

GREEN economy

Why a Green Economy Matters for the Least Developed Countries



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Uganda, Kampala district: women of the women's cooperative drying banana chips in a self-made solar energy system/ contributor: Ron Gilling

A joint publication of United Nations Environment Programme (UNEP), United Nations Conference on Trade and Development (UNCTAD), and Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States (UN-OHRLS) for the LDC-IV Conference in May 2011.



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 UNEP would like to thank the European Union for its generous support to the Green Economy Initiative.

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Layout and printing by:
 100 Watt, St-Martin-Bellevue, France - Tel. +33 (0)4 50 57 42 17



Foreword

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Foreword



The world is preparing for the 2012 UN Conference on Sustainable Development (Rio+20), where one of the themes will be “green economy in the context of sustainable development and poverty eradication”. This publication examines the idea that Least Developed Countries (LDCs) possess the economic conditions, the natural and cultural assets, and the policy setting to embrace, if not lead, a green economy transition, which would in turn accelerate their development.

In its simplest expression, a green economy can be described as one that is low carbon, resource efficient and socially inclusive. A green economy can take advantage of new growth trajectories designed to be more socially inclusive, as well as responsive to poverty reduction and economic diversification objectives.

The conditions in LDCs provide a basis to pursue a low-carbon and resource efficient path of economic growth and development, anchored in investment and policy reform designed to enhance livelihoods for the poor, create employment opportunities and reduce poverty. The move towards a green economy would also provide an opportunity to address the infrastructure challenges of LDCs in a sustainable way. The 48 LDCs currently present a low-carbon profile, due to their low levels of carbon emissions. Their economies rely significantly on natural capital assets such as agriculture, forest resources, biodiversity, tourism, minerals and oil extraction. There also exists a large potential for renewable energies.

While other countries face sizeable economic and social costs of ‘decarbonization’, alongside costs

linked with retiring inefficient fossil fuel-based technologies, LDCs can jump start the green economy transition by maintaining and expanding the sustainable practices that already exist. For example, practices such as low-carbon, labour intensive agriculture and community-based forestry, which have existed for decades in these countries, will be central elements to the greening of these sectors.

Structural constraints, including dependence on fragile agriculture, limited access to energy and low economic diversification, which have previously prevented LDCs from significantly reducing poverty and achieving higher rates of development, resulted from policies and investments that undervalued the importance of the economic sectors most relevant to the livelihoods of the poor. Refocusing policies and investments to target sectors and areas including renewable energy, agriculture, forestry, tourism and enhanced ecosystem services can lead to the economic empowerment of low income populations, be more conducive to inclusive growth and jobs and make a significant contribution to achieving the Millennium Development Goals in the poorest countries.

Why a Green Economy Matters for the Least Developed Countries

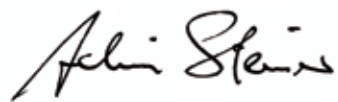
Governments have a central role to play in putting in place strategies, targeted public expenditures, policy reforms and regulatory changes to promote further investment and initiatives by the private sector and civil society. Already, decision makers in a number of LDCs are taking bold measures that can set the course for this transition to occur.

Bringing energy to the rural poor is one of the most important contributions that a green economy can make to LDC economies. After decades of national and global efforts, it is now becoming clear that decentralized forms of energy supply offer LDCs the most effective approach to rural energy access. In this regard, it is encouraging to observe that many LDCs have started to initiate policies and innovative approaches to tap into their potential for adaptable, clean energy solutions.

In addition to energy, there is growing evidence that sustainable forms of agriculture, a sector which accounts for a large share of GDP in LDCs, can increase yields and revenues, open up new market opportunities and reduce climate change and environmental vulnerability. By increasing investment and technical support, and implementing appropriate policy reforms to encourage such practices, significant gains can also be achieved in this area.

For LDCs to succeed in this journey, there must be a supportive international policy framework in which risks and uncertainties originating in other countries are prevented from jeopardizing the progress achieved in the more vulnerable economies. The international community must provide the necessary support to leverage financial resources and help LDCs build capacity in order to seize the opportunity for transformative change that is conducive to sustainable development and poverty reduction, beginning with the Fourth United Nations Conference on the Least Developed Countries (LDC-IV) being held 9-13 May 2011 in Istanbul, Turkey.

This report is a joint effort of the United Nations Environment Programme (UNEP), the United Nations Conference on Trade and Development (UNCTAD) and the Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States (UN-OHRLLS) on the occasion of the Fourth UN Conference on LDCs. It aims to be illustrative rather than comprehensive by showcasing examples of innovative policies and practices, identifying emerging opportunities and challenges for a green economy transition in LDCs, and stimulating further discussion amongst interested stakeholders.



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Tapping New Green Growth Options for Improved Development Prospects

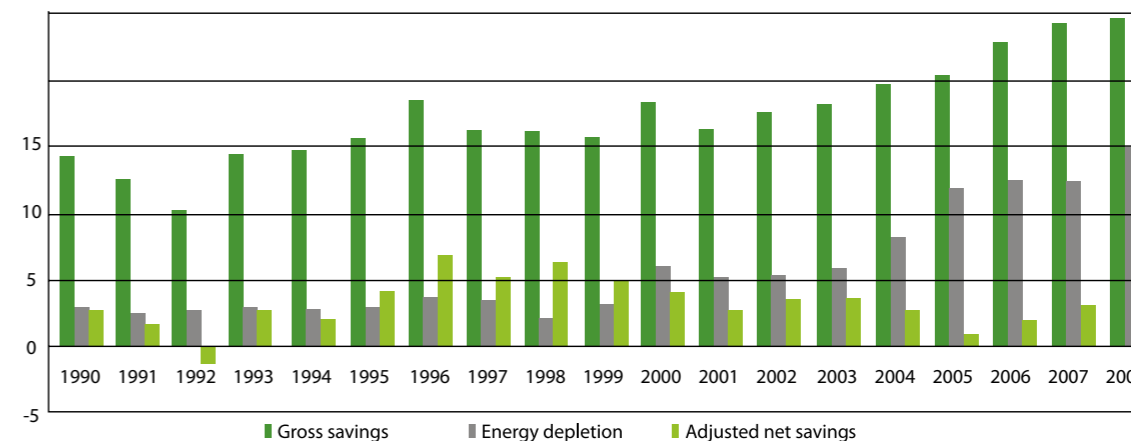


Persistent poverty and low human development in LDCs can only be reversed if structural constraints underpinning LDCs' economic vulnerability are addressed.¹

