

LOW-CARBON GREEN GROWTH OPPORTUNITIES FOR SMEs

Abstract

The potential of small and medium enterprises (SMEs) for employment creation and poverty reduction is well recognised. At the same time, governments and international communities are advocating the need for greener, low-carbon growth that preserves a sound environment and also contributes to poverty reduction. Against this background, supporting SMEs to diffuse low-carbon technologies will be one of the promising means to drive greener growth that contributes to poverty reduction and employment creation. This paper analyses such support for SMEs by development agencies. It finds that most of the climate-targeted development assistance is focused on 'hardware' such as infrastructures and urban planning, and far less on the 'software' such as skills development and entrepreneurship support.

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Introduction

Technology is key to achieving green and low-carbon growth. Promoting low-carbon technologies in developing countries is recognised as an opportunity to create win-win conditions since such technologies not only reduce greenhouse gases but also improve productivity and contribute to economic development (OECD 2011a).

Arrangement for technology transfer under the United Nations Framework Convention on Climate Change (UNFCCC) has been contentious, in part due to a conflicting interest between developed and developing countries on the subject of intellectual property rights (IPR). This article does not go into the ongoing IPR debate. Rather, it aims to demonstrate existing support and initiatives provided by developed country donors to enable the diffusion of low-carbon technologies in developing countries.

This article will follow three steps. Firstly, it will discuss key aspects for SMEs' transition to a low-carbon economy in developed countries. Secondly, it will look into the statistics of official development assistance (ODA) to examine the scale of donor support towards SMEs in developing countries to facilitate the adoption of low-carbon technologies and transition. Finally, it concludes that the current donor sup-

port for climate change mitigation is primarily focused on infrastructure and budgetary support, and little support is given to SMEs for workforce development. To enhance greener growth in developing countries, more support for skills development and human capital to diffuse low-carbon technologies and participate in greener growth is essential.

Challenges for SMEs in attaining low-carbon 'green' growth

The role of SMEs in achieving overall sustainable development — including diffusion of low-carbon technologies — is the subject of active discussions and analyses in developed countries. Significant challenges still remain at the level of engagement of small- and medium-sized enterprises in activities related to green innovation or to developing skills for green products, technologies, and markets. As SMEs account for approximately 99 per cent of all enterprises and two-thirds of employment across the OECD area (OECD 2008, 2010a), their transition to sustainable practices — in both manufacturing and services — is key to the large-scale uptake of a green growth model. The transition towards a green-growth economy is highly demanding, in particular on manufacturing firms, including SMEs,

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as they account for a large part of the world's consumption of resources and generation of waste. Worldwide, the energy consumption of manufacturing industries grew by 61 per cent from 1971 to 2004, and accounts for nearly a third of the global energy usage (OECD 2010b). Likewise, manufacturing industries are responsible for 36 per cent of global carbon dioxide (CO₂) emissions (IEA 2009).

In this context, greening the economy and seizing opportunities along the path to a low-carbon system require transforming jobs, occupational profiles, and business operations in ways yet quite uncertain. New skills are required not just for innovation and competitiveness but also for adjusting to climate-change policies and regulations. The transition towards a low-carbon economy demands that workers' skills are adapted and that new generations are educated to take up appropriate skills to meet the changing demand. In this regard, labour markets and training policies can play a key role in facilitating the structural adjustment required by the transition to green growth, while, at the same time, minimising the associated social costs. In particular, flexibility in the delivery of training and skills development programmes remains crucial to reach SMEs (OECD 2010a).

The missing link between SMEs and green growth — skills and awareness

Adaptation to a greener economy is not a new behaviour for large firms, particularly for firms operating in the resources industries. Indeed, mining, energy, and petrochemical corporations (among others) have been working on this adaptation long before 'greening the economy' became a popular catchphrase. However, there are two associated dynamics of the move to a low-carbon economy which have received little attention within technological and innovation analysis efforts, and both are from the private sector and from the public policy arena.

