PARTNERSHIPS FOR DECENT WORK

International Labour Organization

Integrating Green Jobs in the United Nations Joint Programmes. A Guidance Note

Promoting Green Jobs is central to achieving MDG1 on poverty reduction and MDG7 on environmental sustainability. Climate change and the excessive use of scarce resources combined with persistent poverty require proactive and timely policies to create pathways to sustainable development - with decent work for all. The much needed innovative strategies can only succeed with the full engagement of enterprises and workers.

The concept of Green Jobs promotes opportunities for job creation and a socially fair transition towards a Greener Economy in which vulnerabilities, changes in the labour market and new business models are addressed through inclusive social dialogue. It provides a means to bridge social, economic, and environmental priorities by offering an integrated development strategy that can help to promote both environmental and social sustainability.

Objective and Outline of the Guidance Note

The purpose of this document is to provide guidance to UN Country teams on how to integrate Green Jobs at country level, including joint programmes and the UN Development Assistance Framework (UNDAF) process.

Green Jobs assessments should be the first step to inform and plan for a national strategy or joint UN programme. National and local-context-specific studies should identify socio-economic opportunities, needs and impacts.

The first section of the guidance note will define the concept of Green Jobs. The second section outlines possible entry points to integrate Green Jobs strategies in the UNDAF preparation process as environmental sustainability has been included as one of the five programming principles.

The third section breaks down a range of strategies by sector and provides links to further information sources which can serve as tools to adapt Green Jobs priorities to specific country contexts. The sectors covered are:

- Energy
- Agriculture
- Water
- Fisheries
- Forestry
- Waste Management
- Tourism
- Construction and Buildings

This brochure has been developed with financial assistance from the European Commission through its DG Employment, Social Affairs and Equal Opportunities, under the ILO/EC project "Implementing the UNCEB Toolkit within the Decent Work Campaign".

I. Defining Green Jobs: key concepts

The International Labour Organization (ILO) and the United Nations Environment Programme (UNEP) define Green Jobs as "positions in agriculture, manufacturing, construction, installation, and maintenance, as well as scientific and technical, administrative, and service-related activities that contribute substantially to preserving or restoring environmental quality". Several concepts are key to understanding the foundation of a Green Jobs strategy.

Green Jobs for Development addresses poverty and unemployment through the creation of job opportunities and improving wellbeing through the greening of economies. Such opportunities can arise by tapping into nature's renewable goods and services for productive purposes and through efficiency, recycling and substitution strategies.

Adaptation to the actual or expected effects of climate change is essential. Applying a people centred approach involves initiatives that focus on workers, enterprises and livelihoods to maximise development opportunities and reduce the vulnerability of human systems against these effects.

Mitigation refers to the reduction of emissions per unit of output and halting deforestation. Such activities are relevant in developed and developing countries, in particular in shifting from fossil fuel to renewable energies and from extractive industries and an unsustainable forests sector to a high efficient circular economy in which forests are sustainably used and conserved. Investment in human capital, workers skills and green enterprise development are key to enable Mitigation.

Just transition is a concept that calls for the inclusion of short-term and long-term policies that identify and address the negative impacts on employment of a shift to sustainable economies, enterprises and decent work. This is essential for a Green Jobs strategy.

Environmental goals must not be met at the expense of labour standards. Green Jobs programmes therefore place high labour standards on an equal footing with development, mitigation and adaptation.

Each stage of the policy process must be adapted to the particularities of each country's economic and social context. Green Jobs policy strategies can be approached through a **sectoral focus**, which helps to identify the relevant stakeholders, resources and risks.

Social Dialogue

Social dialogue can help to ensure that **green jobs** are also **decent jobs**.

Social dialogue includes all types of negotiation, 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. It can exist as a tripartite process - with the government as an official party to the dialogue, or it may consist of bipartite relations only between labour and management (or trade unions and employers' organizations), with or without indirect government involvement. Consultation can be informal or institutionalized and often is a combination of the two. It can take place at the national, regional or enterprise level. It can be inter-professional, sectoral or a combination of all of these.

The main goal of social dialogue itself is to promote consensus building and democratic involvement among the main stakeholders in the world of work. Successful social dialogue structures and processes have the potential to resolve important economic and social issues, encourage good governance, advance social and industrial peace and stability and boost economic progress. In addition, social dialogue offers a mechanism to maintain the commitment and engagement of all necessary stakeholders.

Contact: ILO Industrial and Employment Relations Department at dialogue@ilo.org

II. Integrating Green Jobs into the UNDAF Programming Process

A Green Jobs approach includes economic, social, and environmental pillars. It can therefore be integrated at all stages of the UNDAF preparation cycle as a cross-cutting theme. This section proposes steps that can be taken and strategies that can be promoted, organized around the four main stages of the UNDAF development process. The table below summarizes the stages of the UNDAF process, the entry points for integrating Green Jobs into UNDAFs, and case studies on how this can be done.

Stages of the UNDAF Process	Steps for the integration of Green Jobs into UNDAF	Examples/References
A. Road Map	Identify existing national and international assessments on Green Jobs	▪ UNEP/ILO *Green Jobs: Towards Work in a Sustainable, Low Carbon World*
	Organize or identify an existing institutional body that deals with employment and can ensure the participation in discussions on Climate Change and the Green economy	▪ Social Dialogue Round Tables in Spain ▪ Stakeholder commissions for UNFCCC, Kyoto Protocol, Clean Development Mechanism, National Environmental Action Plans, or World Bank Country Environmental Analysis
B. Support for Country Analysis	Conduct a country study on the links between employment and the environment including employment-related climate change risks and Green growth/New Green market opportunities	▪ GHK/ILO Practitioners Guide to Assessing Green Jobs in Low-Income Contexts ▪ Dy-SAM in Indonesia
C. Strategic Planning: UNDAF Formulation, Programme, and Project Preparation	Include relevant stakeholders of the world of work in deliberations over UNDAF Environmental Priorities and Outcomes to set the foundation for "Just Transitions"	▪ *A Green and Fair Future: For a Just Transition to a Low Carbon Economy*
	Utilize UNDAF outputs and programming to strengthen the human, technological, and knowledge resources necessary for Green Jobs promotion	▪ China UNDAF Results Matrix (2011-2015) ▪ Green Skills Government Policies in Indonesia
	Consider sectoral strategies in UNDAF outputs and action plan	▪ Oil Shale and Estonian National Energy Technology Programme
D. Monitoring and Evaluation	Prioritize local accountability to maintain responsiveness to local interests and local commitment	▪ UNDP Vulnerability Reduction Assessment

A. Road Map

The development of an UNDAF begins with the elaboration of a road map which is prepared by the UNCT and the government coordinating body. This map must be aligned to the national development process and reviews existing joint or collaborative UN frameworks and strategic partnerships. National stakeholders are involved in the process and, together with the UNCT, agree on a consultative process for the subsequent steps of the UNDAF preparation.

At this stage, two strategies may help UNCTs to mainstream a Green Jobs approach:

- Identify existing national and international assessments on Green Jobs.
- Organize or identify an existing institutional body that deals with employment and can ensure the participation in discussions on Climate Change and the Green economy.

1. Identification of existing Green Jobs

A survey on the state of the national Green Jobs environment can help to identify the importance of employment in the Green Economy in a country, its potential for growth, or its relative weakness in particular industries. It can also be used to identify how a Green Jobs approach would impede or support national development processes.

