

Promoting Decent Work in a Green Economy

ILO Background Note to
*Towards a Green Economy: Pathways to Sustainable
Development and Poverty Eradication.* UNEP, 2011



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Preface

The Report *‘Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication’* issued by UNEP –hereafter the Green Economy Report or GER– is a milestone in the international discussion on a more sustainable development path. It lays out the threat and the challenge, but it also holds out hope for a greener future if the right choices are made – in time.

The ILO has worked closely together with UNEP in developing and writing the Report, rooted in the earlier partnership that produced the seminal Green Jobs Report in 2008. The purpose of the ILO’s collaboration in the Green Economy Report is to strengthen the analysis of the implications on the labour market –enterprises, workers and the self-employed– of setting and achieving environmental goals.

The structural transformation brings along changes in employment patterns and skills requirements, along with new business opportunities and the need for responsible management practices. It may also cause the contraction of sectors and enterprises which are incompatible with long term sustainable development. The management of this change needs to be fair and must ensure sufficient protection and access to alternative for those negatively affected. The ILO’s aim to provide decent work translates in the adoption of a “just transition” framework for the construction of a fairer, greener and more sustainable globalization.

The key messages of the many contributions by the ILO experts to the Green Economy Report have been systematically incorporated throughout the various Sector Chapters and in the Conclusions. The purpose of this Background Note is to highlight the labour market implications of the analysis in the Green Economy Report. It should thus be read in conjunction with and as a complement to the GER.

At the same time, this Background Note should not, however, be taken for a full picture of the ILO’s vision and contribution to work on the green economy and sustainable development. The Green Jobs Programme tackles the issues of climate change, sustainable development and decent work in a more comprehensive way through research and practical assistance in more than 20 member countries.

The Green Jobs report 2008 laid out the key arguments for linking the sustainability challenge with the need for full and productive employment. This widely quoted report will be updated in the second half of 2011 with a more complete review of the lessons learnt in recent years with the implementation of green jobs strategies at the country, sector and enterprise level. The intention is to formulate evidence-based policy guidance as a contribution to the UN Conference on Sustainable Development (UNCSD) or ‘Rio+20’ preparations and for the benefit of those who already want to put the call for change into action.

The content of the Background Note builds on the contributions by ILO staff to the Green Economy Report. The authors have been duly acknowledged in the preface of the Report.

The ILO Green Jobs Team
Geneva, February 2011

www.ilo.org/greenjobs

I. Introduction

The Report Towards a Green Economy. Pathways to Sustainable Development and Poverty Eradication (UNEP, 2011), demonstrates that green investments contribute to reduce environmental damage while boosting economic growth and creating jobs, thus achieving sustainable development for developed and developing countries. While the formation of new types of fixed and natural capital is an essential aspect of greening the global economy, it is equally important to address the social dimension in the process of shifting towards a more sustainable economy. This includes, among others, the analysis of the opportunities and challenges that the process of greening the economy poses for the labour market, the identification of the changes that enterprises and workers will have to face in the progress towards cleaner forms of production and the suggestion of the course of action needed to protect workers, their families and their communities in the transition.

Several national studies show that green investments tend to be more employment intensive at least in the short to medium term. The GER supports this assessment with evidence at the sector level. These short term opportunities can translate in higher employment levels in the longer term too, provided that wages and labour productivity are conducive to growth.

Clearly, new forms of production and consumption affect jobs. A certain degree of substitution of new jobs for old is likely due to technology changes and efficiency measures. Also, the need for resource conservation implies that temporary adjustments may be necessary in order to preserve the resources in some types of production. The case of fisheries presents the greatest complexities, requiring targeted policies and compensatory measures for large numbers of workers, their families and their communities.

In the present economic context, shifting towards a green economy with decent jobs creation is an essential and also an effective response to the economic and financial crisis. The transition should result in a positive net balance in employment, i.e. job creation is expected to offset the employment loss in the transformation process by substituting carbon-intensive and polluting jobs. The balance should be significantly positive in developing countries with low levels of ‘legacy industry and infrastructure’ and thus relatively minor substitution of ‘brown jobs’ by green ones.

To be successful, the move to a low carbon and sustainable society must be equitable. It must be a “Just Transition”. This notion conveys the idea that the coming transition will have an important and deep-felt effect on workers, employers and communities and that the right policies are required that share the costs and spread the benefits.

This Background Paper expands on and complements the GER by focusing on the importance of decent work creation and poverty reduction in the transition towards a green economy. The aim of the paper is to discuss the implications of introducing new forms of production for the labour market and to highlight the provisions needed to better prepare the labour force. It seeks to provide guidance how the transition can induce the creation of more productive employment. It also calls for the development of inclusive social protection systems and the support of social dialogue, i.e. tripartite mechanisms for

strategic discussion among stakeholders¹. The key stakeholders also include local communities likely to be affected by climate change.

This paper is organized as follows. The section on Enabling Conditions describes the elements that favour a just transition. Even when levels of development vary among countries and each country initiates its transition from a particular base point, it is possible to elaborate on a number of common policies that help create jobs and improve the employability of workers. These common policies are related to skills development, the role of social actors, the need to ensure support by addressing the adjustment processes and the identification of practices of good governance. Subsequently, the paper presents an analysis of green jobs for selected economic sectors, including renewable energy, water provision, waste management, tourism, fisheries, buildings and the urban economy². The paper ends with concluding remarks.

II. Enabling Conditions – Policies to seize development opportunities and ensure “just” transitional restructuring

The achievement of low-carbon development objectives will require the commitment of policy makers and the active support of millions of entrepreneurs and workers. The implementation of coherent policies is needed to foster win-win’s from the green economy and realize the benefits from green jobs. A combination of instruments is available to make the transition more “just”, in particular green active and passive labour market policies³.

Among other policies and actions, the GER highlights the use of taxes and market-based instruments to promote green investment and innovation. Eco taxes, or generically, taxes intended to promote ecologically sustainable activities via economic incentives⁴, are an example of a way to put a price on carbon. Evidence of the labour implications of the use of these instruments is provided in Box 1.

¹ The ILO defines social dialogue to include all types of negotiations, consultation or simply exchange of information between or among representatives of governments, employers and workers on issues of common interest relating to economic and social policy.

² Other sectors covered in the GER are agriculture, forestry, manufacturing industry and transport. For a discussion of employment related issues in these sectors see the Green Economy Report.

³ For a description of these policies, see Green Jobs Policy Brief. Why green employment and green labor market policies? ILO 2010a.

⁴ Wikipedia, <http://en.wikipedia.org/wiki/Ecotax>

Box 1: Eco-taxes – a double dividend for jobs and the environment

Eco-taxes are designed to put a price on the pollution and the use of scarce natural resources and to stimulate employment creation by reducing the cost of labour in the form of taxes and social security contributions. The World of Work Report 2009 analyzed the impact of an eco-tax on the global labour market. It found that imposing a price of around US\$39/ton CO₂ and using the revenue to cut labour costs by lowering social security contributions would create 14.3 million net new jobs over a period of five years, which is equivalent to a 0.5% rise of world employment. Job creation benefits developing as well as industrialized countries. Even carbon intensive industries see an increase in employment.

Source: ILO 2009, World of Work Report 2009: Global Jobs Crisis and Beyond.

