Drivers for low carbon development: Case studies from China, Ghana and Ethiopia

Summary

China, Ghana and Ethiopia are all engaged with the low carbon development (LCD) agenda, but their motivations, approach and perspectives are quite different. These are affected by:

- their development status and income levels
- how large an emitter they are
- their governance and political economy situation
- the priority LCD issue

This briefing provides insights into the specific country contexts and highlights the need to build a strong understanding of the political economy of the stakeholders involved in enabling low carbon development.

As part of the Learning Hub's third cycle on low carbon development, IDS undertook an analysis of the drivers and barriers for low carbon development in three different contexts:

- China, the largest emerging economy
- Ghana, a newly graduated middle income country, and
- Ethiopia, one of the poorest countries in the world

The studies were based on a literature review of the current policy portfolio and institutional arrangements in each country and semi-structured interviews with key actors from government, donor, industry, research and non-governmental organisations (NGOs) to assess their roles and motives for LCD, and how different actors influence each other.

This briefing focuses on the motivations and drivers for LCD, building on the 12 interviews per country which included a scoring exercise for motives for low carbon development. Interviewees were asked to give numerical scores to the motives that drive low carbon development in their respective countries. The scores are: O - 'not important', 1 -'average' and 2 -'very important'. Interviewees were asked to attach scores to four motives: climate change mitigation, energy security, economic growth and poverty reduction. Interviewees could name further motives and elaborate their answers in the main interviews.

manufacturing and industry, and the economy is dependent on energy-intense processes powered by coal and oil (IEA, 2011).

What is China doing?

Despite its high emissions and growth targets, China has adopted clear targets and strategies on energy use and emissions intensity, including the 2007 National Climate Change Programme (NDRC, 2007) and the 2009 Low Carbon Economy Roadmap (CCICED, 2009). The 11th Five Year Plan (2005–2010) achieved a reduction of 19 per cent in the energy intensity of GDP partly through the closing down of small, old and inefficient power plants and investment in new gas power plants. The 12th Five Year Plan (EUCTP, 2011), covering the period 2010–2015, gives unprecedented attention to environmental concerns (see Box 1).

BOX 1: Targets in the 12th Five Year Plan

- reducing energy intensity per unit of GDP by 16%
- reducing carbon intensity per unit of GDP by 17%
- increasing forest stock by 6% and forest coverage by 1.3%
- increasing non-fossil fuel energy to 15% of total primary energy consumption by 2020

Source: EUCTP 2011

These targets are backed by an appraisal system which requires industry and regional and local government to engage with the national low carbon agenda. China is regulating the electricity market to facilitate the growth of

China

Despite still being a lower middle income country, China is now the world's largest emitter of greenhouse gases, and accounted for more than 22 per cent of global emissions in 2007 (IEA, 2011). Growth has been based on renewables. The government is also actively engaging in knowledge-sharing initiatives with developed countries and has maximised the benefits from the Clean Development Mechanism. More widely, the 12th Five Year Plan points to a restructuring of the economy away from heavy industry towards the development of services and high-tech enterprise and an intention to accelerate research and development in low carbon technologies, and gradually create a domestic carbon emission trading system. Five provinces and eight cities have been selected to act as pilots, and a trial carbon market has already started.

Why is China doing it?

The interviews with different stakeholders revealed that energy security and economic growth are more important than climate change mitigation as drivers of low carbon development in China (Figure 1). Poverty reduction scored only 'average' in terms of relevance. But views differed by the type of actor. Representatives of the Chinese government named energy security as the key driver of LCD, followed by climate change mitigation. Research institutions and NGOs also identified energy security as the key driver whereas the private sector pointed to economic growth as the key driver for LCD. In the Chinese context, local air and water quality problems associated with the burning of coal were also identified as drivers for change.

Figure 1: Average scores for motives for low carbon development in China



China hopes to remain economically competitive in a carbon-constrained world, and is already positioning itself as a global leader in the production of low carbon energy technologies such as wind and solar photovoltaic (PV). However, the country will also need to address the wider composition of its industries. One argument made by some respondents was that, even given the 12th Five Year Plan, the government so far lacks a comprehensive industrial strategy to facilitate the move towards a service-based industry and reduce the growth of energy-intensive industry.

Ghana

Ghana has recently been reclassified as a lower middle income country. Nevertheless, 30 per cent of the population live on less than \$1.25 a day and 54 per cent on less than \$2 a day (World Bank, 2011). About half do not have access to electricity and most use traditional biomass for cooking (IEA, 2011; World Bank, 2011), and Ghana's emissions are very low by international standards. Ghana is also highly dependent on hydropower, which provided 80 per cent of generation in 2005 and more than 50 per cent in 2007 (IEA, 2011; World Bank, 2011).

What is Ghana doing?

Despite its low emissions, the Ghanaian government has stated a commitment to become carbon neutral (UNFCCC, 2010a) and in 2010 submitted a set of 55 Nationally Appropriate Mitigation Actions (NAMA) under the Copenhagen Accord (Cameron et al., 2011; UNFCCC, 2010b).

