

## Defining climate compatible development

### Key messages

- Climate change presents threats and opportunities for development. Climate compatible development seeks to minimise these threats and maximise the opportunities.
- It is a response to a new development landscape of risks, uncertainties and changing patterns of innovation, production and trade.
- Policy makers must promote growth and social development whilst building climate resilience, cutting emissions or keeping them low.
- Unless policy makers integrate mitigation, adaptation and development strategies they will miss efficiency savings and may pursue strategies that solve one problem but aggravate others.

### Authors:

#### Dr. Tom Mitchell

Head of Climate Change, Environment and Forests Programme, Overseas Development Institute.

#### Simon Maxwell CBE

Senior Research Associate, Overseas Development Institute and the Executive Chair, CDKN.

'Climate compatible development' is development that minimises the harm caused by climate impacts, while maximising the many human development opportunities presented by a low emissions, more resilient, future. Climate change and responses to it are changing patterns of innovation, trade, production, population distribution and risk in complex ways. This is creating a new development landscape for policy makers, who need to nurture and sustain economic growth and social development in the face of multiple threats and uncertainties while also cutting emissions or keeping them low.

In tackling the challenges, climate compatible development moves beyond the traditional separation of adaptation, mitigation and development strategies. Instead it emphasises climate strategies that embrace development goals and development strategies that integrate the threats and opportunities of a changing climate. As a result, it heralds a new generation of development processes that safeguard development from climate impacts (climate resilient development) and reduce or keep emissions low without compromising development goals (low emissions development). Climate compatible development goes one step further by asking policy makers to consider 'triple win' strategies that result in low emissions, build resilience and promote development simultaneously.

Climate change poses fundamental questions for policy makers (Box 1). How, for example, can low emissions agriculture feed 9 billion people when threatened by water scarcity, weather-related disasters and expansion of land used for growing crops for fuel? How can the energy poverty of 1.3 billion people be reduced without increasing emissions? How can resilience to repeated food, fuel and financial crises, growing uncertainty and increasing resource scarcity be strengthened? As the impacts of climate change bite and future warming scenarios become even more serious, transformational change is inescapable for all countries. In different combinations, countries will need to:

- grow and reduce poverty while simultaneously emitting less or keeping emissions low
- find ways to adapt to higher temperatures and sea levels and more frequent extreme weather events
- adapt to changing international prices, for example as a result of higher transport costs
- seize opportunities as new markets open, for example for carbon sequestration or for new renewable energy technologies
- engage in international institutions, as new climate deals are forged and new finance delivery mechanisms are established.

“Climate compatible development is more than a technocratic issue – it is about transforming development pathways to face the climate problem head on.”

### Box 1: Climate threats

Limiting global warming to below 2°C will now be extremely difficult. This target is the maximum possible increase before climate impacts become catastrophic and is included in the 2009 Copenhagen Accord. Country pledges to reduce greenhouse gas emissions to date suggest temperature increases of between 2.9°C – 4.4°C by 2100 (Climate Action Tracker 2010). Achieving 2°C would mean reducing global emissions by 4% per year if starting immediately and by far more if action is delayed.

While rich countries are responsible for reducing the majority of emissions, even the poorest countries should consider lowering the carbon intensity of their economies given what is at stake and the development opportunities available if they do so. Even so, the lag times in the global climate system mean that no emissions reductions, no matter how significant, will prevent climate change in the next few decades (IPCC 2007).

Current and near-term impacts of climate change include increases in sea levels, heatwaves and rainfall intensity and reductions in water availability and rain-fed agricultural yields. Country strategies to develop and keep emissions low will need to increase capacity to adapt to these impacts.

Achieving climate compatible development that addresses all these challenges is hard. This is because of a number of factors, including: the difficulties in predicting the scale and timing of change or the potential winners and losers of each decision across regions, sectors, social groupings and generations; the inability to establish a carbon price and the fluctuations in prices; and the need for strategies that span decades rather than a single political cycle.