In 1999 the German government increased taxes for engine fuels, electricity, oil and gas in small foreseeable steps up to 2003. The revenue was directly used to reduce non-wage labour costs by lowering the social partner's contribution to the pension fund. An impact study by the German Institute for Economic Research finds that if the modest eco-tax had not been introduced, the contribution to the pension fund would be 1,7% higher. The effect of reduced non-wage labour costs is estimated to have created an additional 250.000 full time equivalent jobs and reduced CO₂ emissions by 3% of in 2010.

Source: Sebastian Briem, Ulrich Fahl (Hrsg.) 2004, 'Beschäftigungswirkungen der ökologischen Steuerreform in Deutschland - Vergleich der Analysen mit LEAN und PANTA RHEI', in: Ansätze zur Modellierung von Beschäftigungseffekten in Energiesystemen, Berlin 2004, S. 193-204.

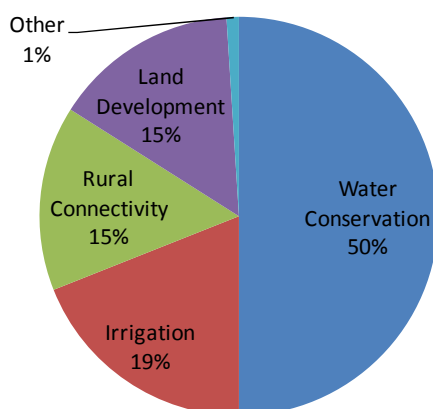
Regarding the measures to provide support for business and build political support for the transition of the green economy noted in the GER, some interventions may be put in place to assist workers and communities before productive systems undergo major adjustments. These comprise social protection measures, coherence in the mix of policy responses to adjustment and targeting competitiveness and employment concerns in highly sensitive sectors. More specifically, labour market policies should include instruments that:

- promote a wide range of jobs opportunities and mobility in addition to the renewal and adaptation of workers' skills;
- change regulatory frameworks to facilitate adjustment of enterprises;
- adapt the institutional and governance frameworks to serve the adjustment needs and promote in particular social dialogue;
- attend to cross country considerations in addressing adjustments including positive incentives for the participation of different types of countries;
- implement temporary measures to minimize potential effects in trade-sensitive industries;
- set up monitoring mechanisms to follow up on adjustment issues;
- promote the expansion or the implementation of inclusive social protection schemes.

Several countries are implementing programmes that have been effective addressing simultaneously environmental and social functions. Such programmes can provide temporary income replacement, but also become stepping stones by creating new assets for workers and communities. Box 2 depicts the experience of the National Rural Employment Guarantee Scheme (NREGS) in India.

Box 2: Green Jobs in the National Rural Employment Guarantee Act (NREGA) India

The National Rural Employment Guarantee Scheme (NREGS) has been devised as a public work programme “to provide for the enhancement of livelihood security of the households in rural areas by providing at least 100 days of guaranteed wage employment in every financial year to every household whose adult members volunteer to do unskilled manual work”¹. Categories of works eligible under NREGS are inter alia water conservation, drought-proofing (including plantation and afforestation), flood protection, small-scale irrigation, horticulture and land development. Environmental protection and conservation constitute the lion share of work performed.



As can be seen in Table 1 NREGA represents a massive investment in the rehabilitation of natural capital related to poverty reduction.

Table 1 – NREGA, Total Employment and Investment

Features	2006/2007	2007/2008	2008/2009	2009/2010
Investment, in billion US\$	2.0	3.5	5.6	8.1
Number of beneficiary households, in million	21	33	45	59
Number of working days, in million	907	1,437	2,163	>3,000

The programme has an economic as well as a social and environmental function and is part of the broader sustainable development agenda. The Government of India has an active policy in this regard which includes the National Action Plan on Climate Change (NAPCC 2008) and an interministerial Task Force to deal with the employment issues related to Climate Change, renewable energies and Green Jobs.

Source: ILO 2010, NREGA – A review of Decent Work and Green Jobs.

Skills development

The GER identifies skills development and adaptation of the labour force as a necessary and strategic condition for a faster and more feasible implementation of green economy. It is pointed out in the Report that training and skill enhancement programmes are needed to prepare the workforce for a green economy transition. Skills development is indeed a pre-condition for reaping the economic, carbon reducing and job opportunity benefits of low-carbon investments. If skills are not readily available when economies move to green ways of production and consumption, the green economy process would face the

challenge of a mismatch between growth opportunities/requirements and existing skills of the labour force. Besides, new skills can act as drivers of change in their own right, for example when increased environmental awareness and attitudes of consumers lead to subsequent behavioural change.

In the context of a greening economy there are at least three types of skills change occurring: 1) green structural change, requiring retraining; 2) emergence of new occupations and 3) alteration of skills content in established occupations. While each of them will demand a tailored policy response, this Background Note focuses on the general implications of the need of skills for green jobs⁵.

In virtually all countries and sectors there are skills shortages which slow down the shift as the required technology cannot achieve the expected returns or indeed cannot be used at all⁶. Skill shortages for green jobs are caused by the interplay of a number of factors, including underestimated growth in certain green sectors (e.g. energy efficiency in buildings), a general lack of scientists and engineers (common across countries), the low reputation and attractiveness of some sectors (e.g. waste management), and the general structure of the national skill base. STEM⁷ skills much needed for green occupations are in constant low supply as too few young people choose to study these subjects. Many countries, especially developing economies, report shortages of teachers and trainers in subjects related to environmental awareness and in fast growing green sectors such as renewable energy and energy efficiency. Multiskilling is increasingly needed as tasks and industries converge and the development of solutions to new challenges requires systemic thinking. A multidisciplinary approach in vocational training for green jobs is thus required at all levels, including apprenticeship training.

There are examples of good practices that demonstrate that public policy together with private initiatives can foster the green transformation. A structural change in the skills base is needed to fully harness the potential of new technologies. Concerted measures taken at all levels of governments are keys for the process of skills development. This needs to be complemented by institutional mechanisms of social dialogue among employers and workers, such as national or regional tripartite councils, sector or industry skills councils, public-private partnerships and other similar arrangements.

To ensure equity and access for vulnerable and disadvantaged groups, active labour market policies should include targeted skills development and training programmes to contribute to just transition.

The transition to a green economy also requires assessing whether national education and training policies would need to be re-designed and/or adjusted to better match the demand for skills arising from the new requirements of economic activities. In practice, however, the key challenge is to put in place pro-active measures both for retraining workers for new green economic opportunities and for the identification and anticipation of skill needs, so that training systems respond timely to changes in the labour market. Social dialogue and other stakeholder consultations are highly effective to inform and shape appropriate education and skills development policies. Good practices in dealing with this matter could provide useful and practical approaches to facilitate growth.

⁵ For a detailed discussion see Stietska-Ilina, O.; Hofmann, C.; Duran Haro, M., Jeon, S. 2010 forthcoming. Skills for green jobs: A global view (Geneva, ILO).

⁶ Cedefop and ILO 2010. Skills for Green Jobs. European Synthesis Report.

http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/publication/wcms_143855.pdf.

⁷ Science, Technology, Engineering and Mathematics.