This requires a removal of constraints on productive capacities such as poor access to energy, the preservation and enhancement of ecosystems and ecosystem services including fisheries and forests that form the basis of livelihood of the poor, and more resilient food and agricultural production systems. The experience of the last three decades is illustrative of how a growth and development approach concentrated

on "growth enclaves" has failed to reduce poverty and create employment for the vast majority of people in LDCs. The current development approach is also not environmentally sustainable. For example, when national savings in LDCs are adjusted for depletion of natural resources (of which energy depletion is the most significant component), they had been steadily declining since the late 1990s and were almost zero in 2008.²

Savings and depletion of natural resources in LDCs, 1990–2008 (percentage of GNI)



Source: UNCTAD, 2010. *The Least Developed Countries Report 2010: Towards a New International Development Architecture for LDCs*.

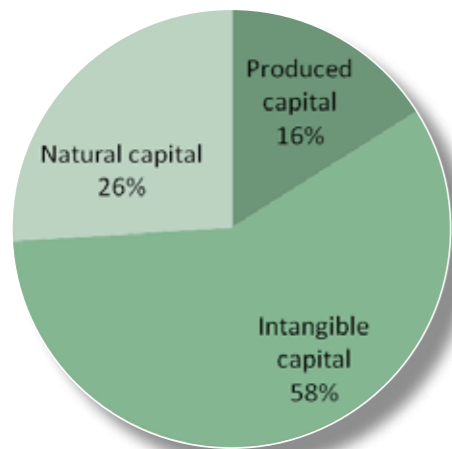
1- UN-OHRLLS, 2011. *Compact for Inclusive Growth and Prosperity: Report of the United Nations Secretary-General's Eminent Persons Group on the Least Developed Countries*.
2- UNCTAD, 2010. *The Least Developed Countries Report 2010: Towards a New International Development Architecture for LDCs*. United Nations: New York and Geneva.

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Seizing the moment

LDCs are well positioned in the transition to a green economy given their low-carbon profile and rich natural capital and cultural assets. Relative to larger economies, LDCs are generally characterized by low-levels of carbon emissions and relatively low investments in polluting technologies. On the other hand, poorer countries are more dependent on natural resources, making ecosystem degradation, resource scarcity and climate change particularly challenging to ending poverty. Investments and policy reforms that reduce environmental risks and ecological scarcities are therefore critical to improving human well-being and social equity in these countries.

Shares of Total Wealth in Low-income Countries, 2000



Source: World Bank, 2006. *Where is the Wealth of Nations? Measuring Capital for the 21st Century*

Energy access is central

Bringing electricity to the rural poor is one of the most important contributions that a green economy can make to LDC economies. Lack of modern electricity infrastructure in rural regions and access to the development options that electricity opens are persistent impediments to economic development in LDCs where 77 per cent of the population is without access to electricity.³ Most affected are the 71 per cent of the population of LDCs that live in rural regions who rely on biomass burning as the only source of energy. Not only does biomass burning provide extremely limited utility – heating and cooking only – but it also results in deforestation and desertification that limits future agro-forestry productivity as well as indoor pollution that poses a serious health hazard for the rural poor. Rural electricity thus remains a fundamental need in LDCs to improve environmental health conditions, light homes and schools, run information and communication systems, refrigerate food and medicines, and power rural businesses and industry. Extending rural electrification can also help to enhance linkages between rural farming and non-farming activities, which will be a powerful mechanism of both growth and poverty reduction.

However, bringing electricity to the rural poor has been a persistent challenge for LDCs. Resource constrained governments often find the costs of extending national grids prohibitive and such investments are generally unattractive or entail too high a risk for the private sector. It is only in recent years with declining costs of renewable

energy technologies that the green economy has emerged as an economically viable approach to electrify LDCs' rural regions employing remote off-grid electricity generation systems. Commercializing renewable energy systems to serve domestic markets now represents an attractive green growth option. Not only can it provide electricity to the rural poor to open new rural economic development pathways, but it also reduces poverty by creating local manufacturing jobs for related hardware and for the financing, distribution, installation and maintenance of renewable energy systems. Income generating applications linked to existing agro-forestry or tourism industries can help drive the local economy.

LDCs will benefit from more affordable access to renewable energy systems in a greening global economy. As the transition proceeds, high levels of demand for renewable energy technologies in developed country markets stimulate increasing innovation and economies of scale resulting in improved performance and falling prices. This makes off-grid rural electrification projects increasingly attractive to private sector investors considering community-scale hydro, biomass, wind and solar facilities; and to individual businesses and households seeking to install small renewable energy systems. Some LDCs, including Bhutan, Nepal, Senegal and the United Republic of Tanzania, have successfully stimulated rural electrification projects by mainstreaming renewables as a central technology option in national energy strategies.

From waste to wealth

Within the infrastructure services sector, other green business opportunities can be found in solid waste management and recycling in urban areas. As with renewable energy, projects that maximize local content and local knowledge contribute to local job creation and income multiplying effects.

Turning waste into a dynamic business in Bangladesh - Over 6 million people live in Dhaka, each day producing over 3,000 tons of household waste. The city collects less than half of it; the rest remains on roadsides, in open drains and in low-lying areas. A company called Waste Concern, founded in 1995, turned this environmental crisis into a green business opportunity by collecting and recycling organic waste. Waste Concern utilizes the waste in a composting scheme that provides organic fertilizer to the nation's farmers while significantly reducing national greenhouse gas emissions.