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- **The management of skills and training needs of human capital at the local level:** The challenge of moving towards a cleaner, greener economy requires one to identify policies, measures, and strategies for the future low-carbon growth whereby small and medium enterprises can be part of strategic implementation plans at the local level. Yet, the dynamics of green local workforce development are largely unknown. Adapting local labour markets to achieve more jobs and better quality jobs whilst also moving towards a low-carbon economy will require activities to strengthen education and training systems and support skills development at both industry and public sector levels. This is especially the case for the SME sector as they lack the internal training strength of large firms.
- **Skills and employment implications for small and medium enterprises:** SMEs are, more often than not, relatively unaware about the technological and operational adaptations required for low-carbon development. Furthermore, they are usually poorly linked to the often more savvy larger corporations. SMEs have also the additional challenge of low participation in training and skills development programmes; also, the extent of this participation is usually unknown at the local or regional level. Therefore, reaching and greening SMEs remains a significant challenge for the transformation ahead.

Despite the immense opportunities that green growth can bring to

SMEs, evidence from a number of countries shows that skills shortages have already developed in certain sectors or occupations that are not well served by traditional training institutions (CEDEFOP & ILO 2010). SMEs participate up to 50 per cent less in formal training than large firms; and little variation is due to country-specific context (OECD 2010c). SMEs generally rely on on-the-job forms of training and learning-by-doing, which exhibit important limitations at a time of substantial shifts in the skills required for responding to new competitive and institutional settings. In addition, most SMEs have little awareness about the future needs for new green skills, and their investments in green training and knowledge-intensive activities are very limited (OECD 2010a,d). *Most SMEs are not very familiar with what the new 'green economy' implies for their business potential; in most cases, as found by a recent OECD study (CFE/LEED 2011), there is a link with the entrepreneurial capability of the firm to innovate towards greening the firm activities, operations, and product development.* Entrepreneurial skills are linked to abilities to identify new business opportunities, and they are essential for new business creation and economic dynamism within the economy. The OECD study analysed the results of a survey among more than 1,000 SMEs in New Zealand, Belgium, Canada, the United Kingdom, Turkey, and Poland. Figure 1 shows the demand for green skills within the survey sample. The aim of the 'green skills' questions within the survey was to investigate the level of awareness and the level of activity in skilling employees in this area. The questions were also intended to gauge the level of awareness of the need for these skills within regional business communities and to assess the strategies firms were putting in place to gain these skills. The result found low levels of awareness and activity in skilling employees in this area, even if the de-carbonisation of economies would lead to significant shifts in industrial

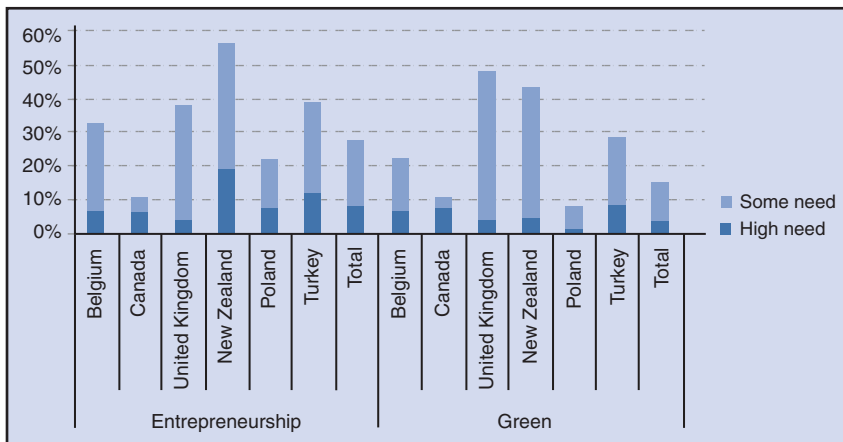


Fig. 1. Expressed needs for entrepreneurial and green skills in OECD countries

activity and create many business opportunities as well as threats (Figure 2). Only in New Zealand did more than 50 per cent of the surveyed firms indicate the need for some green skills.