To date, few international organizations or national governments have begun such surveys. However the ILO has carried out a range of country-level analyses through the UN-wide Green Jobs Initiative and has undertaken partnerships with 16 developing countries through its Global Programme on Green Jobs. Furthermore, UNEP and the ILO collaboratively produced the report *Green Jobs: Towards Decent Work in a Sustainable, Low Carbon-World*. This document provides national-level measures of green jobs that currently exist in key economic sectors, as well as estimates for future green employment.

A comprehensive list of institutional resources and existing research can be found on the ILO Green Jobs and the UNEP Green Economy website:

ILO: http://www.ilo.org/greenjobs
UNEP: http://www.unep.org/greeneconomy

2. Organization or identification of an institutional body dealing with employment that can ensure the participation in Green Jobs discussions

The development of a Green Jobs strategy requires the participation of a broad range of actors notably employment ministries, workers and employers organizations.

It is advisable to build on consultative bodies that have already been created in order to avoid redundancies. For example, many countries have established stakeholder bodies to oversee the implementation of the United Nations Framework Convention on Climate Change, the Kyoto Protocol, the Clean Development Mechanism, National Environmental Action Plans or World Bank Country Environmental Analysis.

However, these bodies often do not include representatives who can address concerns and needs related to Green Jobs creation such as workers and employers organizations. A list of potential partners can be found on the ILO Green Jobs and the UNEP Green Economy website:

ILO: http://www.ilo.org/greenjobs
UNEP: http://www.unep.org/greeneconomy

First, UNCTs should ensure that representatives of labour, business and education, both inside and outside of government, are included in stakeholder planning discussions.

Second, such stakeholder committees should be sensitized to the employment and economic opportunities as well as effects of environmental conservation practices.

As part of the UNDAF process, these committees may be included in an ad-hoc consultative group, instead of being organized as a permanent Thematic Group for the UNDAF process. The experience of social dialogue round tables in Spain is a good example.

Social Dialogue Round Tables in Spain

In 2005, round tables on social dialogue were set up in Spain to guarantee the participation of social partners in the implementation of the Kyoto Protocol. The main objective was to design the national emissions rights assignment plan (PAN) and monitor its effects on competitiveness, employment, and social cohesion. Actors involved in the process evaluated the round tables as very positive and key for information sharing, raising concerns, evaluating of the impacts on competitiveness and jobs, participation of the industry and unions in the climate debate, and detection of alerts regarding possible conflicts.

Source: ILO Green Jobs Policy Brief: Why Green Employment and Green Labour Market Policies?, September, 2010

B. Support Country Analysis

To integrate a Green Jobs approach in the country analysis phase, the UNCT should identify whether a country has previously undertaken a Green Jobs study or partnered in an international assessment such as the ILO/UNEP Green Jobs Initiative, and whether local stakeholders are currently exploring Green development opportunities. This can be built on the entry points from the guidance notes on *Integrating Climate Change Considerations in the Country Analysis and the UNDAF (2010)* and *Mainstreaming Environmental Sustainability in Country Analysis and the UNDAF (2009)*. If no such study exists a Green Jobs assessment should be conducted to identify the employment-environment link and related climate change risks and opportunities for Green growth and/or new Green market opportunities. This can be done based on ILO's proposed Green Jobs methodology or through a multi-method, multi-level, participatory analysis.

Integrated multi-method, multi-level, participatory analysis

Studies on Green Jobs identify the effects, risks and opportunities arising from the environment and climate change and their implications for employment. Such an analysis should be conducted in partnership with the country's government, private sector, and civil society stakeholders. The Dy-SAM analysis in Indonesia offers an example of this type of analytical method.

Dy-SAM in Indonesia

In 2009, as part of a Fiscal Stimulus Package implemented by the Indonesian government, the ILO was contracted to provide technical assistance on increasing government capacity to evaluate the impact and cost-effectiveness of government investments on employment, target groups, and poverty. The result has been the development, in partnership with various Indonesian government and civil society stakeholders, of a Dynamic Social Accounting Matrix based on time series data and input-output analysis. The evaluation system is now being expanded to analyze Green Jobs policies and their effects on employment and climate change reductions.

Source: ILO Regional Office in Jakarta

However, the identification of effects, risks and opportunities depends on the quality of studies a country may have on Green Jobs and the level of awareness of the stakeholders. Among the 16 countries participating in the ILO Global Programme on Green Jobs, there is variation in the length of the partnership, the country's prior engagement with a Green Jobs approach, and the quality of domestic bureaucratic capacity.

When existing analyses are insufficient, a more comprehensive assessment of Green Jobs should be undertaken, bearing in mind the challenges that may exist in developing countries. In comparison to higher income countries, the relevant technologies may be less sophisticated, the economy may be largely informal, and agriculture may constitute a more dominant sector than industry or services.

International best practices can offer some guidance. In 2010, the ILO worked with GHK Consulting to pilot an assessment of Green Jobs in Bangladesh and a practitioners' guide for Green Jobs assessment in a low income context. The work addresses many of the distinct challenges of Green Jobs evaluation in the context of developing countries.

GHK/ILO Practitioners Guide to Assessing Green Jobs in Low-Income Contexts

In 2010, the ILO contracted GHK Consultants to develop a model for evaluating Green Jobs in low income countries. First, recognizing the context-specific nature of labour institutions and production technologies, the model advocates a collaborative approach to defining 'green and decent' employment, including both local experts and local policymakers. Second, in order to more accurately estimate the current structure of direct and indirect environmentally-sustainable economic activity and project the conditions for future growth, the guide encourages a range of methods. This includes stakeholder interviews and consultations, facilitated workshops, expert reviews, and input-output modelling. Finally, due to the prevalence of indecent work and weak regulatory mechanisms, assessors are encouraged to focus on 'core' environmentally sustainable jobs and gaps in decent work conditions.

Source: GHK International, www.ghkint.com

C. Strategic Planning: UNDAF Formulation, Programme, and Project Preparation

In the third stage of the UNDAF development process, the UN system, the government and relevant stakeholders must determine which national development priorities are appropriate for UN action through a strategic prioritization exercise. Together with the country analysis, this forms the basis of the UNDAF results matrix which lists a set of outcomes to support each national development priority.

At this stage, several strategies can be adopted to integrate Green Jobs into the UNDAF:

- Include workers and employer representatives in deliberations over UNDAF Environmental Priorities and Outcomes to set the foundation for "Just Transitions".
- Utilize UNDAF outcomes and programming to strengthen the human, technological, and knowledge resources necessary for Green Jobs promotion.
- Consider sectoral strategies in UNDAF outputs and action plans.

1. Integrate consideration of Green Jobs opportunities and Just Transitions in UNDAF environmental priorities

The UNDAF Guidelines for Mainstreaming Environmental Sustainability suggests that during the prioritization exercise UNCTs emphasize synergies between environmental sustainability and other development priorities (Entry Point 4.3.1). Participants in the exercise should also consider, at this stage, how a shift towards greater environmentally sustainable activities can be driven by green jobs opportunities at the same time as it will impact workers, both in rising and in declining industries. The concept of a 'just transition' involves policies and programmes that enable workers to shift towards environmentally sustainable economic activity, while minimizing job dislocations and gaps in labour skills. Stakeholders who could drive the opportunities or will be affected by the shift to sustainable industries, namely labour and labour ministries, should be present during the prioritization exercise. Furthermore, the UNCT should encourage participants to explore whether future priority industries will require new skills, what existing industries will be constrained by new environmental regulations, and how "decent" the work in emerging Green industries will be. Though oriented towards the British context, *A Green and Fair Future: For a Just Transition to a Low Carbon Economy* is a valuable reference document.