The company has also attracted foreign direct investment through an agreement with a Dutch company to develop two Clean Development Mechanism (CDM) projects. Based on its success in Bangladesh, Waste Concern is now assisting 10 Asian and 10 African cities in replicating its model. A regional recycling training centre was opened in Dhaka in 2010 to benefit international participants.

Source: Adapted from the Social Entrepreneurs Brochure 2011, the Schwab Foundation for Social Entrepreneurship.

³- UNDP and WHO, 2009. *The Energy Access Situation in Developing Countries, A Review Focusing on the Least Developed Countries and sub-Saharan Africa.*

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Building on natural capital assets

LDCs are endowed with rich natural resources amenable to ecotourism, which is commonly perceived to be tourism in natural surroundings, making ecotourism another major green growth option for many LDCs. In 23 out of the 48 LDCs international tourism is among the top three foreign exchange earners, with island LDCs exhibiting a high dependence on tourism. Ecotourism is built on small-scale community-led tourism operations that preserve natural ecosystems and generate employment for unskilled rural laborers in locales without the capital necessary for industrial activities. The ecotourism industry has matured considerably over the past decade and some industry projections position ecotourism to capture 25 per cent of global tourism revenues in 2012.⁴ Excluding domestic receipts, global ecotourism revenue from international tourists could be as high as US\$ 240 billion with the majority of destinations in developing countries.

Although several LDCs such as Lao People's Democratic Republic, Madagascar, Nepal and Tanzania have begun to develop the sector, substantial opportunities remain for others to do so as well. The variety in products offered by ecotourism, and tourism more generally, and their linkage with other economic sectors can help LDCs to strengthen and vertically diversify their economy while promoting rural community development and generating profitable businesses that conserve natural resources. Moreover, carbon sequestration is another area where developing countries are offering green services in global markets. For example, international funds through the United Nations REDD (Reducing Emissions from Deforestation and Degradation) Programme compensate land owners for keeping forests intact and reforesting degraded areas.

Ecotourism in Laos experiences rapid growth -

In Laos, ecotourism has become a thriving economic activity accounting for about half of total tourism revenue. Overall, the number of international arrivals in Laos has jumped from 1 million in 2005 to over 2 million in 2009, with most foreign tourists coming from other countries in the region, principally Australia, China, Thailand and Vietnam. Much of this success is attributed to a National Ecotourism Strategy Action Plan established by the Lao Tourism Administration. The strategy builds on successful demonstration projects to introduce ecotourism in the country that began in 1999 and benefited from support from multilateral and bilateral donors including UNESCO, the European Union, and the German and New Zealand governments. Main thrusts of the strategy are the sustainable use of the natural and cultural resources and the delivery of measurable socio-economic benefits to local communities.

Source: Lao Tourism Administration.

Diversification and value addition in agriculture

A green economy offers significant opportunities for LDCs to diversify their agricultural sector through horizontal diversification into organic crops. Agriculture continues to be the primary motor in LDC economies where it accounts for between 30 to 60 per cent of the GDP and employs up to 80 per cent of the national workforce.⁵ The sector supplies the bulk of basic food and provides



subsistence and other income to more than half of the LDCs' population. Sustainable agricultural production protects natural ecosystems and yields natural products, including organic products, that are benefiting from growing demand. The global market for organic food and beverage products is projected to reach US\$ 60 billion this year; a more than three-fold expansion from 2000 levels.⁶ Organic farming is practiced on 37 million hectares in 160 countries; a nearly four-fold increase over the past decade. Increases in organic farmland are now occurring predominantly in developing countries to respond to growth in global demand for organic products. The number of LDC producers is growing. About 75 per cent of the more than 1.8 million producers worldwide are farmers, mostly smallholders, in over 110 developing countries, with large numbers in LDCs such as Burkina Faso, Ethiopia, Tanzania and Uganda. Beyond organic food and beverages, consumer preferences for organic fibres such as organic cotton, wool, hemp and silk are providing new income opportunities for LDC farmers; and, international cosmetic firms are sourcing increasing volumes of organic oils, waxes, fats and herbs from LDC producers. Practical approaches toward diversifying LDC economies includes horizontal and vertical diversification, and strengthening inter-sectoral linkages, in the agriculture and tourism sectors.

Producing sustainably harvested timber is another area where LDCs can increase their presence in greening global markets. Sustainable forest management seeks to strike a balance between society's increasing demands for forest products and benefits and the preservation of forest health and

diversity. This balance is critical to the survival of forests and to the long-term prosperity of forest-dependent communities. Most sustainably harvested timber is certified by the Forest Stewardship Council (FSC). FSC assists many LDCs in developing national standards and marketing activities for producers. Globally, total FSC certified forest land area has increased seven-fold over the past decade to reach nearly 140 million hectares in 2010 with developing countries' share of this total rising to about 20 per cent. LDCs involved in FSC certified production include: Laos, Mozambique, Nepal, Republic of Congo, Tanzania and Uganda.

Sustainable urbanization

Economic empowerment of rural areas will contribute to reducing the unsustainable trend of rural-urban migration while allowing a better planning of urbanization in LDCs. As in other parts of the world, urbanization is progressing fast in LDCs. Key to the challenges facing poorer countries is the massive inflow of rural poor into urban centres, leading to growing slums under unsuitable living conditions and lack of access to basic services such as sanitation, clean water, energy and transport. The large demand for new construction offers LDCs options for deploying already available technologies which can increase energy and resource efficiency in this area. As many LDCs have social housing programmes, ensuring that such programmes include design criteria and construction practices that support sustainable building principles can enhance living conditions for low income communities in urban settlements.⁷

4- The International Ecotourism Society, 2006. *Global Ecotourism Fact Sheet*.
 5- UNCTAD, 2010. *Globestat*.