### A new development landscape

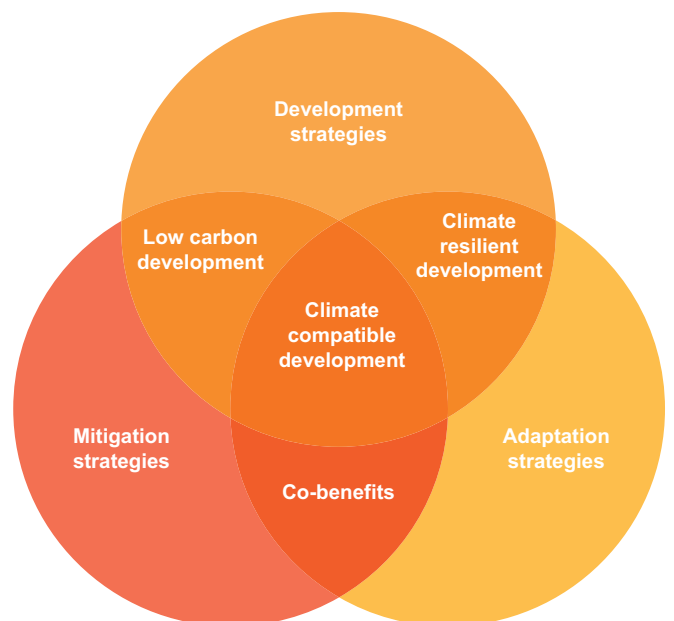
Climate compatible development signifies a new development story – a story characterised by changing patterns of innovation, production and trade tied to climate responses and to financial, disaster, conflict and climate risks and uncertainties at an unprecedented level. Climate finance, for example, is a fundamental part of this new story, and signals a new global relationship, shaped by ‘polluter-pays’ rather than charity. It means: governance structures to allocate money weighted toward developing countries; resistance to the use of traditional aid rules and conditions; new lines of accountability to the United Nations Framework Convention on Climate Change (UNFCCC), rather than to traditional ‘aid givers’; and demands from developing countries for direct access to finance, without the need to work through intermediaries.

It is a major test for policy makers globally, who must navigate these changes while nurturing and sustaining low emissions resilient growth and social development. There is a need for strategies that build long-term national consensus around agreed targets, and policies that are sensitive to risk and uncertainty, consistent with international agreements and politically accountable (Hedger and Sharma 2010; Kaur 2010). While these are beginning to be expressed in climate-specific documents like National Adaptation Programmes of Action (NAPAs) or Nationally Appropriate Mitigation Actions (NAMAs), their full integration into national

plans and budgetary frameworks and potential coordination mechanisms is crucial, as climate compatible development needs to touch on all sectors and will include regulatory, as well as fiscal, measures.

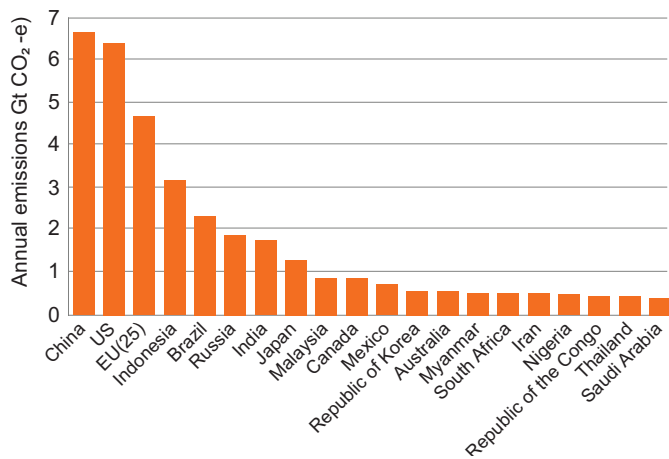
In recognising the threats and opportunities posed by climate change, climate compatible development means fusing together strategies that have, to date, tended to work in isolation (Figure 1) and assessing how to advance and potentially combine such strategies is at its very core. The following sections elaborate these individual strategies and potential overlaps.

Figure 1: Climate compatible development



Source: adapted from Zadek, 2009, and informal communication with staff from the UK Department for International Development

**Figure 2: The 20 largest greenhouse gas emitters, c 2004**



Source: Government of Australia (2008).