Outcomes of entrepreneurship and green training

The OECD study continues to examine in further depth various entrepreneurial and green skills categories (Figure 2). These are emerging skills areas and data investigating these areas is minimal, despite the emerging policy relevance of these areas, particularly the green skills area¹. The analysis was conducted with two variables: formal training activities (vocational education and training [VET]) and knowledge-intensive service activities (knowledge-intensive service activities [KISA]). VET is essentially formal training that refers to learning that occurs in an organized and structured environment (for example, in an education or training institute or on the job) and is explicitly designated as learning (in terms of objectives, time, or resources). Formal learning is intentional from the learner’s point of view. It typically leads to validation and certification (CEDEFOP 2008). KISA can be understood as contributing to informal training, referring to learning resulting from strategic activities in the workplace. It is not organized or structured in terms

of objectives, time, or learning support, but is more a series of interactive activities for solving particular problems and a platform where different professionals interact (Martinez-Fernandez et al. 2011).

Outcomes from entrepreneurship training are predominantly focused on high-skilled employees; however, the United Kingdom is a notable exception. In Belgium, the United Kingdom, and New Zealand, only high-skilled employee outcomes are recorded. In Poland and Turkey, 2 per cent and 6 per cent, respectively, of firms noted outcomes for low-skilled employees in VET, and 0 per cent and 4 per cent, respectively, in KISA. In Poland and Turkey, overall levels of entrepreneurship outcomes are lower than other countries; high-skilled outcomes for both countries are below 10 per cent, compared with 11 per cent in Belgium and 18 per cent in the United Kingdom.

The differences between outcomes for high-skilled and low-skilled employees from green KISA are narrower in comparison with the results from formal training activities. Turkish firms lead the way. In Belgium, 11 per cent of firms report outcomes for high-skilled employees and 6 per cent for low-skilled in VET, and 12 per cent and 6 per cent in KISA.

In New Zealand, only 4 per cent of firms reported outcomes for high-skilled employees and 1 per cent for low-skilled in VET, and 4 per cent and 3 per cent, respectively, for KISA. Potentially, the prominence of the green economy in these countries has made it easier to access formal skills and competencies rather than develop them through less formal methods. The case study examples will shed further light on these relationships.

Career advancement is also viewed as the most prominent outcome for employees participating in KISA activities. This again follows the trend established in the formal training outcomes analysis, though the differences between low-skilled and high-skilled employees are not as pronounced.

Figure 3 shows results in the six study countries for participation in green vocational education and training (green VET) programmes conducted by firms (one off or in regular bases) or for participation in green knowledge-intensive service activities (green KISA). The figure shows that green KISA is actually used in higher frequency by firms in all countries except Belgium, with New Zealand using KISA as a way to acquire more green knowledge in a significant proportion.

When looking at the size of the firm, micro and small firms are using green KISA in higher proportion. The reasons could be found in the lack of training products in the market or the difficulties for VET firms and trainers to design curricula that are relevant for the firms. Due to the important obstacles faced by SMEs in accessing training, green KISA could offer a more flexible way to access the knowledge required even if little planning might be involved as per the ‘one-off’ trend for green KISA.

Policy implications from these results include reference to how training programmes and strategies are designed. Programmes targeted at SMEs need a different focus and customisation from those targeted at large firms. As these results show, KISA can provide a conducive learning method for SME firms to

¹ Arguably, entrepreneurship has been of longstanding interest to policymakers because of the link to business creation and economic and employment development. It is more the sophistication of analysis of entrepreneurship in recent history that is driving continuing policy interest.

acquire emerging knowledge and skills that they otherwise may not be able to access from formal sources. Increasing SMEs' access to KISA can enable these firms to participate more fully in the new opportunities of a low-carbon economy.

Donor support for SMEs to tackle climate change

The linkage between SMEs' growth and diffusion of low-carbon technologies is less documented in the context of developing countries. In general, developing countries often face problems in financial capital and technical capacity to introduce new technologies. International donors are aware of this, and they are providing substantial development assistance to developing countries to address climate change.

The linkage between development assistance and climate change has been a contentious one. In particular, the debate over what constitutes 'new and additional' finance is yet to be resolved. Developing countries want to ensure that development assistance is not diverged for the purpose of climate change (Michaelowa and Micahelowa 2005), while most developed countries are facing severe fiscal constraints. This matter is still being negotiated in the UNFCCC and this article does not aim to provide solutions to this debate.