6- Willer, H. and Kilcher, L., 2011. *The World of Organic Agriculture*. IFOAM, Bonn, and FiBL.
 7- For more information, please see Sustainable Urban Social Housing Initiative (SUSHI) <http://www.unep.org/sbci/>

Pathways to a Green Economy Transition



National development plans and strategies can provide the overall policy framework to orient interventions by public authorities and private actors.

Experience in developed countries and emerging economies demonstrate that governments can set the frameworks that drive a process of transformative change, as seen in the Republic of Korea's Five-Year Plan on Green Growth (2008-2012) or China's 12th Five-Year Development Plan for 2011-2015. In the same vein, a number of developing countries and LDCs have adopted long-term and medium-term development plans that integrate the environment and investment thereby enhancing their environmental assets as overall development priorities. Clear strategies and policies have greater chances to lead to an allocation of public resources and to encourage private investment and community participation to achieve positive change.

For example, Rwanda's Vision 2020 provides a strategic direction for the country and a set of measurable policy goals with regard to population, land and management and utilization of natural resources and other socio-economic sectors. Rwanda integrated environmental targets in its Economic Development and Poverty Reduction Strategy and subsequently adopted an Environment and Natural Resources Sector plan (2009 - 2013) "Towards a Green, Clean, Healthy and Wealthy Rwanda". Nepal's Three-Year Interim Development Plan for 2011-2013 lays particular emphasis on increasing public expenditure to assist relief and generate employment.

Community Forest Management in Nepal

Forests account for almost 40 per cent of the land in Nepal. The Forest Act and Forest Rules recognize Community Forest User Groups as "self-governing autonomous corporate bodies for managing and using community forests", giving a prominent role to community forest management. Such an approach generates employment and income from forest protection, gains from tree felling, log extraction, and non-timber forest products.

Community forestry has contributed to restoring forest resources in the country, turning an annual rate of decline in forest cover of 1.9 per cent during the 1990s, into an annual increase of 1.35 per cent over the period 2000 to 2005.

The Plan includes development for physical infrastructure such as the effective use, management and conservation of forests by communities, expanding electricity to rural populations through the use of hydropower, and planning for effective transport through the construction of "green roads" for remote village communities.

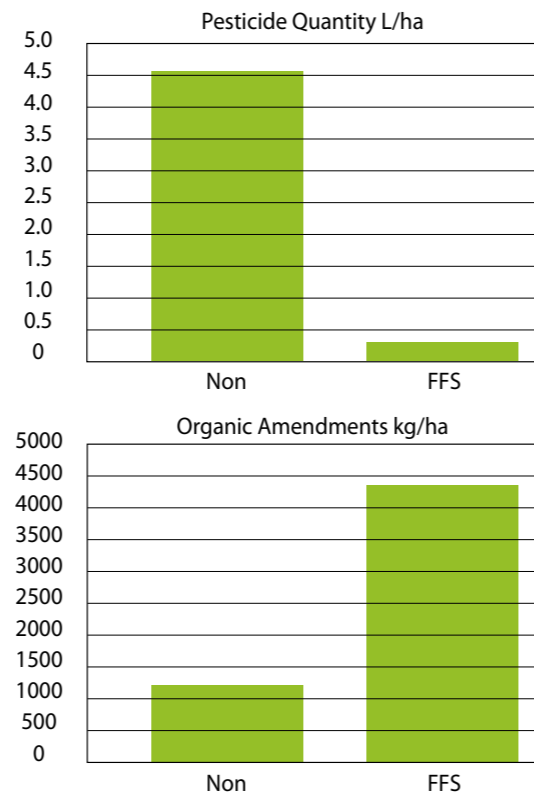
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Policies matter

Government policies can encourage a shift in production processes in vital sectors such as agriculture, thereby increasing incomes while achieving sustainability. Many recent studies and assessments have pointed to the need to reconsider methods of agricultural production in order to enhance productivity while reducing risks inherent to current agricultural practices.⁸ In the context of LDCs, agricultural productivity is intrinsically linked to poverty. It has been demonstrated that even small increases in farm yields contribute directly to reducing poverty, based on data from Africa and Asia⁹ and that conversion of farms to sustainable practices can result in average yield increases of 79 per cent, while improving the supply of critical environmental services.¹⁰

Governments have a key role in facilitating such a transition. Uganda, a country where 85 per cent of the population is engaged in agriculture production, has taken important steps towards sustainable farming. Having adopted the national Uganda Organic Standard in 2004 before being part of the East African Organic Products Standards developed in 2007, Uganda produced in 2009 an organic agricultural policy to support the development of organic agriculture as “one of the avenues for delivering self-sustaining growth as it provides mechanisms for individual farmers to improve productivity, add value and access markets which are keys to achievement of the Poverty Eradication Action Plan objectives”.

Lower use of pesticides and greater use of organic fertilizers in Mali cotton production



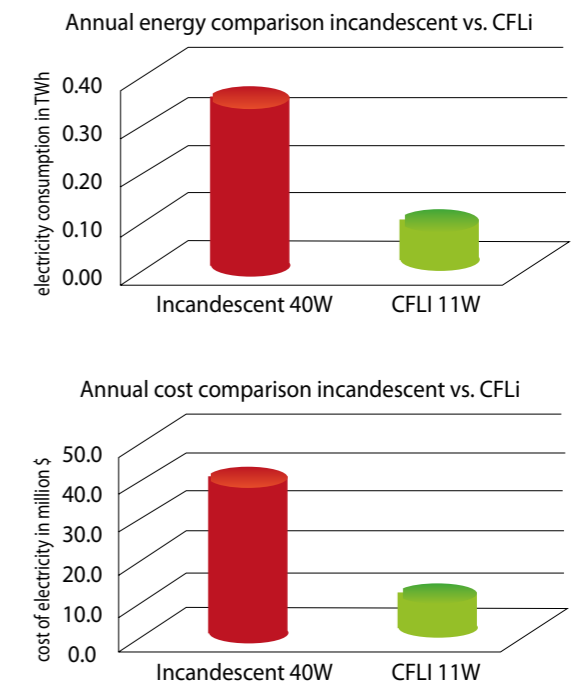
Source: FAO, 2009¹¹
 Note: Post Farmer Field School (FFS) survey of cotton farmers in 65 villages where FFS took place during 2007 and 2008. Pesticide difference in use is an average 4.5 L/ha compared to 0.25 L/ha or 94% less for FFS farmers. The difference in use of soil amendments is between 1.2 T/ha compared with 4.3 T/ha or almost a 4-fold increase in use of compost by FFS farmers.