Supporting Small and Medium Enterprises (SMEs)

The large majority of enterprises in the world are small in size. They usually do not have enough information about the negative impacts of climate change on their activities. Even when they are aware of forthcoming changes, they do not have the financial means which are necessary to cope with the effects of global warming. Compared to large companies, small businesses have a lower capacity to adjust to government environmental policies, regulations and incentives. They may hence experience higher costs and enjoy fewer benefits. Moreover, it seems that the smaller enterprises are less advanced than large firms in the environmental field, and that they tend to be more reactive than pro-active. The situation of medium-sized enterprises is different, because they have more developed managerial and organizational structures (Vickers and Vaze 2009).

Since SMEs represent approximately two thirds of total employment, support to the greening of such enterprises is likely to create a significant number of green jobs. In view of their financial constraints and lack of information on environmental issues mechanisms are required to assist these enterprises in the shift towards a low carbon way of operating.

Box 3: Greening small and medium-size enterprise: the role of business associations, large companies and the use of a value chain approach.

A 2011 Report by ILO identifies the role of business associations, supply chains and value chains in the promotion of environmental concerns. The most successful mechanism is financial arrangements offered by large companies to green SMEs in their supply chain. Sectoral and value chain approaches can be promising, but the evidence on SMEs' willingness to pay for environmental services is mixed and financial sustainability tends to be linked to specific projects and programmes. Business associations should include environmental services in the range of payable services they provide to their members.

Source: De Gobbi, 2011: Mainstreaming Environmental issues in sustainable enterprises: An exploration of issues, experiences and options (Geneva, ILO).

http://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/publication/wcms_150630.pdf

Institutions, governance and the role of social actors

The GER notes that the advancement towards a green economy needs the adaptation of the institutional and governance frameworks. The promotion of social dialogue is a key step, including mechanisms for participatory local planning, the design and implementation of local resource-based approaches which can have significant positive employment impact. Strong institutions need to be built that perform these tasks and at the same time are technically capable of implementing appropriate policies – including green labour market policies, policy evaluation, independent review processes and ex-post evaluation.

The role that social actors and social dialogue have in ensuring the transition to a green economy is crucial, specially foreseeing that important changes will be introduced in the production process. Tripartite dialogue has a strategic relevance in discussing such economic transformation.

From the point of view of social solidarity, and in order to mobilize the political and workplace based support for the changes that are needed, it is imperative that policies are put in place to ensure that those negatively affected are protected through income support, retraining opportunities and relocation assistance. Social dialogue is a critically important component of a Just Transition, not only in the workplace where the worker/union voice is needed to help determine the design of new sustainable production systems and work

practices, but also at the regional, national and sectoral level, where the changes will likely be the significant and could be hard-felt.

Joint labour-management committees and similar bodies can play an important role. These committees work to identify ways to improve energy efficiency, more efficient use of water and other natural resources and raw materials, and low-carbon work schedules. In some instances, employers and unions have begun to work together in greening the workplace, building on a long tradition of collaborating on occupational safety and health and other issues.

In some countries like Italy and Spain the figure of union environmental representative has been created already, with the mandate to discuss issues related to the environment, both in terms of impacts and new investments needed.

Occupational Safety and Health (OSH)

The gradual expansion of green jobs will generate new occupational risks⁸. This is caused by a change in work environments, by the introduction of new technologies, new substances and work processes, by changes in the structure of the workforce and the labour market and by new forms of employment and work organization. These will modify the OSH conditions of workers. On the one hand, favourable changes may be anticipated. For example, a solar PV producer is likely to be exposed to less health risks than a coal miner. However, new forms of production also bring new health and safety risks and challenges for workers and employers, which in turn demand political, administrative, technical and regulatory approaches to ensure adequate levels of safety and health at work.

These new risks must be considered in addition to the dangers that threaten many of the existing jobs, and are likely to continue also with greener practices. Construction, for instance, is one of the most dangerous occupations. Data from a number of industrialized countries show that construction workers are 3-4 times more likely than other workers to die from accidents at work. Many more suffer and die from occupational diseases originating in past exposure to dangerous substances, such as asbestos. In other sectors, many workers are subject to poor conditions in dangerous environments that often include pollutants, working underground or in confined spaces and the traditional hazards of industrial plants, as is the case in the water sector as explained further below.

Further discussion is needed to approach OSH issues at the global level. The sector analysis suggests that among other measures, inspection could be significant in the way forward, as long as the role of labour inspectors changes to one of education and prevention, as opposed to inspection and prosecution. This is already being adopted in a number of countries, but should also be considered in others lagging behind. The greening of the economy brings the opportunity to create synergies in inspection about the broader environmental aspects on the one hand and the health/safety components on the other.

⁸ According to the European Agency for Safety and Health at Work (EU-OSHA, 2010) a new and emerging risk is defined as any occupational risk that is both new and increasing. Aligned with this terminology, the risk is *new* if it did not previously exist and is caused by new processes, new technologies, new types of workplace or social/organizational change. It also applies to long-standing issues that are newly considered risks due to a change in social or public perceptions. Finally, the term applies to cases in which new scientific knowledge allows a long-standing issue to be identified as a risk. Likewise, the risk is *increasing* if the number of hazards leading to the risk is growing or the likelihood of exposure to the hazard leading to the risk is increasing (exposure level and/or the number of people exposed) or if the effect of the hazard on workers' health is getting worse (seriousness of health effects and/or the number of people affected).

III. Key aspects of green jobs in selected sectors

Renewable energy

Geopolitics and high prices of fossil fuels over the past three years provide a powerful rationale for member states to promote renewable energy. Not only do renewables offer a low-carbon path to developing energy resources, but they also enable states to create decent jobs at home. Employment in the renewable energy industry has increased steadily since 2004. Data from 2008 show that more than 2 million people were directly employed worldwide, while more recent figures indicate that in 2009, jobs in renewable energy industries exceeded 3 million (REN21, 2010). This figure would be likely to be larger, if employment provided by biomass energy had also been included. Employment projections for the sector indicate that more than 20 million jobs are likely to be created by 2030 (UNEP/ILO/OIE/ITUC, 2008). This figure includes employment in biofuels (12 million), wind power (2.1 million) and solar PV (6.3 million).

Employment trends

Employment trends in the renewable energy sector are in stark contrast to that of the energy industry in general. Global employment in crude oil and natural gas extraction and production increased from about 3 million in 2000 to a peak of over 4 million in 2004. However, after a gradual decline, it has dropped to its current level of 3 million people (Kamakura, 2009). By contrast, employment in the renewable energy industry has increased steadily since 2004. This is despite the fact that employment for the global utilities sector, of which renewable energy employment is a part, has remained relatively stable throughout the 2000s. According to UNIDO, global employment in the utilities sector was estimated at around 11,230,520 people in 2003 and was around 11,539,950 people in 2007.

China currently employs more people in the renewable energy industry than any other country in the world. It is estimated that in 2007 more than 1.1 million people were employed in renewable energy industry in China. The majority of this employment is in the solar power boiler sector, accounting for 71 per cent or approximately 800,000 people. See Box 4 below for more detail on employment in China's renewable energy sector.