2. Promote the development of Green Jobs in UNDAF results matrix

The green jobs opportunities and transition risks that have been identified in the previous stages can be operationalized in the formulation of the UNDAF outcomes. This can be achieved, for example, by creating an outcome focusing on the development of skills, conducive labour markets and employment policies production technologies and government regulations. These resources are necessary for the creation of Green Jobs which entails the generation of new markets and shifts across industries. The 2011-2015 UNDAF results matrix for China is a useful example, illustrating how policies to enhance adaptive capacity and reduce vulnerability can be presented in an UNDAF.

Section of the China UNDAF Results Matrix (2011-2015)

UNDAF Outcomes 1: Government and other stakeholders ensure environmental sustainability, address climate change, and promote a green, low carbon economy.

Outcome 1.1: Policies and regulations are strengthened to create a green economy

Output 1.1.1: *Enhanced government capacity* to promote a low carbon economy through energy efficiency, renewable energy, and technological innovation.

Output 1.1.3: *Government policies, and public and private enterprises*, contribute to the creation of a green economy and green jobs

Outcome 1.2: Policy and implementation mechanisms to manage natural resources are strengthened, with special attention to poor and vulnerable groups

Output 1.2.2: *Government capacity to conserve biodiversity and ecosystems is enhanced, and communities are empowered* to increasingly benefit from the development of eco-based livelihood resources.

Transitions are often difficult because of the technological changes necessary for the development of green sectors and because of new global or national regulations. Workers must understand how to use new technologies and how to operate within new regulatory systems. Changing demands will create new jobs.

In the case of Indonesia, the implementation of a national regulation on Environmental Impact Assessment (AMDAL) led to the need for consultants. Alternatively, the recycling industry in Indonesia offers profit opportunities and requires knowledge of industrial waste management, but is not regulated. In both cases, new employee skills are necessary. The Indonesian government has taken a number of innovative steps to increase the adaptive capacity of the national workforce, both through training programmes and through new labour competency standards.

Green Skills Government Policies in Indonesia

Climate Field School for Farmers: In 2002, the Indonesian Ministry of Agriculture initiated the Climate Field School for Farmers programme at the district level to increase farmers' capacity to use climate forecasting information in their work. The schools, now implemented in over 100 districts across Indonesia, increases the farmers' knowledge of climate change, technical capacity to interpret climate and weather data, and use this information in decision-making. Beyond the educational programme, the ministry also monitors the application of new information and surveys farmers to be able to refine the curriculum according to farmer needs.

Indonesian Standard and Registration for Environmental Competency: In 2009, the Indonesian Ministry of Labour initiated a system of competency standards showing the minimum competency required for certain professions in the environmental services sector, including GHG emission validators, motorized vehicle emissions accountants, and environmental auditors. These competency requirements have been codified in various industry-specific decisions by the Ministry of Environment.

Source: ILO (2010) Skills for Green Jobs in Indonesia

3. Consider sector strategies in UNDAF outputs

UNCTs have the flexibility to only specify outcomes in the UNDAF results matrix or to expand these to outputs. If the latter course of action is selected, outputs could be organized around a sector (e.g.: energy, forestry, agriculture, transportation, etc.). This is particularly effective with an UNDAF that focuses on economic development and would lead to the creation of a coherent and multi-faceted output.

In the UNDAF for china, Output 1.1.1 illustrates how a sector-based output can be organized around environmental sustainability, in this case focusing on the energy sector.

Outcome 1.1. Policies and regulations are strengthened to create a green economy.	1. Enhanced Government capacity to promote a low carbon economy through energy efficiency, and technological innovation.	1.1.1 **UNDP** will work with the National Development and Reform Commission (NDRC) to develop End User Energy Efficient Programme (Phase II), and work with the National Energy Administration (NEA) to develop a biomass pellet system and work with the Ministry of Science and Technology (MOST) to promote innovation, deployment and diffusion of energy efficiency and renewable energy technologies. **UNIDO** will provide targeted advice to relevant Government bodies on the strengthening of sustainable development policy and regulations. **UNESCO** will work with Chinese Man and Biosphere (MAB) National Committee, Chinese Academy of Sciences (CAS) and Nature Reserve Management Committee in implementing renewable energy schemes with a focus on biosphere reserves. **UNCTAD** will provide policy advice to relevant Government bodies on the trade implications of the emerging post-2012 climate change regime. **UNWTO** will seek to work with national counterparts to promote investments in energy-efficient tourism and the use of renewable energy resources.

A Sector-based Green Jobs strategy is most likely to attract the interest of domestic stakeholders when it is built on existing development priorities and key environmental challenges. Often, key industries and key environmental challenges overlap in the process of development of a country. These are ideal entry points for UNDAF outputs. Furthermore, such sector-based strategies should consider opportunities across the full value chain, from basic commodity production to consumption. Such an inclusive strategy will also help to attract a wider set of stakeholders. Educational institutions, labour unions, and corporations are examples of key stakeholders to ensure that the necessary workforce skills are present in order to expand Green sectors.

The Estonian National Energy Technology Programme provides an illustration of how a range of domestic stakeholders and programmes can be organized around a sector-based Green Jobs programme.

Oil Shale Production and the Estonian National Energy Technology Programme

In 2007, the National Energy Technology Programme highlighted sustainable development of the oil shale end to end value chain as a key objective. The key development areas in the total oil shale process are mining, chemical processing, combined power and heat production and waste remediation. A range of domestic actors are taking part in efforts to strengthen the industry. First, numerous educational stakeholders have created or expanded Bachelor's, Master's, and Doctoral level studies in dangerous waste management, oil shale mining, and processing and waste remediation. The programmes have been developed in collaboration with private corporations. Though in their early stages, these coordinated efforts to reform this dominant industry have been showing signs of success. Other countries are requesting consultation from Estonian companies and graduates of the new university programmes are being hired into Estonian firms.

Source: ILO Skills for Green Jobs Country Report: Estonia

D. Monitoring and Evaluation

Monitoring and Evaluation (M&E) constitute a key component of the UNDAF process. Stakeholders should be involved in this phase as they will remain in the community after the completion of projects. This is particularly important in the case of Green jobs. Despite the importance of foreign and expert-based resources for the integration of renewable energy technologies and new production strategies, these projects must be sustained by the local community especially since the effects of the implementation of the various components of a Green Jobs policy - from skills development to technology adoption - emerge in the long-term. To anticipate short-term losses, effective M&E around Green Jobs policies should therefore be promoted.

Prioritize local accountability to maintain responsiveness to local interests and local commitment

The appropriate organizational structure for the governance of a policy on Green Jobs will vary by sector and by country. In some contexts, particularly in agricultural communities, the cooperative governance structure has proven to be an effective means to maintain business autonomy and leverage cooperation. In other contexts, local development councils have been more effective. An essential addition to these governance mechanisms is the use of evaluation tools. The international community has already developed a wide range of tools to this end. The UNDP Vulnerability Reduction Assessment framework is a useful example.