Policies that mandate or encourage technological shifts can foster a rapid uptake of existing and efficient clean technologies with relatively low economic costs and significant returns. For example, policies aimed at increasing energy efficiency are often the easiest and least expensive way to achieve greater energy security, a challenge confronting a number of LDCs. It is estimated that in a country such as Senegal, a 100 per cent replacement of installed incandescent lamps with compact fluorescent lamps (CFLi) would lead to annual energy and cost savings of 73 per cent nearly US\$ 30 million per year; and, avoid investing in a new coal-fired power plant with a generating capacity of 50 MW, which cost approximately US\$ 50 million. Other benefits are annual energy savings of 0.24 TWh, equivalent to the electricity generation of one coal-fired power plant with a capacity of 50 MW and annual savings of 0.2 Mt CO₂, equivalent to CO₂ emissions of 50,000 mid size cars. The estimated cost of a transition to energy efficient lighting is a one-time investment of US\$ 52 million.¹²

Clear policies and incentives can stimulate private sector engagement in transformative sectors such as renewable energies. The barriers to expanding the supply of renewable energy are often the same across countries, principally a lack of financial incentives and limited access to appropriate technologies. In order to encourage private investment in the development of LDCs’ renewable energy resources, a combination of R&D-push and demand-pull measures are crucial. Clearly set government targets are fundamental in giving confidence to private investors seeking to develop renewable energy projects. There is indication that feed-in-tariffs have been implemented with impressive results in Kenya and Mauritius and have

stimulated interest in renewable energy development in countries such as Tanzania and Uganda.¹³ Triggered by feed-in-tariffs and other support mechanisms, a number of renewable energy projects are under way in many LDCs, with projects in Eritrea, Ethiopia, Tanzania, and Uganda.

Estimated cost saving of a 100% shift to efficient lighting in Senegal



Source: en.lighten

8- See for example: United Nations. 2008. *Comprehensive Framework for Action. High-Level Task Force on the Global Food Security Task Crisis. International Assessment of Agricultural Knowledge Science and Technology for Development. 2009. 'Global Report'*, IAASTD, Beverly D. McIntyre, Hans R. Herren, Judi Wakhungu and Robert T. Watson (eds.), UNEP. 2011. *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication.*

9- Iiz, X., L. Lin, C. Thirtle and S. Wiggins. *Agricultural Growth and Poverty Alleviation. Development Policy Review* 19(4), (2001), pp. 449-466.
 10- Pretty, J., Nobel, A.D., Bossio, D., Dixon, J., Hine, R.E., Penning De Vries, F.W.T., Morison, J.L.L. *Resource Conserving Agriculture Increases Yields in Developing Countries. Environmental Science and Technology*, 40, (2006), p. 1114.
 11- FAO, 2009. *The West African Regional Integrated Production and Pest Management Programme. A Case Study*, September 2009.

12- en.lighten is a UNEP initiative supported by the GEF Earth Fund, OSRAM GmbH, Phillips Lighting, and the French Environment Energy Management Efficiency Agency (ADEME).
 13- AFREPREN/FWD Energy, *Environment and Development Network for Africa. The Role of Feed-in-Tariff Policy in Renewable Energy Development in Developing Countries*, September, 2009.

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Targeted public spending

Prioritizing government investment in green sectors can be conducive to inclusive growth and long-term sustainability. The findings of the UNEP report *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*¹⁴ that investing 2 per cent of global GDP in greening ten key economic sectors can be conducive to economic growth, create employment and reduce poverty while significantly reducing ecological risks and scarcities points to the critical role of public funding. In the context of LDCs, limited financial resources can be a constraint to government action, making it even more crucial to prioritize spending in sectors and areas that can promote sustainable social, economic and environmental gains to society. Public procurement can play an important role in this regard. General procurement represents a large proportion of government spending. While data on public procurement is limited in developing countries, estimates are that public procurement accounts for 8 per cent of GDP in Tanzania and 30 per cent in Uganda.¹⁵ Such government expenditure on the purchase of goods and services, should be geared towards creating incentives to boost domestic demand and supply of environmentally-preferable goods and services.

Governments in LDCs can consider using fiscal policy and innovative economic instruments that have proven effective in similar context. A number of low and lower-middle income countries have adopted environmental taxes or reformed subsidy programmes for polluting activities in order to alter production and consumption patterns. For example, in November 2010 Vietnam passed its first law on environmental taxation, and expects to implement it as of 1 January 2012. The

law introduces new taxes on gasoline, coal, plastic bags, pesticides, and other products. The tax is expected to generate between US\$ 757 million to US\$ 3 billion. Studies have found that while the burden of the tax, applied primarily to fossil fuels, could cause some efficiency and competitiveness losses, the budget-neutral use of increased tax revenues to raise spending on anti-poverty programmes can offset most of the losses of poor households. In addition, if the taxes reduce emissions growth, they will also deliver benefits in the form of a more healthy and productive workforce.¹⁶ In 2005, Ghana used the findings of a Poverty and Social Impact Analysis which demonstrated that petroleum subsidies go predominantly to higher income groups to initiate a public and parliamentary debate on reforming such subsidies. In parallel to reducing petroleum subsidies, Ghana eliminated fees for attending primary and junior-secondary school, and made available extra funds for primary health care and rural electrification programmes.¹⁷ These approaches can enable LDCs to raise or free up public spending from damaging activities and redirect revenues to social programmes or other green investments.