Nevertheless, it is a matter of fact that a part of development assistance is used to support climate change mitigation. In fact, the amount of ODA targeted towards climate change mitigation increased significantly in the past five years, reflecting strong interest from donors as well as developing countries: it amounted to US\$10 billion in 2009, a 210 per cent increase from 2004 (from bilateral donors of the Development Assistance Committee, OECD 2011b). The quantitative growth was led by Japan, Norway and France. In terms of the rate of growth, Sweden (1144 per cent increase), Republic of Korea (606 per

² This statistics does not include contribution to multilateral donors such as the World Bank, regional development banks, UN agencies, and climate-related funds.

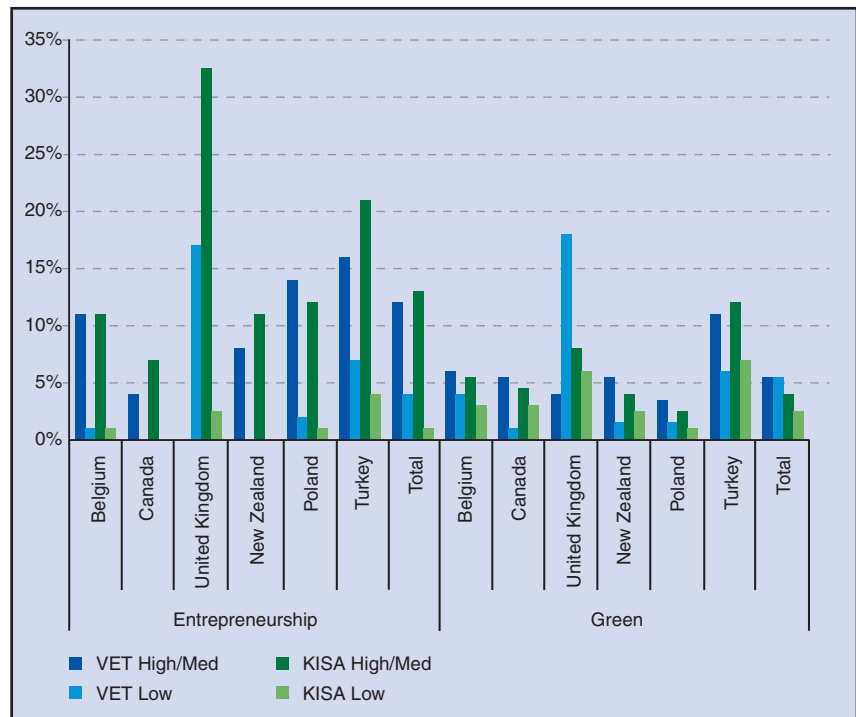


Fig. 2. Outcomes for entrepreneurship and green skills by employee skills level and country

cent increase), and Spain (404 per cent increase) were prominent. The largest donor by far is Japan, which accounts for almost 40 per cent of the total volume, followed by European donors.² This data includes both concessional loans and grants, so the donors with a greater use of concessional loans appear to be large in this figure. For example, in 2009, 45 per cent of Japan's climate-targeted ODA went to three large-scale loans to mass rapid transport projects in India, Bangkok (Thailand), and Indonesia.

These projects were aimed to reduce automobile usage, mitigate traffic congestion, and reduce greenhouse gas emission.

The primary recipients of climate-related aid are in Asia. The top six recipients of finance are all in Asia, followed by Brazil, Tunisia and Morocco. Clearly, the finance is flowing to countries where the economy is growing rapidly and the margin of greenhouse gas reduction is substantial. Such ODA does not constitute the diversion of finance