The evidence shows that developing renewable energy generally has a positive impact on employment. Moreover, these employment benefits occur primarily in the agricultural and manufacturing sectors, in the form of direct, indirect and induced job creation. However, renewable energy products (electricity, heating, fuels) often replace fossil fuel energy⁹ sources or inefficient power plants. This means that expansion in employment due to the growth of renewable energy may be offset by some losses in employment in more traditional sources of energy generation. Nevertheless, policies aimed at developing the renewable sector are still likely to have net employment benefits; this is because of the higher employment intensity in renewable than in conventional energy sectors. Thus, the introduction of energy efficiency policies and technologies could generate a significant number of new jobs.

Both the GER synthesis report and wider research demonstrate that employment in renewables require some new skills that employees in the traditional energy industry do not necessarily possess. Skill shortages are a big issue throughout the renewable energy industry. For example, the German renewable energy industry has been experiencing a

⁹ Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, Germany, June 2006.

shortage of skilled workers. Lehr and others (2008) have shown that almost all sectors lack skilled workers, with the largest shortages in hydro energy, biogas and biomass. Wind energy companies in Europe have also reported an acute shortage of high skilled workers. The shortage is more pressing for manufacturing and development, with demand especially high for engineers and staff qualified for site operation, maintenance and management. The sector also needs skilled researchers and staff in research and development (R&D) (Blanco and others, 2009).

Box 4: Employment in renewable energy in China

The development of renewable energy is a fundamental part of China’s national strategy. Renewable energy is a new industry, whose development will inevitably lead to increases in employment. According to related research by the Energy Institute of the State Development and Reform Committee, by the end of 2007, the number of people working in the renewable energy industry was 1.1 million, mainly spread across solar power, wind power and biomass energy. Only very few worked in other industries.

Solar powered boiler	Photovoltaic power	Solar Power	Wind power	Biomass energy	Others	Total
800,000	100,000	150	20,000	200,000	1,000	1,121,000

According to comparative studies, the creation of a direct job requires investment of RMB 1.15 million in wind power, and RMB 910,000 in photovoltaic power, RMB 700,000 in solar thermal utilization and RMB 140,000 in biomass energy. In general, the inputs required for renewable energy employment are much higher than those for conventional industries. For a developing country such as China, such positions are created at too high a cost. The primary energy source in China is coal. In 2005, primary energy consumption consisted of 68.9% coal, 21.0% oil and the remaining 10.1% from natural gas, hydraulic power, nuclear power, wind power and solar power. In worldwide primary energy consumption for the same year, coal only accounted for 27.8%, oil 36.4% and natural gas, hydraulic power, nuclear power etc accounted for 35.8%. China is a developing country, far from being fully industrialized, urbanized and modernized. In achieving these development goals, China’s future energy demands must be rationalized.

Developing renewable energy is a critical process for all countries on the path to development. At the same time, in the near future it will be difficult to make major changes to the key role that coal plays in China’s energy structure. This is despite the prospect that China’s percentage of renewable energy could reach 20% by 2020, with the number of new jobs created estimated to reach 2.2 million. However, unlike the US, the employment opportunities from renewable energy and conventional industries are not expected to be reversed. For a long time conventional energy industries will still dominate industry.

Working conditions

Higher wages and safe and healthy working conditions are among workers’ key concerns and are also core components of the ILO’s Decent Work Agenda. However, very few studies have examined working conditions in the renewable energy industry. A 2008 study by the FAO, and others in the bioethanol agro industry in Brazil, report that there have been a number of significant improvements in the working conditions for sugarcane farming workers in Brazil in recent years. In the context of the improvement of rural development, these improvements include real wage increases, the expansion of social benefits, increased job formalization and a fall in the incidence of child labour.

Women workers

Employment data for women in renewable energy industries are extremely scarce and more studies need to be carried out. The limited information available shows that the renewable energy industry is a male-dominated industry. In the wind energy sector in the EU (thought to employ more female workers than other energy sectors) females made up only 22 per cent of the industry's workforce in 2008. This is a fairly low proportion compared to the overall EU labour market average of 44.3 per cent (European Wind Energy Association, January 2009).

Social dialogue

There is evidence that sectoral social dialogue can generate positive outcomes in the process of 'greening' economies, mitigating any adverse effects of structural change in the renewable energy industry. In wind power and thermal power companies in China, as high as 90 per cent of employees are unionized. It is also reported that trade unions participate in companies' decision-making, particularly in areas of company reform and structural adjustment. Workers' participation in management in the wind power sector is slightly better than in the thermal power sector, with nearly 90 per cent of companies indicating that trade unions are consulted regarding company reform and structural adjustment¹⁰. Social dialogue plays a significant role in developing the green economy and the renewable energy industry. Denmark, Finland, Romania, Slovenia, Spain and France, among others, are examples of countries that have tripartite¹¹ social dialogue at national level dealing with both the green economy and green job initiatives.

Water provision

The water sector has limited relevance for direct employment. However, working conditions and stakeholder relationships are crucial in determining both the quantity and quality of water supplied and ultimately also the sustainability of the service. Social dialogue can help alleviate any negative consequences for workers resulting from restructuring and can also improve the productivity of the remaining workforce (ILO, 2009b). This applies equally to cases where ownership is public or private, but especially to firms undergoing structural reforms.

From a Sustainable Development perspective, it is also important to analyze aspects of wastewater treatment. For a discussion, please see ILO:

http://www.ilo.org/legacy/english/protection/safework/cis/products/hdo/pdf/oper_wastewtr.pdf.

Employment trends

The size of the workforce in the utilities sector (including water, electricity and gas services) has declined in most countries during the last decade, mainly due to downsizing following the privatization and deregulation of many aspects of these industries. Despite the employment recovery seen in some industrialized countries in recent years, the total employment level in these countries is still lower than several years ago. Many developing countries have experienced a growth in employment in the utilities sector overall during the last decade, but employment has declined more recently with increased deregulation and the use of new technologies. An ILO report states that many workers have been laid off without proper compensation or proper re-deployment/re-training measures (ILO, 2009a). Although workforce reduction in the water sector has not been as severe as the

¹⁰“Study on Green Employment in China,” Institute for Labor Studies, Ministry of Human Resources and Social Security, ILO, March 2010, p.53.

¹¹The term Tripartite connotes the involvement of labour institutions, employers and workers associations. See Footnote 1.

numbers in electricity, nonetheless the tendency to cut labour costs to enhance profits will continue in the future. Employment reductions through mergers and acquisitions will also remain an issue (ILO, 2009b).

Social Dialogue

As part of its National Meetings Program and Action Program, the ILO monitored the experiences of water sector reform in Kenya and Malawi respectively. In the case of Kenya, a 2007 Workshop on Social Dialogue in the water sector found that the sector in that country was facing a series of major challenges. Among these, it was found that tariffs did not cover production costs – thus jeopardizing the sustainability of the sector (ILO 2008). In Malawi, there are also several challenges relating to the high level of non-revenue water (Masanjala, 2009¹²): poor operational performance due to delayed approval of new tariff increases; operating tariffs being less than the capital and cost recovery rate; ever increasing operating costs due to rising cost of inputs; declining commercial performance due to ever increasing debtors; lack of professional training facilities and the difficulties of water boards to meet the demand for water in their jurisdictions due to inadequate and/or poorly designed plant and system (pumping, treatment, storage facilities and distribution networks) (ILO, 2009b).