UNDP Vulnerability Reduction Assessment

The Vulnerability Reduction Assessment (VRA) approach is UNDP's monitoring and evaluation framework for climate change adaptation projects at the community, subnational, and national levels. It has been implemented in a growing number of local initiatives, with funding from the Global Environment Facility. It is designed to measure the changing climate vulnerabilities of communities, and to be comparable across vastly different projects, regions, and contexts, making it possible to determine if a given project is successful or unsuccessful in reducing climate change risks. The VRA can be compared to a guided participatory rural appraisal (PRA), focusing on community perceptions of vulnerability to climate change and capacity to adapt Repeated evaluations of community perceptions of project effectiveness and climate change risks permit an indication of the relative change in vulnerability. This is assessed through the degree of change in the VRA scores relative to baseline values established prior to the commencement of project activities.

Sectoral Strategies

Sustainable development entails growth and a welfare strategy that preserves a country's resources for future generations. A strategy must therefore respond to and focus on the territorial and historical specificities of the place. As suggested in the previous section, sectoral strategies may serve as an effective means to integrate Green Jobs strategies into the UNDAFs. This section outlines a menu of sectoral strategies that may serve as useful starting points.

Each sector is briefly introduced and described, followed by some ideas and suggestions to support programmes and strategies. A recent example of field implementation is provided as well as the contact details to officers who can provide first-hand knowledge. Finally, links to organizations and agencies with expertise in these areas is provided.

The sectors covered in this section are:

- Energy
- Agriculture
- Water
- Fisheries
- Forestry
- Waste Management
- Tourism
- Construction and Buildings

Energy

Key renewable energy sources (i.e. wind, solar, hydropower, biofuels and geothermal) represent one of the largest opportunities for green jobs creation and the development of a green economy. However, it is also essential to address policies related to conventional energy sources such as fossil fuel consumption, and just transitions away from these industries.

Green Jobs opportunities exist around both energy production and energy consumption. The distinct occupational profiles of workers in non-renewable and renewable industries will require active labour-market policies to re-train mid-career professionals. Most coal and gas-fired power plants entail jobs in fuel processing and operations, while renewable industries such as the solar industry require workers trained to engage in components manufacturing and construction.

To enable the growth of renewables skills and employment policies targeting workers, enterprises and the labour market are essential.

Just transition programmes can be disruptive to entrenched interests. They also require a range of financial, technical, and human capital inputs. A broad-based coalition of stakeholders can be created to reduce risks. For example, in the United States, a public-private coalition called the Apollo Alliance has been created to this end.

The Apollo Alliance

The Apollo Alliance is a national network of public-private partnerships between labour, government, and business, to promote the transition to a Green Economy in American cities. Each city's programme is led by local organizations and the Los Angeles Apollo Alliance, led by the organization SCOPE, provides a vivid example of the effectiveness of this strategy.

Since 2006, the Los Angeles Apollo Alliance has been one of the national leaders in the US in urban energy retrofits. The Apollo Alliance uses a participatory framework to engage with city government, private business, and civil society. The programme has been instrumental in encouraging the city to invest in water and energy retrofits while establishing a training programme to connect low-income residents to job opportunities created by the investment. Other programmes develop financing mechanisms for the retrofit work and the training programmes. Most recently, the initiative is branching out into the renewable energy supply chain, seeking to revitalize the local manufacturing base through the production of clean energy products.

Contact: Strategic Concepts in Organizing and Policy Education (SCOPE), www.scopela.org

Countries tend to focus on renewable energy sources on the basis of their natural endowments but also on the basis of early-stage technological investments. Brazil has for example become a leader in ethanol production due to a long history of sugarcane production, in addition to the development of world-class processing technology and ambitious government regulation. Alternatively, Germany has become a leader

in the production and export of wind and solar energy technology, largely due to the proliferation of small and medium-sized German companies specializing in renewable energy technology. While Europe and the United States currently dominate production and consumption of renewable energy, this is rapidly changing. Between 2005 and 2008, investment in renewable energy increased 2,033 percent in China and, today, nearly one million Chinese citizens are employed in wind, solar, and biomass technologies.

By seeking to capture both upstream and downstream employment opportunities, a value chain perspective offers a useful frame with which to approach a Green Jobs strategy based on renewable energy. The experience of the city of Dezhou, China, offers an example.

Solar Water Heater Value Chain in Dezhou, China

In 2009, the ILO collaborated with the Chinese Government to conduct an evaluation of the solar water heater industry in Dehzou, where approximately 40 registered manufacturers and nearly 10,000 people are employed. The purpose of the study was to evaluate the full value chain surrounding the industry, in order to identify intervention points for supporting the development of the industry and creating Green Job opportunities. The research found that, in fact, the industry has an even more important role in the economic life of the city than previously thought. When considering the range of employment opportunities, from local raw material extraction, to processing, to sales, installation, and maintenance, the value chain provides nearly 2.5 million jobs. The research focused on capturing the full range of employment, in production and sales, and in both the formal and informal sectors. The research provides a framework for a set of programming recommendations, including improved workforce training programmes and entrepreneurial support for SMEs.

Source: ILO China Country Office, Beijing, http://www.ilo.org/public/english/region/asro/beijing/contacts.htm

These examples should not suggest that advances in renewable energy can only be achieved through heavy capital and human investments in globally competitive industries. In the Kenyan capital of Nairobi, a non-governmental organization run by youth has received international attention due to a programme in which they produce low-scale photovoltaic panels that can charge cell phones and power transistor radios for residents of the city's largest slums. The Kibera Community Youth Programme trains youth to become autonomous entrepreneurs using basic low-cost technologies and at the same time addresses a key concern of these impoverished communities.

A wide range of Green Jobs opportunities exist around the energy-efficiency sector. Opportunities are embedded in industries including vehicle manufacturing, construction, lighting, heating and cooling equipment, electronics, and appliances. Direct jobs can be created in building and construction, energy efficiency assessment, and manufacturing of energy efficient products. Indirect jobs can result from the increased profitability that arise when firms reduce their expenses and are able to invest in new areas of production.

These opportunities are not limited to technology-intensive industries. For example, recent reforms in brick kiln construction in Bangladesh have had significant efficiency effects on wood consumption. Simple technological shifts have enabled a 50 percent reduction in fuel consumption in an industry that employs nearly one million people. Multi-stakeholder programmes, such as the Estonian oil shale extraction initiative (see section II), can link with educational institutions to develop training programmes to help workers prepare for new green production areas.

Additional Information on Energy:

- United Nations Environment Programme, Division of Technology, Industry, and Economics; Energy Branch. http://www.uneptie.org/energy/
- Renewable Energy Policy Network for the 21st Century. http://www.ren21.net/

Agriculture

Agriculture and food production is an essential part of a Green Jobs strategy. It is directly linked to land-use practices and resource depletion and it employs a large number of people, particularly the poor. The key challenge in the sector is to balance the issues of poverty and sustainability.

Modern agriculture can be enormously detrimental to natural environments due to heavy chemical use and the manipulation of natural environments. In addition, consumption patterns in advanced industrialized countries are based on the unsustainable combination of high variety, low cost, and easy access. Yet the same technology that allows these consumption patterns could also help feed the impoverished of the world.