## Mitigation Strategies

Mitigating the emissions of greenhouse gases (GHGs) means using less energy, generating more energy from low-emissions sources, protecting carbon stores such as forests, encouraging the development of low emissions technologies and providing incentives to discourage high-emissions investments. Mitigation strategies span nearly all sectors, especially energy, industry, agriculture, forestry and transport. This creates choices for policy makers about the share of emissions between sectors and the options for investing in economic growth.

The reduction of GHG emissions is less of a priority in low income countries that have contributed least to climate change. Though when taking land use change and forestry into account, emissions of countries like Indonesia, Malaysia, Myanmar and the Democratic Republic of the Congo become much more significant (see Fig 2) and why REDD+ (see Box 2) has become such an important part of international climate change policy.

### Box 2: Pro-poor low emissions development in Guyana

Guyana's 2009 Low Carbon Development Strategy centres on payments for preserving its rainforest through the Reducing Emissions through Deforestation and Forest Degradation (REDD+) mechanism. The payments will be used to invest in clean energy (particularly hydropower), flood-related adaptation, and developing village economies, including the strengthening of health care and education.

By 2020, Guyana expects to develop its low carbon economic infrastructure, increase employment in low carbon economic sectors and secure new poverty-reduction opportunities for forest dependent and other indigenous communities.

This may be the most progressive low carbon development strategy prepared by a low income country, and has benefitted from strong domestic leadership, a key bilateral financing relationship with Norway and the support of the World Bank's Carbon Partnership Facility.

Source: Ellis *et al.* (2009) *Policies for Low Carbon Growth*, ODI Discussion Paper

International mitigation policies, however, create both threats and opportunities for developing countries (Peskett 2010). Emissions reduction and protection of carbon stores are relatively cheap in poor countries, and international markets and public and private investments are offering incentives for low emissions transitions or keeping emissions low (Box 2). Poor countries, however, need to ensure that incentives also generate development and poverty reduction benefits. That is the basis of low emissions development (see Figure 1.), where development and mitigation strategies overlap. There is, however, limited systematic evidence of the poverty reduction or wider development benefits of switching from high emissions to development strategies that lower emissions or keep them low.

There are knowledge gaps on how to make mitigation strategies resilient to a changing climate, a prerequisite for achieving the 'co-benefits' highlighted in Figure 1. For example, are hydro projects sustainable with less rainfall? Should nuclear power installations be built at sea level? Do measures to reduce emissions while intensifying production in the agriculture sector lock families into more risky, less diverse livelihoods?

## Adaptation strategies

Adaptation strategies enhance and implement measures to reduce, moderate and take advantage of climate impacts at all scales. Such strategies may aim to: create high levels of economic and livelihood diversity; promote skills, learning and innovation; reduce dependence on ecosystem services; reduce inequality; and ensure decision-making processes at multiple levels are well-connected and involve participation from all stakeholder groups.

Some practical examples include investing in disaster risk reduction, creating measures to protect food security when droughts increase food prices or developing additional water storage capacity to deal with changing rainfall patterns.

### Box 3: Building climate resilience in Bolivia

Bolivia attributes its lack of climate resilience to insufficient scientific capacity for monitoring climate change, lack of focus on risk management, no comprehensive diagnosis of diverse vulnerabilities, across regions, social and poverty groups and no national climate resilience building strategy or action plan for investment policy.

Bolivia is, however, one of the focus countries for the World Bank managed 'Pilot Programme on Climate Resilience (PPCR)'. This year, support from the PPCR will help Bolivia to strengthen information and decision support systems, develop a cross-agency national climate change council, mainstream risk management within a new Plan of Economic and Social Development, and formulate sectoral and territorial investment plans to strengthen institutional capacity and learning mechanisms.

Source: 'Fourteen developing countries advance on transformational climate action'. [http://www.climateinvestmentfunds.org/cif/Pilot\\_Programs](http://www.climateinvestmentfunds.org/cif/Pilot_Programs)

Adaptation overlaps naturally with development because climate-sensitive vulnerability and poverty reduction strategies are crucial for adaptation. The overlap is known as climate resilient development, defined as development that has the capacity to absorb and quickly bounce back from climate shocks and stresses (Figure 1). Resilience in this context describes the amount of change a system can undergo, the degree to which it can re-organise and the extent to which it can build capacity to learn and adapt.<sup>1</sup>

It is a departure from traditional development, as climate resilient development places emphasis on complexity and uncertainty, and on how society can learn and self-organise to create beneficial and sustainable transformations (Box 3).