In both cases the recommendations included, among others, the need to strengthen social dialogue. The rationale behind this recommendation is that social dialogue can play a critical role in the development of joint strategies by the social partners. This would help to improve utility services, with the common goal of extending access to services to all communities, improving efficiency of delivery and reviewing tariffs and other sources of revenue collection (ILO 2003a).

Working conditions

A number of indicators show that health, safety and training are important employment issues that are often marginalized in the water sector. Workers are subject to poor conditions in dangerous environments that often include pollutants, working underground or in confined spaces together with the traditional hazards of industrial plants. Training for lifelong learning and to improve efficiency are also essentials that need to be considered by employers. Investing in the workforce can improve productivity and customer service (ILO 2003a).

Opportunities for Green job creation in the water supply sector

Green investments in the sector may impact job creation in a variety of ways, depending on the character of the intervention. While efficiency measures are likely to produce a decline in the level of employment needed to maintain the service, other interventions aimed at expanding access to drinking water or preserving the resource itself could have positive impacts. There are direct, indirect and induced jobs related to the construction of a new infrastructure and the modernization of the existing one, and these must be taken into account when assessing labour market impacts.

Adaptation activities like terracing or contouring of land and building irrigation structures are both labour intensive and urgently needed to prevent further resource depletion and degradation. Employment could also be generated as part of the broad effort to raise water

¹² Non revenue water is water that has been produced and is “lost” before it reaches the customer. Losses can be real losses (through leaks, sometimes also referred to as physical losses) or apparent losses (for example through theft or metering inaccuracies) Definition from Wikipedia: http://en.wikipedia.org/wiki/Non-revenue_water .

productivity — a high priority area given the unsustainable use of water in many parts of the world. Many of these measures are part of plans and policies to adapt to climate change effects. Substantial public investment in off-farm infrastructure is also required, supported by water management institutions staffed by people with the necessary background in hydrology. Additional investment will be required to store and save water, thus creating employment in producing, installing, and maintaining the necessary equipment. The move toward integrated water management, which involves canal lining and micro-irrigation, also involves labour inputs (UNEP/ILO/IOE/ETUC, 2008).

Access to water and poverty reduction

The economic implications of the lack of water at the household level have been well documented. Families spend a large proportion of their income and time on water. Studies indicate that in order to purchase water at private wells or from other vendors, poor people spend roughly 20 to 35 per cent of their income (prices vary in different regions). In terms of gender considerations, women and children are much more affected by access to water, or the lack of it. The non-compensated work that women carry out to ensure their families' economic survival raises particular problems in rural society that impede the progress of women. As shown in rural Madagascar, the time girls spend carrying water significantly diminishes their opportunities for education. The need to perform this essential chore has forced many children to leave school (ILO, 2003a).

There is evidence from a survey of 1,500 households in Eastern Hararghe, Ethiopia, that households that have access to water from improved sources are found to be more likely to participate in off/non-farm employment than those without such access. This could be attributed to time savings from increased availability of water and shorter distances to access it, leaving more labour time to the household. The quality of water sources may also be important for raising productive employment and incomes. Across villages in rural Tanzania, for example, Mduma and Wobst (2005) found a positive and statistically significant relationship between the proportion of households supplying labour to the labour market and the proportion that have access to safe water. The estimates control for various other influences on households' labour supply, including land availability, location, dependency ratios, education and availability of electricity (Hagos and others, op. cit.).

The Millennium Challenge Corporation points out that improved water and sanitation can generate additional income in the form of decreased water costs, reduced incidence of disease and increased private business activity. Improved water supplies can facilitate business expansion. Many businesses rely on water as a production input, and a more convenient water supply can reduce the cost of that input (Millennium Challenge Corporation, Website).

Waste management and recycling

The recycling sector is one of the most important green sectors in terms of employment creation. Nevertheless, many of the recycling/waste management related jobs cannot be considered green because they do not match the basic requirements of decent work. Priority indicators of decent work that should be addressed include child labour, occupational health and safety, social protection and freedom of association (various forms of worker organization such as unions, local associations, cooperatives, etc.). On the other hand, because jobs in the recycling chain represent a source of income for workers that often have low education or poor backgrounds, these jobs are an important element for poverty alleviation.

The GER Synthesis document indicates that the most important thing from a sustainable development and poverty reduction perspective is not the additional employment potential in waste management, reuse and recycling, but the opportunity to upgrade jobs in the sector. Many waste management jobs are currently low-end and informal. Earnings are low and unstable, keeping many in poverty. Recycling practices are also often environmentally harmful. In China, for instance, the WEEE¹³ recycling industry is characterized by the application of improper techniques during the recovery of raw materials, like the open burning of wires and the chemical treatment of PCBs and electronic parts (Manhart 2007, quoted in UNEP/ILO/OIE/ITUC 2008). Informal structures and workers are not capable of increasing rates of recycling and reuse. They also cannot deal effectively with new and sometimes hazardous materials such as electronic goods. To be truly green jobs, they also need to match the requirements of decent work, including aspects such as a living wage, the elimination of child labour, occupational health and safety, social protection and freedom of association. Upgrading is thus desirable and necessary for social and environmental reasons. Examples like those from Brazil (see Box 5) demonstrate that upgrading is both possible and a good example of synergy between the pillars of sustainable development.

Box 5: Coherent policies for sustainable development: the National Solid Waste Policy (PNRS) of Brazil.

Brazil has a long tradition of recycling, with recovery levels for many materials matching or exceeding those in industrialized countries. Some 95% of all aluminum cans and 55% of all polyethylene bottles are recycled. Half of all paper and glass is recovered. Recycling in Brazil generates a value of almost US\$ 2 billion and avoids 10 million tons of greenhouse gas emissions. In spite of this achievement recyclable material worth US\$ 4.77 billion goes to landfill. Full recycling would be worth 0.3% of GDP.

Waste management and recycling employ well over 500,000 people in Brazil, with most working as individual waste pickers in informal jobs with low and very unstable incomes and poor working conditions. At the initiative of local governments, some 60,000 recycling workers have been organized into cooperatives or associations and work in formal employment with service contracts. Their income is three to five times higher than that of individual waste pickers, lifting entire families out of poverty.

The National Solid Waste Policy (PNRS) – established by law on August 2nd, 2010 – aims to build on this potential. It provides for the collection, final disposal, and treatment of urban, hazardous, and industrial waste in Brazil. The PNRS is the result of a broad consensus based on social dialogue involving the government, the production sector, stakeholders in waste management and academia.

The PNRS is based on the principle of **shared responsibility** between the government, the private sector and the public at large. The new legislation provides for the post-consumption return of products to companies and obliges public authorities to implement waste management programs. The law promotes inclusive development by providing for the formal participation of waste pickers through cooperatives or associations and providing financial incentives to industry and local governments which enter into such arrangements. Brazil is now transferring this model to other developing countries

Source: (Compromisso Empresarial para Reciclagem (CEMPRE) 2010: “National Solid Waste Policy – Now it’s the law”).

¹³ Waste Electronic and Electrical Equipment Directive.

The labour force that makes a living in the recycling sector contributes significantly to meeting the challenge of environmental issues (e.g. climate mitigation and pollution prevention). These workers, whether they are formally employed or self-employed, should be considered one type of ‘the agents of change’ that environmental and economic policies rely upon. The high value of their contribution to climate policies, for example, should be widely and more clearly recognized. There is an unaddressed need to reassess those jobs in the recycling sector and to provide dignity and recognition to millions of workers who, de facto, contribute to solving an urgent global problem.