An alternative sector strategy in agriculture is to promote organic agriculture. Sustainable agriculture through organic production offers social, economic, and environmental benefits. While the costs of pesticides and harvesting technologies necessary for industrial agriculture often force small-scale farmers out of the market, organic agriculture is more labour and less capital intensive. In small rural communities, the introduction (preservation of, or return to) modern organic agriculture improves productivity to levels equal to conventional agriculture and may help to preserve communities, protect the local ecosystem, and slow urbanization. Economically, organic agriculture addresses a growing demand in advanced industrialized countries and helps preserve the local natural resources that are central to a community's welfare. Through strengthened certification standards, workforce education and marketing efforts, countries can make organic agriculture a focus of the economy.

The case of organic agriculture in Uganda offers a useful example of the types of policies that a government can undertake to promote an integrated Green Jobs strategy.

Organic Agriculture in Uganda

While Uganda's economy is predominately agricultural, the country uses the world's lowest level of artificial fertilizers and has harnessed this as an opportunity to focus on organic farming. From 2002 to 2007, Uganda increased its number of certified organic farmers by 359% and its percentage of certified acreage by 60%. Exports of organic agriculture have risen from $3.7 million in 2003 to $22.8 million in 2007. On the policy side, in 2004 the Uganda Organic Standard was adopted. In 2009, the government released the Draft Uganda Organic Agriculture Policy, which focuses on nine policy areas: the promotion of organic agriculture as a complementary agricultural production system; the development of a system of standards, certification and accreditation; the promotion of research, to enable technology development and dissemination; support to the development of local, regional and international markets for organic products; the generation of information, knowledge and skills through education and training; the improvement of post-harvest handling practices, preservation, storage and value addition; the sustainable use of natural resources; and the participation of the special interest groups such as women, youth, and the poor and vulnerable.

Source: UNEP, 2009, Global Green New Deal: Policy Brief.
http://www.unep.org/pdf/A_Global_Green_New_Deal_Policy_Brief.pdf

To implement such a policy, strong buy-in from varied stakeholder groups is essential. Producers and manufacturers may be hesitant to shift into lower-volume product areas, for example. In the case of agriculture, it is particularly important to include both small-scale and large-scale farmers. A participatory process, organized around clusters, may serve as an effective strategy. The following example, from India's dairy industry, details how such a deliberation process may be organized.

ILO Jabalpur Dairy Cluster Development Project

The Jabalpur Green Cluster Development Project is part of a demonstration activity seeking to explore the potential for an ILO product which combines a cluster structure, value chain development and low-carbon jobs. In 2009, the assessment of three high potential Indian clusters, including the Jabalpur dairy cluster, resulted in the identification of high priority interventions that support the Green Jobs and Decent Work Agenda. The participatory value chain development exercise was introduced so as to make both the pilot interventions and the assessment methodology legitimately reflective of the successful experience of the ILO's participatory Value Chain Development (VCD) approach in Sri Lanka. The goals of the exercise were to integrate the identified interventions in broader value chain development logic and to ensure stronger ownership and support to the interventions by local stakeholders, ultimately providing feedback towards an enhanced assessment methodology that would address effectively these concerns. The exercise advanced in two stages. First, a preliminary phase of data collection and analysis established a baseline regarding the needs of cluster stakeholders. In a second phase, a participatory stakeholder forum was established and a set of proposals for upgrading the cluster were developed. The stakeholder forum consists of representatives from the public sector and civil society. But, most importantly, it includes representatives from the various industries that constitute the value chain, including farmers, dairy processors, veterinarians, and various input suppliers. The ultimate test of the programme's efficacy, not yet concluded, is the degree to which the stakeholder forum realizes the goals and policies that it proposes.

Source: ILO Country Office, New Delhi

Beyond stakeholder engagement, another frequent obstacle to Green Jobs development in agriculture is a lack of clear incentives to producers. However, evidence gathered from experiences in Green agriculture in Bangladesh has shown that reduced use of pesticides and chemicals can significantly increase productivity. National governments can incentivize reductions in polluting by offering payment for ecosystem services (PES). PES is a useful strategy that incentivizes responsible use by compensating farmers for their contributions to improved natural resources, like clean water and air. Often, the reliance of urban populations on the conservation work done by proximate rural land owners goes unrecognized. Yet, air quality and drinking water in urban areas can be drastically altered by changes in the land-use practices of upstream or uphill communities. With rising urban rural inequality, market incentives can be used to encourage responsible use. The challenge, however, is the measurement of conservation costs.

The study on the Economics of Ecosystems and Biodiversity (TEEB) highlights the enormous economic benefits from nature. These can be improved through public works programs and employment intensive investment programs in natural infrastructure:

http://www.teebweb.org/

FAO EX-Ante Carbon-balance Tool

Agriculture can play an important role in climate change mitigation while contributing to increased food security and reductions in rural poverty. The EX-Ante Carbon-balance Tool (EX-ACT) can estimate the mitigation potential of rural development projects generated from changes in farming systems and land use. The study presents and discusses the EX-ACT analysis performed on two World Bank-supported projects in Brazil (Santa Catarina Rural Competitiveness and Rio de Janeiro Sustainable Rural Development). The projected estimates of the impact of project activities on green house gas emissions and Carbon sequestration demonstrate the additional environmental benefits achieved through protecting forested areas (riparian zones, ecological corridors), enhancing production systems (promotion of improved cropland and grasslands management) and expanding agro-forestry and perennial systems. The study demonstrated possible synergies between mitigation and rural development goals while the EX-ACT sensitivity analysis has indicated that projected results will be intermediate between "pessimistic" and "optimistic" scenarios. Cost-benefit analysis showed that both projects would generate environmental benefits associated with climate change mitigation. However, the Santa Catarina Rural Competitiveness project demonstrated higher mitigation potential, a result primarily due to the size of the project area and the nature of the development activities, thus providing a better opportunity to be eventually considered for public co-financing for low-Carbon agriculture.

Source: FAO Payment for Environmental Services from Agricultural Landscapes
http://www.fao.org/es/esa/pesal/PESmaterials0.html

A third useful organizational strategy for the promotion of sustainable agriculture and job creation is the cooperative business model. Small farmers continue to play an important role in the rural communities of many countries, but their size prevents them from investments in technology and protections from market fluctuations. Producer cooperatives organize farmers, or other stakeholders, so that they can pool their resources and achieve greater stability. To promote cooperatives, national governments can pass legislation to integrate cooperatives into educational curricula, they can pass tax subsidies for cooperatives, and they can lower the required number of members for legal incorporation.

Oromia Coffee Growers Cooperative, Ethiopia

In 1993, with the support of the ILO, the Oromia Coffee Farmers Co-operative Union was established to assist small farmers to increase profits and improve livelihoods. The most significant service provided by the cooperative, with respect to profitability, is the negotiation of fair trade agreements with coffee dealers in Europe and the United States. The cooperative has even set up coffee shops in some European countries in order to further capitalize along the value chain. The cooperative movement serves as an organizing principle in the state of Oromia, with the largest concentration of cooperatives in all of Ethiopia. Cooperatives provide technology to producers, lending capital, and public services.

Source: ILO Co-operatives Group, www.ilo.org/coop

Additional Information on Agriculture:

- Food and Agriculture Organization, Agricultural Development Economics Division, www.fao.org/esa
- International Fund for Agriculture Development, Sustainable Livelihoods Approach, http://www.ifad.org/sla/index.htm
- UNCTAD (2007) *What Developing Countries Can do to Improve Organic Agriculture,* http://www.unep.ch/etb/publications/UNCTAD_DITC_TED_2007_3.pdf

Water

Improvements of water infrastructure and re-conception of water resource management strategies can have significant employment and health benefits.