Ghana has put in place a Renewable Energy Law, a Renewable Energy Fund and a Bio-energy Policy Strategy. The Renewable Energy Law includes a feed-in tariff scheme and a renewable energy purchase obligation (Ghana Ministry of Energy, 2010). This is supported by the Strategic National Energy Plan for 2006–2020 which seeks to increase the use of renewable energy sources to 10 per cent of the country's energy mix by 2020 (IEA, 2010).The Plan also seeks to achieve 30 per cent penetration of rural electrification via renewable energy technologies by 2020. However, Ghana is also increasingly investing in oil resources for electricity provision to diversify its supply.

BOX 2: Ghana's NAMA plans include:

- switching from oil to natural gas for energy generation
- increasing the proportion of renewable energy to 10– 20% of total energy supply by 2020
- building new hydropower plants
- promoting the use of public transport
- increasing the share of biofuels and LPG for the transport sector
- using more energy-efficient devices
- increasing forest area and undertaking REDD projects
- improving waste management

Sources: UNFCCC, 2010a, Van Tilburg and Würtenberger, 2011

Why is Ghana doing it?

According to the interviews held in Ghana, climate change mitigation is a key driver for low carbon development, followed by energy security (Figure 2). Poverty reduction and economic growth seem both to be of lower importance. This is surprising given Ghana's development status and its needs and priorities. It is also striking that most respondents seemed to rank all four motives well below the maximum value. Private sector firms also stressed climate change mitigation as the prime motivation for LCD in Ghana, followed by energy security.



With a strong civil society and one of the oldest democracies in Africa, Ghana's approach to low carbon development is characterised by a relatively advanced policy planning process, including some elements of cross-sectoral integration, and some consultation with businesses and civil society. However, the business sector complains about weak financial incentives to invest and their limited involvement with policy processes.

Primary issues for the future of low carbon development in Ghana are whether political commitment will be sustained, moving from planning to implementation, expanding the involvement of the business sector and overcoming the lack of technical capacity. The Ghanaian government and other actors suggest the largest barrier is insufficient funds and inadequate financial arrangements, while donor agencies express increasing concern about a lack of government commitment to move from planning to implementation.

Ethiopia

Ethiopia is one of the world's least developed countries (World Bank, 2011). More than 85 per cent of the population live in rural areas, and only 15 per cent of the total population have access to electricity (IEA, 2011). Ethiopia has one of the world's lowest per capita emissions at 0.08 metric tons per capita compared to the Lower Income Country (LIC) average of 0.28 tonnes CO2 equivalent (IEA, 2011). The majority of Ethiopia's carbon emission is caused by deforestation through changing land use to agriculture and degradation from felling to provide wood for fuel (EPA, 2010).

What is Ethiopia doing?

Despite its low emissions, Ethiopia has strong ambitions to become carbon neutral (UNEP, 2010a). At the end of 2011 the government published a Climate Resilient Green Economy Plan (CRGE).

The CRGE is well integrated with wider development strategies, especially the Growth and Transformation Plan (2011–2015) that targets rapid and equitable growth and poverty eradication. Ethiopia hopes to become a middle income country by the early 2020s (MoFED, 2010).

BOX 3: Focus of the CRGE Plan

- Iow carbon agriculture through improved land use management and livestock management
- Iow carbon energy supply particularly hydropower
- legislation for a feed-in tariff for renewable electricity
- rolling out improved cook stoves for households
- Iow carbon buildings
- REDD+
- Iow carbon transport particularly biofuels
- low carbon industry particularly cement manufacturing

Why is Ethiopia doing it?

Interviews with stakeholders in Ethiopia reveal the central role played by poverty reduction and economic growth in motivations for attempting low carbon development (Figure 3). As with China, different actors emphasised different aspects. Representatives of the Ethiopian government and donors named poverty reduction and economic growth as the key drivers, whereas NGOs and the private sector mentioned energy security as an equally important driver of low carbon development.



The government of Ethiopia is focused on growth, but within this recognises the opportunities and benefits low carbon development can bring. Ethiopia's decisionmaking system is centralised, and the current approach to low carbon development is being led from the top. This has major advantages, but it also means that civil society organisations, businesses and donors play a relatively modest role in influencing the agenda.

Additionally, limits to institutional and technical capacity to follow through on a strong political lead may be a constraint. According to some interviewees, a clear regulatory framework, incentives and an enabling environment for private sector involvement in low carbon development activities are still lacking, and bureaucracy remains a barrier.

Policy Implications This briefing outlines the different motives, influences

This briefing outlines the different motives, influences and constraints on LCD in three contrasting countries. It not only identifies the differences between countries, but also between actors *within* countries. The briefing underpins the need for:

- undertaking stakeholder mapping of actors with interests in LCD within a country
- delivering political economy analysis of the LCD agenda for the range of stakeholders to identify interest and incentives, and dominant narratives
- establishing alliances with a range of actors connected to the LCD agenda to build coalitions for change
- identifying common entry points and potential barriers for action to support planning for LCD interventions

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Authorship

This briefing was edited by Matthew Lockwood from a final Learning Hub research report written by Frauke Urban. The country research was conducted by Robert Watt, Marie Blanche Ting, Guy Crawford, Yu Wang, Hilawe Lakew, Frank Atta-Owusu, Paula Edze, Jacqueline C. Cobson-Cobbold, Shasha Wang and Catherine Smith.

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