From an employment/social perspective, it is critical to address the need for progressive formalization of the sector, whilst simultaneously pursuing environmental and economic objectives. This can be tackled through the transformation of jobs and the reorganization of economic segments. Typical examples include the introduction of door to door services for municipal solid waste (MSW), up-streaming the sorting of municipal and industrial waste, industry to industry waste exchanges, segmentation of waste collection and waste recovery services (e.g. used lead acid batteries, oily waste), the emergence of contracting services, collective organizations, skills development programmes to come to terms with the type of material that is handled by workers and enterprises, the use of environmentally sound technologies for waste management and the introduction of targeted Occupational Health and Safety (OHS) programmes.

The application of national labour laws and OSH legislation to the informal economy is one of the most important challenges facing many countries. At the same time, OSH provides possibly the easiest entry point for the extension of basic labour protection including basic OSH measures. For this reason, the work of the ILO and its recommendations regarding the informal economy should be considered in the context of the formalization of the waste management sector (workers, skills, OHS, co-operatives, etc) (ILO, 2010).

The waste management sector is relevant in terms of both job creation and decent work enhancement. Sectoral environmental and social policies must work hand in hand. In the absence of clear policies for the increase of recycling/management rates for waste, green jobs policies would mean the pursuit of the implementation of labour standards. In the context of sector growth, new mechanisms need to be put in place to break the existing model and improve decent work, while creating new jobs. This can be achieved through various means, including social innovations, technology, formalization processes and specific programmes such as OHS.

Social innovations have proven critical in achieving sustainable outcomes by favouring a stakeholder approach. Utilizing social and environmental entrepreneurs and/or trade unions to organize informal waste workers to improve their working and living conditions are key options to consider.

From a green economy perspective, enhancing decent work and labour standards are also an equally important priority for the creation of productive jobs alongside the need to exploit the economic opportunities that this sector can yield. This can partly be achieved through technical and technological improvements. However, experiences in this sector also demonstrate that technologies must be adapted to local contexts in order to avoid major setbacks.

Tourism

Tourism is extremely labour intensive and a significant source of employment in many

developing countries. It is among the world's top sources of jobs, requires varying degrees of skills and allows for quick entry into the workforce for youth, women and migrant workers. It accounts for 30 per cent of the world's export services. In 2010, the sector's global economy will account for more than 235 million jobs, equivalent to about 8 per cent of the overall number of jobs (direct and indirect), or one in every 12.3 jobs. The UNWTO is expecting the sector to provide 296 million jobs at the global level in 2019. Compared to other sectors of the global economy, the hotel, catering and tourism (HCT) industry is one of the fastest growing (ILO 2010b).

The sector is characterized by the relevance of its supply/demand chain. In terms of green job creation, the potential of the sector relies on the direct jobs that can be created, but importantly on the indirect jobs as well. Indirect jobs are those that additional jobs in the HCT industry generate in other areas in the economy. For example, jobs created in the conservation, rehabilitation and enhancement of natural assets (national parks, lakes, mountains) or key historic places (pyramids, ruins, cathedrals); in the rehabilitation and maintenance of infrastructure (roads, communications, accessibility) and the enhancement of tourism services in selected destinations are likely to create jobs in food and agriculture, construction, furniture, textiles, etc. It is estimated that one job in the core HCT industry indirectly generates roughly 1.5 additional jobs in related economic sectors.

Despite this high potential, the sector faces many problems – especially those relating to working conditions, the representation of workers and communication between workers and management (ILO 2008). The HCT sector is often characterized by low pay, difficult working conditions and many clandestine jobs. In many countries tourism contributes to the exploitation of child labour and women. Local communities often derive little benefit from the industry and it can have significant negative environmental impacts (ILO 2008b). To progress towards more sustainable tourism several obstacles will have to be overcome. See Box 6 for a discussion of Sustainable Tourism.

Box 6: Sustainable tourism and good practices

Sustainable tourism is composed of three pillars: social justice, economic development, and environmental integrity. It should generate income and decent employment for workers without affecting the environment and culture of the tourists' destination. It should also ensure the viability and competitiveness of destinations and enterprises in order to enable them to prosper and deliver long-term benefits. The sector will have to address many challenges if these objectives are to be met.



Source: ILO 2010, Developments and challenges in the hospitality and tourism sector, <http://www.ilo.org/public/english/dialogue/sector/techmeet/gdfhts10/gdfhts-paper.pdf>

There are examples of good practice that aim at addressing the three pillars of sustainable tourism. The Fair Trade in Tourism South Africa (FTTSA) encourages and publicizes fair and responsible business practice by South African tourism establishments. They do this by offering a certification program (and supporting activities) that endorses tourism establishments that meet stringent criteria. Their mission and vision consist of promoting fair wages and working conditions, fair operations, purchasing and distribution of benefits; ethical business practice and respect for human rights, culture and the environment.

Source: Fair Trade in Tourism South Africa, <http://www.fairtourismza.org.za>

Among the institutional responses to help overcome decent work deficits in the sector, is the ILO's adoption of the Working Conditions Hotels and Restaurants Convention (Convention 172) in 1991. This applies to 'workers employed within hotels and similar establishments providing lodging; and restaurants and similar establishments providing food, beverages or both'. The Convention regulates aspects related to payments, compensation for workers required to work on public holidays and daily and weekly rest periods, etc. The Convention has been ratified by and is therefore binding for 15 countries¹⁴ (ILOLEX, ILO Website).

Even though tourism creates jobs and contributes significantly to economic growth, it is not automatically a solution for poverty reduction. Therefore, it is important for local investors to actively participate in tourism and its related activities. The local workforce can also help by engaging in and encouraging the use of local companies for the provision of transport, services and food in order to assist in alleviating local poverty. While many small-scale projects have been developed to combine tourism with poverty reduction, to

¹⁴ Austria, Barbados, Cyprus, Dominican Republic, Fiji, Germany, Guyana, Iraq, Ireland, Lebanon, Luxembourg, Mexico, Spain, Switzerland, Uruguay.

be successful on a wider scale this would require the implementation of effective national poverty reduction strategy plans.

Fisheries

The world's fisheries provide livelihoods to millions of people in coastal regions and contribute significantly to national economies. They are relied upon as a safety net by some of the world's poorest, providing cash income and nutrition, especially during times of financial hardship. Healthy fisheries support the wellbeing of nations, through direct employment in fishing, processing, and ancillary services, as well as through subsistence-based activities (UNEP 2011).

However, overcapacity is currently a big issue and the impact of fisheries collapse can be devastating. If no action is taken, it may result in a major crisis in the future, affecting not only labour but also deepening poverty and food insecurity. Individuals and their families, communities and even entire regions could undergo significant change. This social dimension is so critical that it must be fully integrated with any approach taken to reduce overcapacity or promote more sustainable fishing practices¹⁵.

While there are instruments that can help respond to the issue of overcapacity, the potential human cost that might result from the implementation of green policies on fisheries cannot be ignored. Policies must be implemented in a manner that also addresses the human dimension. Measures should be accompanied by mechanisms to protect fishers and their families from loss of income and loss of employment opportunities. Likewise, these measures should provide fishers with alternative income sources, preferably within the fish-related value chain that will enable workers and companies to keep working in the same communities. Furthermore, the potential impact of new policies on safety, decent working conditions and sustainability of communities should also be considered.