International cooperation is crucial

Although most green economy activities are commercial in nature, providing positive returns on investment, external financing is sometimes required to complement public financing and catalyze private investment from both domestic and foreign sources. The need for external financing is particularly critical for green projects in infrastructure services sectors such as energy and waste management to make them commercially attractive to private investors. Public-private partnerships (PPPs) are successfully used in

many developing country infrastructure projects. Additionally, there is a rich array of sources of external financing for green projects in the infrastructure services sectors given the high potential they have to reduce emissions of greenhouse gases. In other sectors such as organic agriculture and ecotourism which generally rely exclusively on support from the national government and private sources, capacity building support is available, for example to construct commercially viable business models and attract foreign direct investment (FDI).

LDCs will clearly need external sources of finance to achieve a green economy, through both public funds and private investments. The financial and economic crisis left many LDCs with a fragile fiscal condition. Whereas export earnings rebounded strongly in 2010, owing to increased commodity demand and prices, current account deficits have widened for many non-oil exporting countries, and especially African LDCs. New and additional resources will be required to meet the financing needs of poorer countries.

Overseas Development Assistance (ODA) will remain a critical source of financing despite uncertainty related to budgetary pressures in donor countries. ODA is still an important source of external financing. ODA to LDCs reached US\$ 37.3 billion in 2009, slightly less than in 2009. The share of ODA to LDCs in donors' gross national income (GNI) was 0.1 per cent, well below the targets of 0.15 to 0.2 per cent in the Brussels Programme of Action and MDG 8. The 0.15 target has been exceeded by only 10 of the 33 donors from OECD's Development Assistance Committee. If the higher target of 0.2 per cent would be met by all donors, ODA to LDCs would double.¹⁸ The extent to which the current pressure on the budgets of advanced economies will reduce aid

flows is still uncertain and remains a concern. It is in this context that there is a need to give increased attention to ODA from emerging economies, in the context of South-South cooperation.

ODA as a catalyst for FDI to support a green economy transition in LDCs - Foreign Direct Investment (FDI) in LDCs has been on the rise since 1990. At the same time, until countries reach a sufficient level of development, FDI primarily flows to the primary sector (i.e., oil, gas and minerals), and far less into other sectors such as manufacturing and infrastructure services that are essential for development. In addition, FDI inflows to LDCs are geographically concentrated in a few LDCs. ODA remains the main source of foreign capital in LDCs, and it can help leverage private investment. ODA thereby contributes to promote private investment in sectors other than the primary sector, including green economy sectors. As such, ODA supporting the development of green sectors remains critical in stimulating a green economy transition in LDCs. Source: Adapted from *UNCTAD World Investment Report 2010*.

Enhancing access to international funds

A variety of specific funding mechanisms exist to respond to LDCs financing needs in the areas of climate change, trade and productive capacities, and technology needs assessments, among others. To date, the Global Environmental Facility (GEF), World Bank and UNFCCC Clean Development Mechanism (CDM) have provided incremental financing for agro-forestry and infrastructure projects that reduce greenhouse gas emissions. However, for many LDCs, financing made

14- UNEP, 2011. *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication. A Synthesis for Policy Makers*.
15- Odhiambo, W., & Kamau, P. 2003. *Public Procurement: Lessons from Kenya, Tanzania and Uganda*. Working Paper no. 208. OECD, Paris.

16- Ian Coxhead and Nguyen Van Chan 2011. *The incidence of Vietnam's environmental tax law: general equilibrium analysis*.
17- IMF, 2008. *Fuel and Food Price Subsidies: Issues and Reform Options*. Washington D.C.: International Monetary Fund.

18- OECD, 2010. *Development Co-operation Report 2010*, Paris.

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available through these channels is relatively difficult to access and the magnitude of funds available falls short of developing country needs. Although falling short of requirements for a green economy transition in poor and vulnerable countries, these sources of finance can be part of a broader effort to leverage targeted and tailored financing resources for LDCs. Particular efforts are needed to improve LDCs' access to the Clean Development Mechanism (CDM) as a means of overcoming the financial barriers, which prevent LDCs' access to renewable energy technology.

Of particular importance to LDCs is the Least Developed Countries Fund (LDCF), created to address the climate change adaptation needs of the LDCs, which are especially vulnerable to the adverse impacts of climate change.¹⁹ This includes technical assistance in preparing and implementing national adaptation programmes of action (NAPAs) and priority projects to adapt to climate change. As of May 2010, donors have pledged contributions to the LDCF equivalent to US\$ 221.5 million but only deposited US\$ 169 million. The funds are insufficient to meet the adaptation needs of the LDCs, and there is a need for wider programmes that are integrated in national development strategies. In a new Green Climate Fund adopted by the UN Framework Convention on Climate Change (UNFCCC) Conference of the Parties in Cancun in December 2010, industrialized countries aim to provide US\$ 100 billion per year by 2020 to support climate change mitigation in developing countries. This level of funding could substantially boost support for LDCs green economy activities related to climate change and adaptation and mitigation activities in the infrastructure and agro-forestry areas. In general there is a need to pay greater attention to scale and predictability of the funding to LDCs, as well as to reduce fragmentation and transactions costs and increase country ownership.

Seizing trade opportunities

As it is widely recognized that enhanced market access opportunities alone will not be sufficient for LDCs to gain a larger share of global trade, financial and technical assistance is provided through the Aid for Trade initiative and the Enhanced Integrated Framework (EIF) to increase their participation in international trade by strengthening their trade-related infrastructure and supply-side capacities.²⁰ Although LDCs' and low-income countries continue to receive substantial Aid for Trade, there needs to be a sustained effort to ensure that these countries continue to benefit from an increase in Aid for Trade flows. Aid for Trade could be leveraged to promote the development of productive capacities in green economic sectors and to support sustainable production and process methods in LDCs. Also, LDCs could request increased support within the EIF, in order to identify which green sectors offer the most promising scope for building export capacities and analyze what measures should be put in place to that aim.