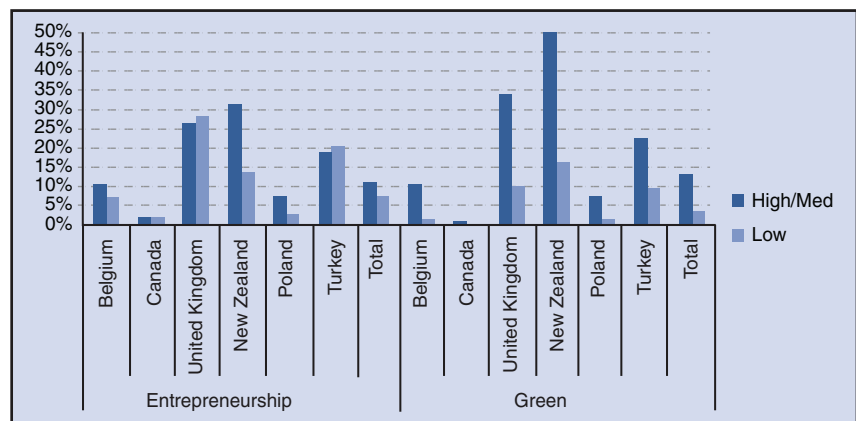


Fig. 3. Comparing outcomes of VET versus KISA

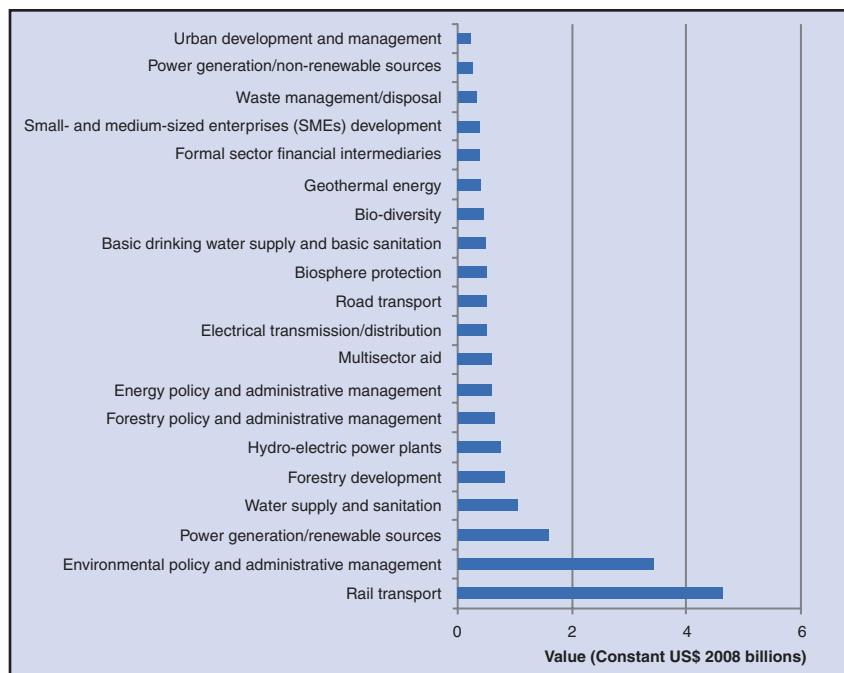


Fig. 4. Activities supported by climate-related aid (2007–09)

from development purpose to climate purpose, as this finance is targeted to both development and climate change. It is known that many activities, such as energy-efficiency improvement, mass-transit system, off-grid energy production, and introduction of modern cooking stove, make important contributions to the economic productivity as well as reducing greenhouse gas emission.

Figure 4 illustrates the activities supported by climate-related aid. The largest chunk of such aid goes to railway transport. This finance primarily comes from Japanese concessional loans for mass-transit projects in South and Southeast Asian countries, accounting for 85 per cent of the total value in this category. The second largest category is environmental policy and administrative management, and 30 per cent of this amount goes to programmatic loans from Japan and France for Indonesia.

Climate-related support for SMEs is ranked as 17th — totaling US\$391 million during the period 2007–09. Although this is not a small amount, 74 per cent of this finance is dedicated to ‘micro, small

and medium enterprises energy-saving project’ in India, funded by Japan. Apart from this project, only US\$100 million has been channelled to support SMEs in addressing climate change.

However, climate-related aid that supports SMEs is not necessarily categorized as ‘SMEs support’ because they often have broader objectives beyond just supporting SMEs. For example, the ‘Switch Asia’ programme by European Union explicitly contains a component to support SMEs, but is classified as ‘industrial development’ in the OECD’s Creditors’ Reporting System. The climate-related aid in the industrial sector as a whole, including SME support, totalled US\$538 million for the period between 2007 and 2009. Although this figure is 37 per cent higher than the one only focusing on SMEs support, this is far smaller than the finance that is flowing into transport, energy, and forestry sectors.