Whether overcapacity in the fisheries sector is the result of technological improvements, too many vessels, the increased efficiency of vessels or a combination of the above, reducing capacity will have an impact on existing fishing operations. One often suggested approach would be to seek to decommission or otherwise remove from service some of the vessels.

If fishing capacity is reduced, what are the implications for those that work in the fishing industry? There is likely to be a need for income support and for retraining. These solutions, however, may in themselves be insufficient if they do not lead to replacement employment opportunities. The possibilities for fishers to transition to other forms of work will depend on factors outside of the fishing sector itself – for example, the state of the local economy, the transferability of skills and other considerations. The importance of tradition and culture also cannot be neglected. What is being asked is for people to change not simply their occupation, but also their way of life. If change is not successful, it is likely that many fishers may try to return to fishing, whether legally or not. Some fishers may continue to fish, even when they recognize that resources are dwindling, simply because their first priority is to ensure the survival of themselves and their families.

In many fishing communities it is difficult to find work other than employment in the

¹⁵ This section does not address the impact of rising temperatures leading to the reduction in fish production, which is an even larger threat. For example, in SE Asia this will seriously affect the region's productive potential as the world's largest producer of fish and marine products.

fisheries. Thus, retraining alone may well be insufficient. A successful transition would require a shift in the economy and would require local economic development. To ensure that the voices of the stakeholders are heard, it will be important to strengthen fisher and fishing vessel owner organizations. Furthermore, training on issues related to greening the sector and transitioning to other forms of work should be provided in order to encourage sustainable local economic development and create new, good jobs to replace those lost in the fishing sector. Employment impact assessments can be carried out to analyze “the dynamic-interdependent linkages between the different sectors of the economy and can be used to specifically explore the relationship between intensive employment strategies, job creation, and poverty reduction”.

Without realistic and believable alternatives, fishers (and their political representatives) will resist cutting back capacity. When such discussions take place, it is important that all stakeholders have a chance to make their views known and to receive information on the implications of any new policies or programmes. To ensure that the voices of the stakeholders are heard, it will be important to strengthen fishers and fishing vessel owner organizations, and specifically to provide training on issues related to greening the sector, transitioning to other forms of work, and encouraging local economic development that is sustainable and will create new, good jobs to replace those lost in the fishing sector.

Buildings

The buildings sector has a crucial role to play in both employment generation and the evolution of the economy as a whole. Greening the sector will have implications for a vast number of workers. As listed in the GER, investment in new construction, in retrofitting activities, in the use of green materials and in the use of green appliances and components are examples of investment in green buildings and represent opportunities for employment creation. Examples of investments in the sector for Germany and Brazil are provided in Box 7.

There is also evidence that for some types of infrastructure the employment-generating potential of construction investment may not have been fully realized. This is due to constraints in the planning and procurement of projects, as well as to a lack of capacity in the local construction industry, particularly in developing countries. Also, in many such countries, construction investment is at a very low level. The way forward is to expand the volume of output and employment in the sector, for example through the development of public-private partnerships and an appropriate choice of technology – compatible with green practices. This is especially relevant if the demand for new buildings (social housing, hospitals, schools, etc.) that exists in developing countries is considered.

Box 7: Sustainable development and the building sector. Examples from Germany and Brazil

Germany's large Building Rehabilitation Program is part of the government's Energy Concept 2050 which includes the goal of achieving a "climate-neutral building stock" by 2050. Established in January 2001 in response to an economic crisis in the building sector, the Programme provides favourable loans for the retrofitting of buildings to improve energy efficiency. In the first five years, around 342,000 energy upgrades for homes had received support under the program. The Programme was expanded as part of the economic stimulus package in response to the recent global economic crisis. Data shows that every Euro of public funding invested 'crowds in' four Euros of private investment. These investments recover their cost through energy savings, avoid large amounts of greenhouse gas emissions and stimulate the labour market: 1 billion invested in the building stock safeguards or creates around 25,000 jobs.

Source: German Federal Ministry of Transport, Building and Urban Development 2010: <http://www.bmvbs.de/SharedDocs/EN/Artikel/IR/the-german-government-s-climate-change-programme-for-the-buildings-sector.html>

The Brazilian social housing program My Home My Life was launched in March 2009. It provides housing for low-income families, integrating solar water heating where appropriate. Poor households around the world spend a disproportionately high share of their income on energy. Solar water heaters significantly reduce the energy expenditure of users and help to contain peak load on the electricity grid. In the first phase of 2009-2010, out of 350,000 build houses 40,000 households had benefited from a solar water heater. The second phase of the housing program foresees the construction of 2 million new homes, of which 1.2 million are going to be reserved for low-income families. As of 2011 up to 500,000 houses are expected to be equipped. It is estimated that this will generate 30,000 green jobs over the next four years not including employment created through the construction work itself.

Source: ILO Office Brazil

The greening of the building sector entails changes in the process of production. This is itself likely to entail changes in working conditions, which need to be taken into account. The characteristics and trends present in the construction industry are likely to continue, even with green practices. Green construction presents an opportunity to address some of the issues and problems that affect construction workers.

Social dialogue is also an important aspect of decent work, and the greening of construction may provide a new impetus for this process. Many employers and government authorities have shown enthusiasm regarding green construction. This may present a new opportunity to sit down together with workers and discuss labour issues in connection with the greening of the industry. It is important to seek new roles for trade unions and other actors. Where there are legal restrictions on the rights of sections of the workforce to organize, trade unions can campaign for their removal. It is also important for trade unions to secure positive improvements in collaboration with employers – for example in Canada, there have been joint activities to raise the level of safety, quality and productivity.

Innovative solutions to the problems of worker training should be considered. These could include training master craftsmen so that they themselves can become trainers, which will improve the on-the-job apprenticeship system common in many countries. Another interesting way to supplement skills acquired through the apprenticeship system is to issue target groups with training vouchers, which they can spend as necessary. This scheme has

been trialled on one project in Kenya. Also, the involvement of subcontractors, labour contractors and intermediaries in joint training schemes, with cost reimbursement, is likely to be essential if these schemes are to be effective in meeting the real skill needs of the industry. All of the above could be applied in green construction.

Not all the problems of construction are characteristic of the industry. For example, a lot also depends on the existence of steady economic growth and a stable political environment in each country. At any rate, the different actors within the construction industry can and should make a difference, ideally through coordinated efforts. A crucial element in the case made for green jobs is their relation to a broader notion of sustainability (financial, cultural and social). This, itself, is inextricably linked to improving the quality of jobs, providing equal access to opportunities and compensation and retraining for workers displaced by the greening process. In other words, green jobs must also be decent jobs¹⁶.

Cities

Cities and towns offer opportunities to combine environmental protection and decent work. However, greening a city's economy without addressing urban poverty is not sustainable. At the same time, poverty is related to deficits in the four components of decent work: employment opportunities, workers' rights, social protection and social dialogue. Investing in green employment and taking an integrated approach to decent work is necessary, but it is also an opportunity.

