change is partly about recognising the positive aspects of what people are already doing and supporting it. But some forms of autonomous change can undermine the viability of livelihood strategies people rely upon. Support can be offered here by either helping people find ways to hold onto an existing livelihood strategy (for instance through social protection activities which help people to maintain productive assets), or helping people get more from a big change to the way they make a living. An example might be to fund initiatives that support the rights of migrants into urban centres to access local services, or increase their access to urban labour markets by helping them afford or access public transport.

> Planning involves strengthening the vibrant role of the informal sector upon which the poor depend, including supporting the more dynamic service and job provision functions
> Hedger *et al.*, 2011:34

9. Strike the balance between sector and system

Promoting sectoral agendas runs the risk of fostering a silo mentality to climate change, which is a fundamentally cross-cutting issue. But covering sectors such as natural resources – which arguably do not receive sufficient attention – is vital, not least because tipping points in livelihood viability implies major sectoral change. At the same time, holistic perspectives have much to offer and are necessary to capture the implications of interactions between sectors and across different scales. Action undertaken without regard for the consequences for the broader 'system', or without a longer-term vision, can prove short-sighted and counter-productive. Moreover, current systems perspectives take human-environmental systems as their starting point.

It is hard to envisage solutions to climate change adaptation or mitigation or poverty reduction which fail to understand that elemental set of inter-relationships. Yet trying to keep all (or even just some) of a system in view risks sacrificing focus and clarity precisely because of the greater levels of complexity involved. This is an essential tension which needs to be managed carefully.

10. Construct a strong, persuasive narrative on climate change adaptation to push internally and externally

Partly because adaptation can be so difficult to distinguish from development (see section three), and partly because technological solutions to climate change problems are so seductive, getting a strong and clear storyline on adaptation is a challenge. Yet building a coherent narrative around pro-poor, climate resilient and low carbon development will help to deliver positive change. A key part of this exercise is being aware of the range of competing/complementary narratives, actors and interests to be negotiated.

In this regard, poverty focussed agencies might seek to build a strong narrative around the following ideas which came out strongly in this Learning cycle:

1. **Addressing the underlying causes of vulnerability as a means of reducing poverty and the harmful effects of climate change impacts**
2. **Using a systems perspective to coordinate and guide sectoral efforts to tackle poverty in a changing climate**
3. **Balancing efforts between broad-based resilience building and climate-specific interventions.**

References

Abdirizak, N. 2011. The Dynamics of Land Deals in the Tana Delta, Kenya. *International Conference on Global Land Grabbing*. Institute of Developmnent Studies, University of Sussex Campus, UK.

Adger, W. N., Arnell, N. W. & Tompkins, E. L. 2005. Adapting to climate change: perspectives across scales. *Global Environmental Change Part A*, 15, 75-76.

Anderson, K. & Bows, A. 2011. Beyond 'dangerous' climate change: emission scenarios for a new world. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 369, 20-44,10.1098/rsta.2010.0290.

Bartlett, S. 2008. The Implications of Climate Change for Children in Lower-Income Countries. *Children, Youth and Environments*, 18, 71-98.

Basu, K. 2006. Globalization, poverty, and inequality: What is the relationship? What can be done? *World Development*, 34, 1361-1373,DOI: 10.1016/j.worlddev.2005.10.009.

Betts, R. A., Collins, M., Hemming, D. L., Jones, C. D., Lowe, J. A. & Sanderson, M. G. 2011. When could global warming reach 4°C? *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 369, 67-84,10.1098/rsta.2010.0292.

Brooks, N., Adger, W. N. & Kelly, P. M. 2005. The determinants of vulnerability and adaptive capacity at the national level and the implications for adaptation. *Global Environmental Change-Human and Policy Dimensions*, 15, 151-163,10.1016/j.gloenvcha.2004.12.006.

Cornia, G. A. 2010. Income Distribution under Latin America's New Left Regimes. *Journal of Human Development and Capabilities*, 11, 85-114,10.1080/19452820903481483.

Davies, M., Guenther, B., Leavy, J., Mitchell, T. & Tanner, T. 2008. 'Adaptive Social Protection': Synergies for Poverty Reduction. *IDS Bulletin-Institute of Development Studies*, 39, 105-112.

de Haan, A. 2000. Migrants, Livelihoods, and Rights: The Relevance of Migration in Development Policies. London: Dfid.

Dollar, D. & Kraay, A. 2002. Growth is good for the poor. *Journal of Economic Growth*, 7, 195-225.

Eakin, H. 2005. Institutional change, climate risk, and rural vulnerability: Cases from Central Mexico. *World Development*, 33, 1923-1938.

Eakin, H. & Luers, A. L. 2006. *Assessing the Vulnerability of Social-Environmental Systems* [Online]. Available: http://arjournals.annualreviews.org/doi/abs/10.1146/annurev.energy.30.050504.144352 [Accessed 19/10/2011].

Folke, C. 2004. Traditional knowledge in social–ecological systems. *Ecology and Society*, 9, 7.

Füssel, H.-M. 2010. How inequitable is the global distribution of responsibility, capability, and vulnerability to climate change: A comprehensive indicator-based assessment. *Global Environmental Change*, 20, 597-611,DOI: 10.1016/j.gloenvcha.2010.07.009.