Water resources are key for both public health and for sustaining livelihoods for millions. Lack of sufficient water infrastructure is putting intense pressure on existing facilities, particularly in the context of rapidly increasing urban populations. As 1.8 billion people are expected to suffer from fresh water scarcity by 2025, the demand is urgent.

Cities require new water treatment and wastewater treatment facilities. This can be accomplished alongside reductions in water use levels through the use of efficient irrigation systems and low water volume machines. Toward these ends, governments can shift over to water saving technologies in public utilities, including rain water collection and low-use appliances. Governments can also improve regulations on communication about the prices that consumers pay for water. Often, water resources are underfinanced, such that state investment in water utilities can generate significant returns. Integrated water resource management, defined as the coordinated development and management of water, land and related resources in order to maximize economic and social welfare without compromising the sustainability of ecosystems and the environment, should be at the centre of a water sector Green Jobs policy. A host of resources on this topic can be found at the Global Water Partnership:

http://www.gwp.org

Much of the employment resulting from an integrated water resources management strategy will be in the non-profit, agriculture and public sectors. One of the key underserved populations, however, is the urban poor. One of the key challenges is gaining access to and adapting advanced energy-efficient technologies to poor urban contexts, where service provision is historically weak.

Water Sanitation for the Urban Poor, Maputo

WSUP is a not-for-profit partnership between development NGOs and the private sector, which focuses on bringing together private sector expertise in order to improve service provision capacity in the urban areas of developing countries. WSUP works with and is guided by local service providers, providing specialized assistance, funding, technical expertise, and lobbying efforts with national ministries. Central to the WSUP approach is to connect global experts in water sanitation with local NGOs and CBOs.

The Tchemulane project in Mozambique has helped to provide water services for 162,000 people in 8 bairros of the capital city of Maputo. Because these slum districts are not linked to the central water network, they are excluded from sanitation services and fresh drinking water. Catering to local needs, this project has focused on provision of basic services, training local suppliers in latrine construction, supporting local private sector in developing latrine emptying services, and sludge treatment.

Source: Water and Sanitation for the Urban Poor

Additional Information on Water:

- UNEP *In the Transition to a Green Economy, Water Brief*
- UN Water, http://www.unwater.org
- FAO Fisheries and Agriculture Department, http://www.fao.org/fishery/en

Fisheries

More responsible natural resource management in fisheries can serve to increase the benefits and sustain the availability of these resources.

A recent report by UNEP suggests that investing around US$8 billion in rebuilding and greening the world's fisheries could raise catches substantially while triggering benefits of approximately $1.7 trillion over the next 40 years. Fisheries directly and indirectly support nearly 170 million jobs worldwide. Yet, mismanagement, lack of regulatory enforcement, and excessive subsidies have led to the 'collapse' of nearly 30% of fishing stocks. Some estimates suggest that all commercial fisheries will have collapsed due to over fishing by 2050, unless significant investments are made. A key area for reform is in improved regulation of the fishing industry, like yield limitations and surplus capacity, and in reductions in the nearly $27 billion in subsidies that currently prop up the global industry. Shifts to artisanal small-scale fishing and diversification of fish stocks are important policies to reduce depletion rates. In sum, much of the necessary work must be done by the public sector, improving regulation and ensuring more responsible practices. The ILO Work in Fishing Convention (No. 188) and Recommendation (No. 199), passed in 2007, provides a guiding frame for both sustainable practices and strong labour protections for employees in the fishing industry.

Additional Information on Fisheries:

- FAO Fisheries and Agriculture Department, http://www.fao.org/fishery/en

Forestry

Sustainable forestry involves the management of forest resources and forest-based economy to promote enhanced welfare and protect the diversity and sustainability of forests and forest communities.

Forest-sector employment includes all work required to plant, harvest, sustainably manage, renew, and protect forest as well as process both wood and non-timber forest products. Increased sustainability of forest-related employment is an essential component of the global Green Jobs agenda, as forests serve as the world's largest defence against greenhouse gas emissions. Deforestation and forest degradation have a greater effect on green house gas emissions than either agriculture or transportation. Logging generates short-term benefits while compromising the long-term sustainability of poor rural communities. Slowing rates of deforestation is essential to combating climate change.

Sustainable forest management (SFM) emerged in the 1990's as a method for national governments to combat deforestation. The key elements of SFM are protection of biological diversity, conservation and health of forests, soil and water resources, mitigation, socio-economic benefits, and the productive capacity of forests. SFM involves the use of regulation schemes to ensure that forestry practices advance both economic and social goals. SFM should also emphasize the development of non-timber forest products, which include wild fruits, meat, rubber, fibres, seeds, and flowers. The total number of people dependent on forests for employment and livelihoods is estimated between 119 million and 1.42 billion.

Finding ways to reduce deforestation and even increase forest cover is a key climate change mitigation strategy but, as in the case of other Green Jobs sectors, some stakeholders may perceive a tension between environmental sustainability and poverty reduction. The poor are the most reliant on natural resources. One of the most prominent and ambitious efforts to overcome this concern is through the UN collaborative Reducing Emissions from Deforestation and Degradation Programme, which seeks to create incentives for developing countries to preserve forests, by creating a global market for forest protection and sustainable management. While this programme has enormous potential to reduce GHG emissions and sustain livelihoods, it is undermined when the resources do not reach or do not support the most vulnerable impoverished rural populations.

Some of the more successful sustainable forestry policies have emphasized the community's role in forest management. The key advantages of community forestry include employment from forest protection, tree felling and log extraction, and for engagement in non-timber forest industries. National governments can assist in the development of community-based forestry. Through the gathering of sustained wood fuel sources, sustainable forestry can contribute to both energy security and climate protection. The government of Nepal has been particularly effective in promoting community forestry through the establishment of community forest user groups.

Community Forestry in Nepal

Forests account for approximately 40% of the land area of Nepal and, with community forestry policies, this percentage has increased in the 2000s. Starting in 1980, the Nepalese government began to transfer oversight of forest management from state bureaucracy to "Community Forest User Groups". Currently, approximately 14,000 CFUGs exist. The legislation that established and provides the legal basis for the CFUGs recognizes them as "self-governing autonomous corporate bodies for managing and using community forests". Besides community forests, some forest areas are classified as leaseholds forests and are leased to private individuals, cooperatives, institutions and commercial enterprises. As of 1998, the National Planning Commission (NPC) of Nepal declared leasehold forestry as a priority programme for poverty alleviation. These allow for the leasing of land with degraded forest to poor communities on 40-year leases, automatically renewable upon satisfactory adherence to the agreed operational plan, with exclusive rights to the produce of the land. A total of 25 districts have been identified for implementing leasehold forestry programme for poverty alleviation, 10 districts were already under this project by 1999 with an initiative of the International Fund for Agriculture Development with the Ministry of Forestry and Soil Conservation, Department of Forests.

Source: Nepal Ministry of Forests and Soil Conservation, Asia Forestry Outlook Study 2010: Country Report NEPAL, http://www.unep.org/greeneconomy/SuccessStories/ForestmanagementinNepal/tabid/4713/language/en-US/Default.aspx

Consultations with indigenous and impoverished rural populations must accompany forest preservation policies, in order to develop tractable livelihood programmes for these groups, when forest use practices must adapt. While expert knowledge of sustainable management practices is essential to forest-related mitigation efforts, local knowledge of native forest species can be highly valuable. The Forest Peoples Programme has developed a training programme that assists indigenous groups in negotiating with national governments on REDD programmes. Overlapping key challenges, highlighted in the FPP report, are that indigenous peoples often lack the technical knowledge to respond to the reductions and proposals listed in the REDD contracts. Second, the consultation phase prior to REDD implementation is short, as donor incentives are aligned with national election cycles and timing unrelated to domestic concerns. Thus, the tendency is to rush through consultation processes.