There could be a four-stage process to secure climate resilient development. First, policy makers would assess climate risks and uncertainties. Second, they would develop and evaluate measures to address those risks and uncertainties. Third, they would prioritise the most effective measures and, finally, integrate them into development strategies.

Climate resilient development strategies may mean investing in infrastructure, such as dams and sea defences. It is important to consider the relative emissions and potential environmental impacts of different options and prioritise those that do not increase GHG emissions or harm the environment. Again, this is important for protecting possible co-benefits of linking adaptation and mitigation strategies (see Figure 1).

## Development Strategies

Development strategies need to align to the challenges posed by a changing climate. In economic terms, climate change, and its response measures, are changing the relative prices of both inputs and outputs, and the physical relationships between the two. So production possibilities and prices are changing for businesses and countries, and this determines the optimal balance of resource use and the optimal mix of outputs. It is creating new winners and losers, within and between countries.

Climate-related economic development challenges and opportunities mean that:

- All exporters are affected by the rising cost of transport or the changing relative prices of transport types. So export-oriented growth strategies may not be as attractive or may require changing. Island economies that are dependent on tourism, for example, may be affected negatively by rising air transport prices. The same is true for export-led agricultural strategies, like flowers or horticulture, which also face uncertainty over temperature changes and the volume and distribution of rainfall.
- Some developing country producers may benefit from exploiting demand for biofuels or the opportunities presented by carbon market incentives to conserve forests. Conversely, countries with a traditional economic reliance on exporting high carbon fuel sources, such as oil and coal, may be disrupted by a shift in demand to cleaner fuels.
- Mitigation and adaptation technologies are developing rapidly, creating opportunities for innovators to make profits, disadvantages for late adopters, and the potential for technological leap-frogging. Technological innovation can also create new resource opportunities. Demand for a new generation of batteries, for example, is good news for Bolivia's lithium industry.

These direct and indirect economic impacts of climate change on development mean that policy makers need to consider the appropriateness of different economic growth strategies and, in many cases, consider how to incentivise and regulate low emissions transitions, technological innovation and skills development. Development strategies, irrespective of whether they overlap with mitigation or adaptation strategies or not, need to recognise the threats and opportunities presented by the new climate-related development landscape.

## Climate compatible development strategies

Climate compatible development strategies seek to lower emissions or keep emissions low, promote development and build resilience simultaneously. In some cases, climate compatible development strategies may be pursued through individual projects or programmes or alternatively may involve policy makers balancing priorities across sectors or regions to achieve the same aim. So, while agricultural development builds resilience but leads to net increases in emissions, this is offset by greater sustainable emissions reduction in the energy sector. Individual climate compatible development programmes may include distributed renewable energy that benefits health by reducing reliance on charcoal burning and provides opportunities for livelihood diversification. Additionally, cash-for-work social protection programmes (such as the National Rural Employment Guarantee Scheme in India) can encourage work on local adaptation and mitigation projects. At a wider scale, insulating housing and commercial properties can reduce emissions, generate green jobs and build resilience to heat extremes.

In assessing 'triple win' climate compatible development options, policy makers will want to know the relative cost-benefits of different strategies and whether there will be efficiency savings if they are combined. This assessment process needs to also take into account the potential tradeoffs between policy responses to climate change, such as building renewable energy infrastructure at sea level or on pastoralist grazing lands or allowing increased use of air conditioning to adapt to rising temperatures if electricity generation is from coal-fired power stations.

Identifying these tradeoffs and navigating the new development landscape presents a new challenge for policy makers, practitioners and for public debate on achieving development goals. The challenges are clearly complex and technical, but climate compatible development is more than a technocratic issue – it is about transforming development pathways to face the climate problem head on. Given the seriousness of the threats and the richness of the opportunities, there is no time to lose.

## Recommendations

To achieve climate compatible development, policy makers need to:

- Develop national and sub-national governance systems, including legislative, institutional architecture, regulatory and accountability measures, that can take advantage of combining efforts to lower emissions or keep emissions low, build resilience, grow and develop.
- Integrate measures to build resilience and reduce risk into development and low emissions growth strategies at all scales.
- Ensure that transitions to resilient low emissions growth have significant benefits for poor people.
- Acknowledge and plan for the threats and opportunities associated with a new international, climate-related development landscape.