Trade can be a powerful connector between sustainable consumption and production to drive a transition to a green economy, even in the context of LDCs. Carefully articulated national policies and international trade rules are therefore critical for LDCs to seize opportunities in new markets while minimizing risks of trade protectionism. Trade policies should recognize the high dependence of LDCs' exports on commodities. Agricultural products, oil, mineral resources, forest products and tourism account for the bulk of exports from LDCs. The composition of exports is thus highly dependent on natural capital assets, which places an important role on policies that can not only sustain the resource base and ensure sustainable use and



conservation, but also yield greater value addition and higher revenues.

Uganda's growing export of organic products - Uganda, the African country having the largest area under organic agricultural farming, significantly expanded its exports of organic products despite being an LDC far from its major export markets. In Uganda, certified organic exports increased from US\$ 3.7 million in 2003/4, to US\$ 6.2 million in 2004/5, before jumping to US\$ 22.8 million in 2007/8. Studies commissioned by UNEP and UNCTAD indicate that in 2006 the farm-gate prices of organic pineapple, ginger and vanilla were 300 per cent, 185 per cent, and 150 per cent higher, respectively, than conventional products, making sustainable forms of production highly profitable for producers and local communities.

Targeted trade liberalization can facilitate consumer access to clean technologies at lower costs. In general LDCs appear to have relatively high tariffs on certain environmentally-friendly products such as energy-efficient electric and electronic appliances. On average, LDCs' apply weighted average import tariff (percentage ad valorem) of 26.2 per cent on fluorescent lights (compared to a world average of 5.4 per cent), while tariffs on incandescent lights, which consume more energy and lead to more carbon emissions face import tariffs at 17.7 per cent (compared to a world average of 6.1 per cent).²¹ Targeted liberalization of tariffs can trigger a wider consumer access to, and use of, energy-saving products. This, in turn, could reduce the need for energy imports, lower energy related carbon emissions, and lessen households' energy bills.



While trade plays a central role in the diffusion of green goods, services and production methods among countries, a transition to a green economy also poses potential challenges to the functioning of the multilateral trading system that must be effectively addressed. Should new or improved disciplines be necessary, it is important that they target countries introducing green policies and practices that unduly distort markets and competition. Trade rules should prevent countries from using environmental concerns as a pretext for trade protection. However, many restrictions placed on the import of goods based on environmental concerns are justifiable, and so targeted capacity building efforts will be critical in assisting LDCs to meet emerging technical standards and regulations designed to promote an increasingly green economy in other countries. New rules or understandings may also be required to increase flexibility while at the same time disciplining the use of green subsidies. To overcome these challenges and dispel concerns about green protectionism, WTO trade rules could help ensure that trade is a «transmitter» of good practices towards an efficient and fair transition.

Adapted technologies

Clearly identifying specific needs, barriers, and adapted solutions are fundamental prerequisites to fostering the development and transfer of technologies in LDCs. LDCs are recipients of technology in many areas, making effective international cooperation a critical enabling factor. There is no comprehensive assessment of technologies needed by LDCs to achieve a green economy transformation. Nonetheless, a number of mechanisms and initiatives have emerged under a variety of international

19- UN-OHRLS, 2009. *The Impacts of Climate Change on the Development Prospects of the Least Developed Countries and Small Island Developing States.*

20- WTO. *The World Trade Organization and Millennium Development Goals: Aid for Trade.*

21-OECD, 2006. *Environmental and Energy Products: The benefits of liberalizing trade.* OECD Trade Policy Studies. Paris.

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conventions to identify needs and requirements in areas such as climate change, the removal of ozone depleting substances, or chemical and hazardous substances. A review of the Technology Needs Assessments (TNAs) conducted under the auspices of the UNFCCC can give an indication of specific technologies that LDCs will require to respond to the challenges of climate change. In addition, many such technologies will be critical to pursuing a low-carbon path of development in LDCs, an essential element towards a green economy.

TNAs conducted in 24 LDCs pointed to main technology needs in agriculture, land use, livestock and forestry sector, energy, waste management, transport and industry. The energy sector was addressed by 87 per cent of these countries, highlighting a specific need for improved (smokeless and fuel-conserving) stoves for cooking and heating, as it was shown that over 50 per cent of the energy that LDCs consume is used for cooking. Waste management was addressed by more than 82 per cent of the LDCs and technologies for transport and industry were identified by more than 78 per cent of the LDCs. The majority of LDCs highlighted their urgent technology needs to modernize the agriculture and forestry sectors for adaptation to climate change. Around 70 per cent of the LDCs identified water-related needs, such as water transfers, and recycling and conservation. Other technologies concern systematic observation and monitoring, health and coastal zone sectors.²²

Building on success stories

Economic and market barriers are the most common barriers to the transfer of technology in LDCs, followed by those relating to human capacity,

information and awareness, institutional, regulatory, policy-related and technical barriers. Addressing the high cost of technology, limited state resources, low affordability and barriers to investment, and developing cheaper alternatives, are among key barriers critical to large deployment of priority technologies in LDCs. While in general private investment in the development of environmentally-sound technologies remains low, a number of innovative mechanisms and entrepreneurship ideas have emerged in low income countries to enhance affordability and access to clean technologies.

Grameen Shakti Programme in Bangladesh - Grameen Shakti (or Grameen Energy in English) provides soft credits through different financial packages to make solar home systems (SHSs) available and affordable to rural populations. By the end of 2009, more than 320,000 SHSs had been installed, in addition to biogas plants and improved cooking stoves. Grameen Shakti aims to install over 1 million SHS by 2015, while also providing the necessary maintenance, thereby generating local employment. Grameen Shakti demonstrates the potential that can be mobilized to reduce energy poverty efficiently with innovative financing and business models that can deliver success with little or no external financial support.