Hedger, M., Moench, M., Dixit, A., Kaur, N. & Anderson, S. 2011. Approaches to Planning for Climate Change: Bridging Concepts and Practice for Low Carbon Climate Resilient Development. *Learning Hub Bridging Paper No 1*. Institute of Development Studies

Heltberg, R., Siegel, P. B. & Jorgensen, S. L. 2009. Addressing human vulnerability to climate change: Towards a 'no-regrets' appproach *Global Environmental Change*, 19, 89-99.

Hulme, D. & Shepherd, A. 2003. Conceptualizing Chronic Poverty. *World Development*, 31, 403-423,Doi: 10.1016/s0305-750x(02)00222-x.

IPCC 2007. Climate Change 2007 Synthesis Report. *In*: PACHAURI, R. K. & REISINGER, A. (eds.). Geneva: IPCC.

Nelson, D., R. , Adger, W. N. & Brown, K. 2007. Adaptation to Environmental Change: Contributions of a Resilience Framework. *Global Environmental Change*, 32, 395–419.

New, M., Liverman, D., Schroder, H. & Anderson, K. 2011. Four degrees and beyond: the potential for a global temperature increase of four degrees and its implications. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 369, 6-19,10.1098/rsta.2010.0303.

Pretty, J. N., Noble, A. D., Bossio, D., Dixon, J., Hine, R. E., Penning de Vries, F. W. T. & Morison, J. I. L. 2006. Resource-Conserving Agriculture Increases Yields in Developing Countries. *Environmental Science & Technology*, 40, 1114-1119,10.1021/es051670d.

Ribot, J. 2009. Vulnerability does not just fall from the Sky: Toward Multi-scale Pro-poor Climate Policy. *In*: MEARNS, R. & NORTON, A. (eds.) *Social Dimensions of Climate Change: Equity and Vulnerability in a Warming World*. Washington D.C.: World Bank.

Richardson, K., Steffen, W., Schellenhuber, H. J., Alcamo, J., Barker, T., Kammen, D., Leemans, R., Liverman, D., Munasinghe, M., Stern, N. & Waever, O. 2009. Synthesis Report: Global risks, challenges & decisions, Copenhagen 2009, 10-12 March. Copenhagen, Denmark: International Alliance of Research Universities.

Rigg, J. 2006. Land, farming, livelihoods, and poverty: Rethinking the links in the Rural South. *World Development*, 34, 180-202.

Salick, J. & Ross, N. 2009. Traditional peoples and climate change Introduction. *Global Environmental Change-Human and Policy Dimensions*, 19, 137-139,DOI 10.1016/j.gloenvcha.2009.01.004.

Satterthwaite, D. 2011. How urban societies can adapt to resource shortage and climate change. *Philosophical Transactions of the Royal Society* A, Forthcoming.

Sen, A. 1999. *Development as freedom*, Oxford, Oxford University Press.

Shankland, A. & Chambote, R. 2011. Prioritising PPCR Investments in Mozambique: The Politics of 'Country Ownership' and 'Stakeholder Participation'. *IDS Bulletin*, 42, 62-69,10.1111/j.1759-5436.2011.00223.x.

Smit, B. 1993. Adaptation to Climatic Variability and Change: Report of the Task Force on Climatic Adaptation. *University of Guelph Occasional Paper*. Guelph: Dept. of Geography, University of Guelph.

Sumner, A. 2011. The New Bottom Billion: What If Most of the World's Poor Live in Middle-Income Countries? *Centre for Global Development (CGD) Policy Brief* [Online].

Tanner, T. & Mitchell, T. 2008. Entrenchment or Enhancement: Could Climate Change Adaptation Help to Reduce Chronic Poverty? *IDS Bulletin*, 39, 6-15,10.1111/j.1759-5436.2008.tb00471.x.

UNDP 2009. Human Development Report 2009: Overcomning barriers: human mobility and development. New York: United Nations Development Program.

UNEP. 2011. *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication - A Synthesis for Policy Makers* [Online]. Available: www.unep.org/greeneconomy [Accessed].

UNRISD 2010. Combating Poverty and Inequality: Structural Change, Social Policy and Politics. Geneva: United Nations Research Institute for Social Development (UNRISD).

UNWW 2009. Women, Gender Equality and Climate Change. UN Women Watch.

Vincent, K. 2006. Uncertainty in adaptive capacity and the importance of scale. *Global Environmental Change*, 17, 12-24.

Zahran, S., Peek, L. & Brody, S. D. 2008. Youth Mortality by Forces of Nature. *Children, Youth and Environments*, 18, 371-388.

Ziervogel, G., Bharwani, S. & Downing, T. E. 2006. Adapting to climate variability: Pumpkins, people and policy. *Natural Resources Forum*, 30, 294-305.

Photo credits

Chapter 1 Photo©DFID - UK Department for International Development
Chapter 2 Photo©DFID - UK Department for International Development
Page 11 Photo©Sterling College
Chapter 3 Photo©DFID - UK Department for International Development
Chapter 4 Photo©DFID - UK Department for International Development
Chapter 5 Photo©DFID - UK Department for International Development
Page 25 Photo©Sustainable sanitation