Development assistance for SMEs to diffuse low-carbon technologies

Although the scale of funding is far smaller compared to the loans for

infrastructures, there are programmes that directly support SMEs in the diffusion of low-carbon technologies. Three programmes were identified in a survey on activities related to green growth, conducted by the members of OECD’s Network on Environment and Development Co-operation (OECD 2011) and OECD’s Creditor’s Reporting System (CRS).

Switch Asia programme (European Union)

The Switch Asia programme is one of European Union’s flagship programmes to support sustainable development. It supports various actors (for example, business associations, research organisations, NGOs) by providing large-scale grant (EUR 500 k–2,000 k) to proposed activities. The programme also aims to support policymakers and actively publicise funded projects to promote uptake. Although the programme addresses sustainable consumption and production (SCP), some of the projects funded by it aim to diffuse energy-efficient and low-carbon technologies. For example, the ‘Zero Carbon Resorts — Building Energy Autonomous Resorts Creating Appropriate Technology Solutions’ project aims to diffuse energy-efficient technologies in hotels and resorts in the Philippines. The budget of this project was approximately EUR 2 million, of which 80 per cent was financed by the Switch Asia programme.

Micro, small and medium enterprises energy-saving project (Japan)

This project, implemented in India by Japan International Co-operation Agency (JICA), provides loans to Indian SMEs to purchase energy-efficient equipments. It is intended to reduce energy consumption, increase productivity, and improve working conditions. The scale of the loan is approximately US\$300 million. The loan is disbursed through Small Industries Development Bank of India (SIDBI), and SMEs purchasing equipments that improve

energy efficiency by more than 10 per cent are eligible for the loan.

Energy and environment partnership programmes (Finland and Nordic development fund)

Energy and Environmental Partnership (EEP) programmes aim to promote renewable energy and energy efficiency technologies. The programmes are being implemented in Africa, Latin America, and Asia. In Asia, the programme is run in Cambodia, Viet Nam, Laos, and Thailand. The total budget of this programme is EUR 7.9 million, and an applicant can receive up to EUR 200k.

All of these programmes take the form of financial assistance to SMEs to invest in low-carbon technologies, sometimes accompanied by capacity development and awareness-raising efforts. However, the survey in the OECD countries (discussed above) clearly shows that the challenges that SMEs are facing is not only finance — skills and human capitals are identified as key barriers for SMEs to implement new technologies.

Conclusions

This paper discusses the roles of international donors in supporting SMEs in developing countries in their transition to green growth. It has first shown that skills and awareness are the key missing links for SMEs to harness the opportunities of green growth. Next, it analysed the aid statistics to see if donors are supporting skills development and awareness raising. The paper argues that the support of donors to address climate change is primarily focused on providing finance, especially to infrastructure projects (for example, railway transport). The finance to support SMEs was far smaller. Some of the donor-supported programmes, including those of Japan, European Union, and Finland, do enable SMEs to pursue green growth. However, their means of support focus on providing grants and concessional loans to locally proposed

projects, and do not address the aspects of skills development or awareness raising in general.

Climate change is a recent phenomenon that is creating waves within the SME sector. Although currently these effects are only minor, the potential for future impacts, both positive and negative, is a real possibility. Currently, some firms are using climate change as a marketing opportunity to gain clientele and create new markets. Achieving environmental accreditation and complying with environmental regulations are often a burden for SMEs, but is a requirement and is often long, complicated, and costly. Yet, although climate change can be seen as a burden, it will create opportunities for SMEs to innovate and create new market niches. Government support can assist SMEs to work through these changes, regulatory requirements, and accreditations.

There are some key messages that the data presented in this article shows. In relation to SMEs, outcomes from new skill areas of entrepreneurship and green skills have implications on skills development and upgrading; there is great variation in the awareness of skills needs in these areas across OECD countries, and where training in these areas is taking place, it is higher-skilled workers who are participating. Both these results point to the need for systematic ways of skills assessment for firms in emerging areas and an overall focus on increasing participation levels of lower-skilled employees in these key 'future fundamental' skills sets.