A focus on scaling-up the deployment of technologies used in the vast majority of households can enhance access to low-cost and proven technologies. A review of low-carbon policies in low income countries revealed that in the energy sector, lower income countries focus on off-grid PV, solar heating, small-size wind, wind pumping, micro-hydro, bioenergy (including biogas gasification, cogeneration, and digesters), and "clean coal" transfer. The lowest income countries such as Ethiopia, Malawi

and Rwanda focused on expanding the use of efficient cook stoves.²³ As mentioned in the UNFCCC Second Synthesis Report, over 50 per cent of the energy that LDCs consume is used for cooking highlighting the importance of improved (smokeless and fuel-conserving) stoves for cooking and heating. South-South cooperation can contribute to increasing the flow of appropriate technologies, given that technologies such as efficient stoves have successfully been deployed in many more advanced developing countries such as China and India.

Leapfrogging

LDCs' early stage of industrialization offers avenues for leapfrogging and adopting technologies which offer greater energy and resource efficiency. While the technological and financial requirements of a green industrialization are considerable, LDCs have opportunities to leapfrog in certain cases, and adopt new and state-of-the-art technologies. The experience with information and communication technologies is revealing of the capacity of poor countries and poor communities to achieve a jump in the technological development process.

Energy efficiency in the African aluminum industry

A few LDCs are proving that leapfrogging can be achieved in economic sectors that offer a high potential for greater energy and resource efficiency. For example, African aluminum smelters appear to be among the most efficient in the world, essentially because new production facilities employ the latest technologies in the field. African aluminum smelters in countries such as Mozambique use on average 14,337 kiloWatt hour per ton of aluminum produced (kWh/t) compared to 15,613 kWh/t in North America, or a world average of 15,268 kWh/t. Source: International Energy Agency, 2007.

Developing, absorbing, adapting and diffusing green technologies for domestic use, and increasingly for world markets, requires international cooperation and collaboration on research and development. It will also benefit from the introduction of policy incentives for technology transfer in both developed and developing countries, and improvements to the dissemination of information on available technologies. Reform of the global intellectual property regime should also be considered, including broadening the scope of compulsory licensing for essential green technologies; limiting the duration of patent protection; and allowing more liberal use of existing patented knowledge to generate new innovations.

A successful, politically feasible and economically viable transition to the green economy requires addressing significant challenges facing many developing countries that lack the sufficient financial, technical and human capital needed to structurally transform their economies. To fill these gaps, international cooperation can help provide capacity building, facilitating technology transfer and coordinating financial assistance. Whatever mechanisms are agreed to support transition to a green economy, they must also refrain from imposing new conditionalities on international trade and financial cooperation, and avoid a "one-size-fits-all" template that fails to account for countries' different starting points and diverse development priorities. Furthermore, international economic and environmental agreements must provide developing countries with sufficient policy space and flexibilities on sequencing and implementation of any rules or modalities that are adopted.

22- UNFCCC, 2009. *Second synthesis report on technology needs identified by Parties not included in Annex I to the Convention*. Note by the secretariat. Subsidiary Body for Scientific and Technological Advice, Thirtieth session, Bonn, 1-10 June 2009.

23- Overseas Development Institute, 2009. *Policies for Low Carbon Growth*. IEA, 2007. *Tracking industrial energy efficiency and CO₂ emissions*. Paris. International Energy Agency.

Ways Forward



LDCs are at a critical juncture as the world renews efforts towards sustainable development and poverty eradication in the run-up to the 2012 United Nations Conference on Sustainable Development. The examples and success stories featured in this report highlight some of the opportunities as well as the challenges of a green economy transition in LDCs.

Clearly, there are gains to be made and the economic conditions, the resource endowment and the low-carbon profile of LDCs are all elements on which to build for future growth and development that enhances human *well being* and social equity.

Through targeted spending, appropriate national policies and incentives, governments can set a direction to spur green investments, both public and private. International cooperation will be essential to complement national actions of LDCs.

International sources of financing to support clean technology adoption and trade-related capacity building in green sectors are needed to catalyze and sustain LDCs' transition to a green economy. Through concerted national and international action, realizing a green economy could make a valuable contribution to enhanced economic diversification, inclusive growth, poverty reduction and achievement of the Millennium Development Goals in LDCs. The outcomes of the Fourth United Nations Conference on the Least Developed Countries (LDC-IV) can provide a critical foundation and action points in this direction.

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“The environment is our life-blood...Even when we look beyond agriculture, tourism, mineral wealth and fisheries, our economies depend critically on good environmental stewardship... From a labor perspective, the bulk of our continent’s employment comes from utilization of the environment ... This being the case therefore, mitigating environmental challenges, including climate change, water availability, sustainable extraction of minerals and soil fertility management, should be among Africa’s top priorities.”

Rwandan President Paul Kagame

Opening speech at the Third Edition of the African Ministerial Conference on Financing for Development: Climate Change: Financing Opportunities and Challenges to achieve the MDGs in Africa, 21 May 2009, Kigali, Rwanda.

“We, the African Ministers of Environment, declare our resolve to urge all countries fully to explore opportunities for building green economies, through, among other things, the development of clean technologies, renewable energies, water services, green transportation, waste management, green buildings and sustainable agriculture and forests.”

African Ministers of Environment

Bamako declaration on the environment for sustainable development, African Ministerial Conference on the Environment, Thirteenth session, Bamako, Mali, 21–25 June 2010.

“We will play our part to spearhead the transition to a green economy in Africa, inter alia, by supporting the necessary systemic and institutional transformations to ensure that green economies contribute to sustainable development and poverty reduction objectives, including improving welfare and the quality of life of Africa’s citizens. We call on all development partners to accompany Africa in this journey.”

African Ministers of Economy, Finance, Planning and Economic Development

Ministerial Statement, 4th Joint Annual Meetings of the AU Conference of Ministers of Economy and Finance and ECA Conference of Ministers of Finance, Planning and Economic Development, Addis Ababa, Ethiopia, 28 – 29 March 2011.





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