Forest Peoples Programme

The Forest Peoples Programme (FPP) is a non-governmental human rights organization founded in 1990 to support forest peoples to secure and sustainably manage their forests, lands and livelihoods. FPP has long-term field programmes in Venezuela, Central Africa, and South and South-East Asia. They carry out national and international advocacy programmes, conduct bottom-up community organizing, participatory mapping of land-use, and development of training and knowledge-dissemination tools for local stakeholders.

Source: Forest Peoples Programme; www.forestpeoples.org

Beyond consultation in reduction efforts, forest-related industries themselves must be made more sustainable and the first step is evaluation. Organizations like the Forest Stewardship Council and the Programme for the Endorsement of Forest Certification (PEFC) provide forest certification for private firms and governments to increase sustainable forest management and ensure adherence to global best practices in forest harvesting. These programmes have also been extended to cover forest-based products, like paper and furniture products. Yet, historically, they have said nothing to capture the quality of labour standards in these industries. Recently, a proposal was advanced by PEFC, that would require PEFC-certified organizations to demonstrate that they had met a range of social protection standards. As recent work by the ILO has shown, there is enormous variation. As most employment in forestry is informal and seasonal, evaluation of the labour standards in these industries requires micro-level evaluations.

Green Jobs and Labour Conditions in Indonesian Forestry Sector

The ILO Regional Office in Jakarta recently conducted a qualitative evaluation of the environmental character and conditions of labour in the forestry sector of Indonesia. The purpose was to evaluate to what extent worker conditions meet ILO Decent Work standards and to make recommendations about aligning Green Jobs in the forestry sector with decent work standards. The report found that, while the shift toward small-scale plantation forestry is less extractive than logging of natural forests, environmentally sustainable jobs do not translate to social sustainability. Most labour is informal, with minimal safety standards and low pay. The report concluded that, in order for environmental and social sustainability to be combined, the environmental value of sustainable forestry should be leveraged such that labour standards can be improved. This may involve technological improvements to enter higher-value sectors or it may involve entry into international carbon-trading markets.

Source: ILO Regional Office in Jakarta

Additional Information on Forestry:

- UN-REDD: http://www.un-redd.org/
- Rainforest Alliance, Sustainable Forestry Division: http://www.rainforestalliance.org/forestry.cfm?id=main

Waste Management

Waste management and recycling industries present a myriad of opportunities for Green Jobs in areas including community trash collection, conversion of waste for energy production and large recycling work such as ship recycling. Waste-related industries make for a wide variety of jobs that require a range of skills.

Programmes can provide services that are exclusively local or they can link into global value chains, as is the case with the ship breaking industry.

National policies must reveal the "real costs" of poor waste management through the introduction of economic incentives to reduce littering and emissions stemming from production, collection, transportation, and disposal of waste. In the recent study *Selection, Design and Implementation of Economic Instruments in the Solid Waste Management Sector in Kenya*, Kazuka Suzuki propose a combination of banning, a national code of practice, a plastic bag levy, and consumer awareness and anti-littering campaigns as means to promote a vibrant waste management sector.

One priority of a Green Jobs Programme in waste management must be to develop these industries by improving the best practice knowledge base, improving training for waste collectors and capacity building for enterprises and integrating labour standards into

potentially dangerous areas of work. National governments may contribute through the organization of national conferences to discuss best practices. However, as community waste management and recycling is inherently a local product, and is generally administered by local government, there is a natural synergy with a local economic development approach. Moreover, community sensitization is essential to maximizing opportunities for Green Job creation. The effective blending of local and expert knowledge is illustrated in the case of the JICA Waste Management Programme.

JICA Waste Management

Japan's International Cooperation Agency has developed a green waste management development package, in which a key element of translating expert knowledge is a sensitization process. The programme has been implemented in 17 Asian countries, using expertise developed domestically in Japanese public service provision. When implemented in a country, the programme conducts educational outreach in schools, runs a television show and even organizes entrepreneurship contests in order to increase buy-in from various elements of the community. Thus, marketing helps to prepare the ground for an inclusive participation-intensive process. Due to strong participation at the collection and sorting stage and strong community awareness, downstream businesses in transportation, storage, disposal, and recycling have emerged.

Source: Japan International Cooperation Agency, http://www.jica.go.jp/english/contact/

Because much of waste management serves a local clientele, the process is effective when conducted in a participatory way, from conception to implementation. In the implementation stage, local stakeholders are responsible for realizing the programmes. They can be identified through a spatially-grounded participatory approach. In order to capture as much positive economic spill over as possible, such an approach seeks to leverage the existing resource base. Often, sets of stakeholders can be combined in novel ways to overcome implementation problems. This was the case with the Dar Es Salaam Trash Collection Project.

ILO Dar Es Salaam Waste Management Project

Facing a public health and environmental emergency due to a completely dysfunctional public trash collection system, the City Commission decided to outsource waste management to private firms. There was initial success and job creation, but the programme quickly stagnated due to a poor customer service orientation on the part of firms and lack of awareness on how to use the services on the part of clients. Additionally, private firms had difficulties using the unplanned and rundown road systems of slum neighbourhoods. Thus, the city decided to apply an LED approach, creating community-based stakeholder task forces and opening bidding for waste collection contracts to community-based organizations (CBO). The community task forces effectively sensitized residents to using the services and the CBOs were more willing and able to operate within the communities. In some neighbourhoods, women's organizations that had not previously provided this service filled the void, purely due to their connection to the community.

Source: ILO Tanzania Country Office

Thirdly, the lower-technology manifestations of recycling and waste management lend themselves to low-skill entrepreneurship opportunities. However, in waste management, the risk is that low-skill will translate into hazardous work conditions. The ILO has initiated a recycling entrepreneurship programme that blends training and labour protection guidance. In such programmes, the government may play a productive role by enhancing monitoring capacity to facilitate transition and encourage compliance.

Start Your Waste Recycling Business - Training Package

In 2007, the ILO developed a training manual on business development in waste recycling, for audiences in Zambia, Tanzania, and Zimbabwe. The focus is on waste recycling as a business idea for community based organizations. The adapted training package Start Your Waste Recycling Business comprises four key documents (i) Technical Handouts, (ii) Business Manual, (iii) Business Plan, and (iv) Trainers Guide. The programme is particularly innovative because it is not limited to waste collection but encourage innovative reuse strategies, like handicrafts construction.

Source: ILO, Employment-Intensive Investment Programme

Tourism

Tourism-related industries are highly dependent on natural capital. They are both highly affected by climate change and have a significant impact on climate change.

A rough estimate is that 900 million tourists visit foreign destinations each year. Many travel to developing countries for their nature including beaches, coral reefs, natural parks and forests. Hotels, restaurants and the various forms of transportation that get visitors to their destinations are significant sources of waste and energy consumption.

At the same time, tourism-based industries are highly affected by variations in seasonal temperatures and climate, as well as severe weather events and cost fluctuations.