The issues affecting SMEs in developed countries show that the needs of the firm remain really at the 'software', more invisible level of strengthening the firm's capacities to undertake the challenges imposed by the transition to a greener production system. A lesson to learn is that infrastructure-oriented donor funding needs to have embodied measures for skills development if it is to be effective; aid orientation today still

relies too much on the 'hardware', in a world where the knowledge economy needs to be supported by skills for entrepreneurship and skills to take on-board the requirements and advantages of low-carbon production.

Therefore, support for the transition of SMEs to a green economy in developing countries cannot rely exclusively on infrastructure because the management and skills development aspects are as important for firm development as the 'hardware' support. The recommendation from this paper is that international donors strengthen their support to develop skills and raise awareness among SMEs to harness economic opportunities. Engaging the private sector in both developed and developing countries are likely to be key to successful green development and de-carbonisation of economies.

References

- CEDEFOP (2008). Terminology of European Education and Training Policy: A selection of 100 key terms. CEDEFOP, Luxembourg: Office for Official Publications of the European Communities.
- CEDEFOP and ILO (2010). *Skills for Green Jobs: European Synthesis Report*. EU, Luxembourg.
- CFE/LEED (2011). 'Leveraging Skills and Training for SMEs: Enhancing Productivity and Return on Investment'. OECD Paris.
- IEA (2009). *World Energy Outlook*. IEA, Paris.
- Martinez-Fernandez, C., I. Miles and T. Weyman (eds.) (2011). *The Knowledge Economy at Work: Skills and Innovation in Knowledge Intensive Service Activities*. Edward Elgar, Cheltenham, UK.
- Michaelowa and Michaelowa (2005). 'Climate or Development: Is ODA Diverted from Its Original Purpose?' *HWWI Research Paper No. 2*.

- OECD (2008). *Leveraging Skills and Training in SMEs*. CFE/LEED (2008)6, OECD, Paris.
- OECD (2010a). 'Leveraging Training and Skill Development in Small and Medium Sized Enterprises (SMEs)'. Preliminary Cross-Country Analysis of the TSME survey, OECD: Paris.
- OECD (2010b). 'SMEs and Green Growth', Issues paper for the 'BOLOGNA +10' high-level meeting on *SMEs and Entrepreneurship: Lessons from the Global Crisis and the Way Forward to Job Creation and Growth*.
- OECD (2010c). *SMEs, Entrepreneurship and Innovation*. OECD, Paris.
- OECD (2010c). 'SME Participation in Formal Vocational Education and Training (VET) in Selected OECD Countries (TSME Background report)'. OECD: Paris.
- OECD (2010d). 'Greening Jobs and Skills: The Local Labour Market Implications of Addressing Climate Change', C. Martinez-Fernandez, C. Hinojosa and G. Miranda, *OECD Local Economic and Employment Development (LEED) Working Papers*, 2010/2. OECD Publishing, Paris.
- OECD (2011a). *Towards Green Growth*. OECD, Paris.
- OECD (2011b). Full list of climate change mitigation aid activities 2007–2009, <http://www.oecd.org/dataoecd/48/1/48729446.xls>. □

Low-Emissions Asian Development (LEAD) Program

The United States Agency for International Development (USAID) has awarded ICF International a \$21.5 million, five-year contract that will help developing countries in Asia achieve sustained low-carbon development. Known as the Low-Emissions Asian Development (LEAD) program, the award will assist up to 11 Asian countries in developing low emission development strategies (LEDS) that were introduced in the Copenhagen Accord reached in 2009. These are: Bangladesh, Cambodia, India, Indonesia, Laos, Malaysia, Nepal, Papua New Guinea, Philippines, Thailand, and Vietnam.

The LEAD program is designed to help Asia's developing countries "leap-frog" ahead by adopting new low-carbon policies and practices and tap into expanding global markets in green technologies and services. LEAD will help Asian governments, businesses, and others develop and strengthen the policies, institutions, resources, and skills needed for sustained low emissions development. The program will also help governments prepare national greenhouse gas inventories — detailed reports summarizing total carbon emissions from all major economic sectors. All countries must now submit these inventories to the United Nations every two years. In addition, LEAD aims to expand carbon market investment in Asia, by working with the private sector to prepare corporate inventories and participate in these markets. Further, the program will promote regional knowledge sharing and experiences, ultimately building a cadre of local experts for carbon accounting services.

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