## References and endnotes

### References

Climate Action Tracker (2010) Climate Action Tracker Update, Ecofys, Climate Analytics and PIK. Accessible online: <http://www.climateactiontracker.org>

Ellis, K., Baker, B., and Lemma, A. (2009) Policies for Low Carbon Growth. ODI Research Report, ODI, 81pp.

Hedger and Sharma (2010) 'Moving forward on climate change planning: Lessons from Orissa'. CDKN Policy Brief.

IPCC (2007) Working Group II Fourth Assessment Report Summary for Policy Makers.

Kaur (2010) 'Planning climate compatible development: Lessons from experience'. CDKN Policy Brief

Peskett (2010) 'Is REDD+ an opportunity to support climate compatible development?'. CDKN Policy Brief, forthcoming.

Government of Australia (2008) 'The Garnaut Climate Change Review' based on UNFCCC (2007) 2004 data for US, EU (25), Russia, Japan and Canada; Department of Climate Change (2008) 2004 data for Australia (using UNFCCC accounting); and World Resources Institute (2008) for other countries (2000 data except for CO<sub>2</sub> emissions from fossil fuels, which are for 2004). The report is available online at <http://www.garnautreview.org.au/chp3.htm>.

Zadek, S. (2009) 'Catalyzing Low Carbon Growth and Development'. Presentation available from Project Catalyst and AccountAbility online at: [http://www.accountability21.net/uploadedFiles/AccountAbility\\_Climate\\_Competitiveness\\_Brasil\\_300909.pdf](http://www.accountability21.net/uploadedFiles/AccountAbility_Climate_Competitiveness_Brasil_300909.pdf) [Accessed November 10, 2010].

### Endnotes

1. Living with Environmental Change programme 'resilient development in social science ecological systems'. Available online: <http://www.lwec.org.uk/activities/resilient-development-social-science-ecological-systems>, accessed 27th October 2010.

## What is the Climate and Development Knowledge Network?

We are an alliance of six private and nongovernmental organisations operating across four continents. Our team includes climate scientists, researchers, economists, consultants, project managers and regional directors. The Network is able to provide support through its alliance organisations as well as procure the best services from around the world.

## What support can the Network provide to developing countries?

The Climate and Development Knowledge Network can help decision makers in developing countries by providing support in four areas described below: Research, Technical Assistance, Knowledge Sharing and Partnerships.

We will identify key research gaps and priorities, and commission new policy-relevant applied **Research** that responds directly to demands from developing country decision makers. Emphasis will be placed on building research capacity of local research institutions and experts, wherever possible.

Our **Technical Assistance** programme will provide tailored and demand driven technical support to developing country governments and other decision makers to:

- Increase the integration of climate resilient and low carbon growth in policy making, planning and implementation
- Increase institutional capacity to leverage climate change financing to achieve maximum impact
- Increase coordination amongst decision makers across sectors and countries to implement climate compatible development

Effective **Knowledge Sharing** is a fundamental pillar of the Network. Our work will be shaped by the demands emerging at country level. We will fill the gaps and connect to existing initiatives, rather than duplicating them. We will make full use of the latest communication tools, organise face-to-face events and use print, video and other formats to reach different audiences.

**Partnerships** are central to the Network. Across all our work we will seek to foster and support local partnerships, whilst providing access to the best available expertise in the climate change and development field. This approach to convening individuals and organisations around issues of climate compatible development will support capacity building in developing countries.

## CDKN publications

Hedger and Sharma (2010) 'Moving Forward on Climate Change Planning: Lessons from Orissa'. CDKN Policy Brief.

Peskett (2010) 'Is REDD+ an opportunity to support climate compatible development?'. CDKN Policy Brief, forthcoming.

Kaur (2010) 'Planning climate compatible development: Lessons from experience'. CDKN Policy Brief, forthcoming.



[www.cdkn.org](http://www.cdkn.org)

e: [enquiries@cdkn.org](mailto:enquiries@cdkn.org)

t: +44 (0) 207 212 4111

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