Tourism-based Green Jobs can be defined as all service industry employment that contributes to the hosting and entertainment of non-local visitors. It is useful to think of tourism-based Green Jobs programmes as contributing to development and productive use of natural capital and its conservation as well as addressing both adaptation and mitigation priorities.

Nature tourism is growing by 20% worldwide while classical tourism is growing around 10%. Tapping this high demand by enhancing natural capital is a promising development strategy for poor countries rich in natural beauty.

With respect to mitigation, a key niche has developed around sustainable tourism. Increasing numbers of tourists seek out sustainable tourism experiences. International organizations, like the Rainforest Alliance, have developed certification and training programmes to assist communities in developing the capacity to provide sustainable tourism experiences. The Rainforest Alliance also provides an important source of marketing for certified tourism businesses (see: http://www.rainforest-alliance.org/tourism). The risk, however, in these programmes is that they ultimately satiate a market of limited size. Despite the fact that approximately 900 million tourists travel each year, product differentiation is key to success. The ILO's REDTURS project provides a unique solution to this problem by linking destinations to travel planners, so as to foster targeted demand.

ILO REDTURS Project

The REDTURS project, which has been operating since 2001, provides business development services, promotion, network building support, and governmental relations support to primarily indigenous communities in 13 Latin American countries, with regard to community-based tourism development. The project links sensitized tourists (they and the tour organizers and educated about sustainability prior to arriving) with trained local communities and structures the experience around a strict code of sustainable conduct. Training materials have been developed for stages from sensitization and territorial analysis to business development and clusters. Training sessions have also been organized at the regional level. The project encourages communities to structure sustainable products and services into their business models (agro tourism, low carbon impact sports, handicraft making, restricting visitor numbers, exclusive use of biodegradable products). Currently, a proposal is being developed to promote eco-businesses in rural and indigenous communities in South America, with a focus in several particular sectors.

Source: ILO Small Enterprise Development Programme, http://www.ilo.org/empent/WorkingUnits/lang--en/WCMS_DOC_ENT_DPT_SEE_EN/index.htm

Communities that have traditionally relied on tourism are increasingly recognizing that they cannot be completely dependent on this industry for their livelihood. The solution is not necessarily a shift away from tourism, but instead to diversify from exclusive reliance on tourism. Because tourism relies on a range of service providers, it is conducive to an inclusive participatory governance approach. The ILO-funded JOY Project in Indonesia has applied an integrated approach to deal with the increasing vulnerabilities of tourism, without abandoning the sector in total.

Thirdly, a key component of a sustainable tourism agenda is the protection of natural and cultural resources. National governments can play an important role in promoting sustainable tourism by strengthening the regulatory capacity of environmental monitors and by enhancing legislative and administrative protections over state-owned natural spaces.

The JOY Project

The Job Opportunities for Young Men and Women Project (JOY) seeks to create earning opportunities for young men and women in Indonesia through complementary national and local policies that lead to more employment intensive growth. Through a localized integrated approach, combining multiple sets of stakeholders, the programme has utilized multiple Green Jobs policy strategies to promote sustainable tourism. Focusing its efforts in one multi-district area, the ILO and various local stakeholders have developed a waste management programme to improve the regulation of domestic and industrial waste, thereby improving the region's image. Local legislation has been drafted to reinforce the use of this public service scheme. The heart of the programme has been a tourism skills and entrepreneurship training programmes to help develop SMEs in agro and eco tourism. Policy coherence has been achieved through a multi-stakeholder approach and government-led spatial planning. Furthermore, varied activities in water management, wildlife conservation, renewable energy consumption, and monitoring and evaluation have been combined to promote green tourism.

Source: ILO South Asia Regional Office

Additional Information on Tourism:

- Rainforest Alliance, Sustainable Tourism Section: http://www.rainforest-alliance.org/tourism.cfm?id=main
- UN World Tourism Organization (UNWTO): www.unwto.org

Construction and Buildings

Green buildings offer a huge opportunity for green jobs creation and quick economic returns for the investors and habitants due to energy and material efficiency gains. Further buildings offer the largest potential for climate change mitigation through reduction of GHGs of any sector discussed in this guide, and can be applied in all urban and many rural contexts.

The building and construction trades formally employ over 111 million people worldwide and many more informally. It should also be noted that Green building does not only entail efficiency gains through reduced operation costs and mitigation efforts, but also increased resilience to extreme weather events.

To shift to Green buildings, many of the required reforms are low-cost and highly beneficial in the short to medium run, involving small changes in appliance use or installation of retrofitted alternative energy sources. Green Jobs in the construction and building industries can also involve more significant investments in building design and municipality-wide projects to adapt public buildings. This range of industries can be defined as encompassing three employment areas: new construction, retrofitting, and component provision. Because construction is inherently local, most firms in Green building and construction are relatively small. This means that public subsidization is often necessary to motivate the training programmes necessary to shift into sustainable processes. Finally, sustainable building should be considered for both residential and commercial contexts.

Thus, reductions in energy consumption provide a clear incentive for both residents and business owners to support these projects. Increasingly, international certification bodies, like the World Green Building Council, have established national boards to evaluate the environmental performance of buildings (see: http://www.worldgbc.org/).

Many of the jobs that will be created through Green building are not significantly different from current jobs in construction and building trades. Installation processes for energy efficient systems are similar to conventional systems. Particularly in the area of retrofitting, new employment will be focused on engineers, estimators, project managers, and the construction trades (pipe fitters, sheet metal managers, HVAC, engineers, electricians, general construction). The Apollo Alliance in the United States suggests a useful model of for blending green building and workforce development. The Apollo Alliance has also benefited from partnership with the public sector to negotiate large scale conversions of public buildings. A similar programme has been organized by the Clinton Global Initiative, to retrofit public buildings in over a dozen global cities.

National governments can enact a wide range of policies to support green buildings and construction. Governments can retrofit existing government buildings or pass legislation to require that all government buildings use the most sophisticated energy saving technologies available. Governments can also subsidize green building, for example, through tax credits.

National certification systems, such as the United States LEED certification, create a recognizable standard that may help to attach value to green buildings. Furthermore, while many of the skills required for green building are similar to those in the construction and building trades, governments may require educational institutions and training programmes to incorporate green building practices into the curriculum.

A key challenge is motivating SMEs to shift into sustainable commercial buildings. The ILO SCORE programme has extended its business support programme into sustainable building practices and provides an example of the type of programme that can facilitate the broader transition into Green building.

ILO SCORE China

The ILO Project on Sustaining Competitive and Responsible Enterprises in China provides advice and tools to help SMEs incorporate sustainability into their strategic business planning and operational management. The project trains local private sector business development services (BDS) to provide SMEs with best practice training in workplace cooperation, quality management, productivity and clean production, occupational health and safety, and human resource management. The goal is to improve the capacity of BDS providers so that they can ultimately provide training to SMEs on a commercial basis.

ILO SCORE China incorporates environmental sustainability practices into its training module, by using green transition principles to improve productivity. For example, by improving capacity to monitor waste costs, it seeks to improve production efficiency. It integrates workers into a problem-solving strategy in which constant improvement is pursued. Principles of recycling and re-use are also integrated into the product life cycle.

Contact: ILO China Country Office at

Additional Information:

- UNEP-Sustainable Buildings and Climate Initiative: www.unep.org/sbci

For more information about Green Jobs, please contact:

The Green Jobs Programme
Job Creation and Enterprise Development Department
International Labour Organization
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