Improvements in the urban environment offer good prospects to address decent work deficits through green jobs. Workers and entrepreneurs need to be well trained and to have good working conditions in order to appropriately support the green urban economy. There is a potential win-win situation regarding the urban environment and decent work.

There is a great deal that local governments can do – directly and via contracting out – to combine green urban development with employment generation. Examples include green programmes to upgrade roads, drainage, water and energy provision, sewerage systems, public buildings, public transport and waste management and recycling. Such programmes bring immediate employment and also provide a longer term impact on both incomes and living and working conditions. Governments can also encourage green jobs in other sectors in which they are not directly involved by supporting private entrepreneurship, especially micro and small enterprises, which are responsible for a significant proportion of urban employment. Investment in training is also fundamental for green employment creation.

Micro-enterprises, small-scale enterprises, and, to some extent, medium enterprises provide the dominant proportion of urban employment, particularly in developing countries and also provide an even higher share of new jobs. As discussed in Section II, most SMEs have difficulties with greening their operations, or simply coping with escalating energy and raw material costs. They have limited access to information, technology, skills, finance and markets. Supporting the greening of such enterprises is likely to create a significant number of green jobs¹⁷.

¹⁶ Where not otherwise indicated, the Section on Buildings is based on Werna, E. (forthcoming), "Green Jobs in Construction". Chapter in Ofori, G. (ed.), *The Construction Industry in Developing Countries*.

¹⁷ Except otherwise indicated, the Section on Cities is based on Werna, E. (forthcoming), "Improving the Urban Environment: the role of workers and enterprises", article for the *International Journal of Green Economics*.

IV. Conclusions

The current financial and economic crisis is one of several the world is facing. Environmental degradation, persistent poverty due to low and precarious incomes and rising unemployment and inequality also need to be addressed. The main challenge is to set a sustainable development path to recover from the economic crisis while addressing the environmental degradation and attending the key social challenges such as poverty reduction, food security and gender equality. The Green Economy Report argues that this can be achieved by investing in green, clean and sustainable sectors. In turn, this can support the development of sustainable enterprises and create decent work opportunities for all, thus enhancing social cohesion.

This Background Note articulates the social dimension by calling for investment in social development and human capital development which are critical to make a green economy possible and to seize the benefits for sustainable development. It is only with skilled workers, qualified employers and informed labour institutions that the transition will be feasible. More importantly, inclusive social protection schemes, the creation of sustainable enterprises and the expansion of green jobs will make the transition a reality for all and avoid opposition and a backlash.

The sector analysis has shed light on the crucial character of social dialogue for any type of transition towards a green economy. The involvement of stakeholders, especially from the communities which will be impacted the most, is essential to ensure that the concerns of affected workers and employers are rightly represented. It is vital to build in societies the consensus needed for a shift on the scale and at the speed that is required.

Trends in production, consumption and employment are undergoing significant change and it is expected that they will continue evolving over the next years. With varying degrees of maturity depending on the countries and the sectors involved, the transition towards a green economy is already in progress. It is possible to reduce GHG emissions and other environmental impacts, improve the living environment, create green jobs and reduce poverty while increasing the competitiveness of enterprises and economies. Countries at different levels of economic development have started the transition, as exemplified by the construction sector in Brazil, renewable energies in Germany, Spain, India and Bangladesh, or the organic agriculture in Uganda.

Many aspects of the transition need strong support. Key decisions will need to be made about investing in the skills that will be required for a sustainable and low-carbon global economy. Well-designed policies have to be shaped to handle the employment adjustments in sectors like energy, transport and fisheries. Social policies need to be developed along with environmental and economic policies. This includes measures to ensure that those likely to be negatively affected are protected through income support and access to alternative employment and income through retraining opportunities and relocation assistance among others. This will go a long way in mobilizing the political and workplace-based support for the changes that are needed.

Bibliography

Blanco, M.I. and G. Rodrigues, "Direct employment in the wind energy sector: An EU study", *Energy Policy*, 37.

De Gobbi, M.S., 2011: Mainstreaming Environmental issues in sustainable enterprises: An exploration of issues, experiences and options. Working Paper N° 75. International Labour Office.

http://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/publication/wcms_150630.pdf

European Wind Energy Association, 2009: *Wind at Work*", European Wind Energy Association.

EU – OSHA, 2010. Foresight of New and Emerging Risks to Occupational Safety and Health Associated with New Technologies in Green Jobs by 2020.

FAO, UNECLAC, CGEE, and BNDES 2008: *Sugarcane-Based Bioethanol Energy for Sustainable Development*.

Hagos, F., E. Boelee and S. Bekele Awulachew 2008: *Water supply and sanitation (WSS) and Poverty, Micro-level linkages in Ethiopia*. Institute for Labour Studies, Ministry of Human Resources and Social Security, ILO, March 2010: *Study on Green Employment in China*.

ILO 2003a: *Challenges and opportunities facing public utilities. Report for discussion at the Tripartite Meeting on Challenges and Opportunities Facing Public Utilities*". Geneva, 2003.

ILO 2008: *Report on the National Workshop on Social Dialogue in the Water Sector in Kenya*. (Nairobi, 26–27 November 2007). Sectoral Activities Branch. ILO Geneva.

ILO 2008b: *Guide for Social Dialogue in the Tourism Industry*. Working paper 265 by Dain Bolwell and Wolfgang Weinz. Geneva 2008, International Labour Office.

ILO 2009: *World of Work Report 2009. The Global Jobs Crisis and Beyond*. International Institute for Labour Studies.

ILO 2009a: *Impact of the Global Economic Recession on the Utilities Sector*. Sectoral Activities Programme, Sector Notes. October 2009.

ILO 2009b: *Strengthening Social Dialogue in the Water and Sanitation Sector in Malawi*. Final Report Presented to the International Labour Organization. Prepared by Winford H. Masanjala.

ILO 2010a, *Green Jobs Policy Brief. Why green employment and green labor market policies?*

ILO 2010b: *Developments and challenges in the hospitality and tourism sector. Issues paper for discussion at the Global Dialogue Forum for the Hotels, Catering, Tourism Sector (23–24 November 2010)*. Geneva 2010, International Labor Organization.

Kamakura, Y., 2009: "Social Dialogue and Industrial Relations Issues in the Oil Industry", International Labor Organization.

Lehr E., Nitsch J., Kratzat M., Lutz C., Edler D., 2008: *Renewable energy and employment in Germany.*" *Energy Policy*, 36.

Manhart Andreas 2007, *Key Social Impacts of Electronics Production and WEEE-Recycling in China* (Freiburg: Öko-Institut, June 2007), p. 15.

REN 21, 2010, *Renewables 2010 Global Status Report*.

Research-inspired Policy and Practice Learning in Ethiopia and the Nile region.

Sathyanarayanan Rajendran et al. 2009. *Development and Initial Validation of Sustainable Construction Safety and Health Rating System*. *J. Constr. Engrg. and Mgmt.* **135**, 1067 (2009).

UNEP/ILO/IOE/ETUC, 2008: *Green Jobs Report. Towards decent work in a low carbon economy*.

UNEP 2011, *Towards a Green Economy. Pathways to Sustainable Development and Poverty Eradication*.

Vickers, I.; Vaze, P. 2009. *SMEs in a low-Carbon economy*. Centre for Enterprise and Economic Development Research, Final report for BERR Enterprise Directorate (London).