Inter-Agency Workshop Employment and Social Inclusion in a Green Economy:

Assessing Policies and Practices

International Training Centre of the ILO,
Turin, Italy, 4-5 March 2013

Workshop Report

ITC ILO
International Training Centre

Table of Contents

Summary

The Inter-Agency Workshop was effective in bringing together government representatives, researchers, development experts, staff of international organization and practitioners to take stock of existing approaches, tools, practices, and methodologies used to assess and promote jobs and social inclusion in the green economy.

As called by the Rio+20 Outcome Document, there is a growing need to share and compare successful experiences to start consolidating good practices and to establish a comprehensive menu of policy options. In line with this need, the workshop offered a platform to share and expand knowledge on the various scoping studies and assessment methodologies being developed and applied by various agencies and institutions at global, national and sub-national level.

The event built on the Partnership of Action on Green Economy (PAGE) comprising four international agencies- ILO, UNEP, UNIDO and UNIDO. By supporting interested countries in their transition to greener and more inclusive economies, PAGE has as strong knowledge creation and sharing component such as on green economy modeling and best practices. The nature of the partnership demonstrates that it is possible and useful for agencies to team up and strengthen collaboration. Indeed, the workshop highlighted the complementary of the different agencies approaches and inspired joint future work.

Discussions emphasized the need to translate research findings into sound green economy and green jobs strategies. Indeed, assessments can be extremely valuable to provide evidence-based and solutions-focused research to inform policy making processes. The interaction amongst Government delegates and other stakeholders during the workshop enhanced the linkage between applied research tools and their relevance to national policy making and development processes.

1. Introduction

Many countries are turning towards development strategies that stimulate growth in a greener economy, whilst simultaneously create jobs and enhance social inclusion. Governments are, therefore, increasingly exploring opportunities to reshape their policies and investment decisions to maximize such employment gains. This requires the right policy mix and an inclusive economic, social and institutional set-up informed by relevant policy research and analysis. Reflecting this growing trend, the Rio+20 Outcome Document "The Future We Want" called for sharing and comparing successful experiences, to help facilitate the integration of relevant approaches into national economic and employment policies

The Inter-Agency Workshop: *"Employment and Social Inclusion in a Green Economy"* held in March 2013 was organized by the ILO in collaboration with UNEP, UNIDO and UNITAR under the Partnership for Action on Green Economy (PAGE) and the Green Growth Working Group of the Donor Committee for Enterprise Development (DCED), to precisely review and compare current approaches, tools and practices to assess and promote jobs and social inclusion in a green economy.

The International Training Centre (ITC) of the ILO hosted this event, which gathered more than 50 government representatives, researchers, development experts, staff of international organization and practitioners. The workshop's objectives were threefold: i) to provide a forum to expand knowledge on the employment and social inclusion potential of the green economy, through the sharing and review of scoping studies and assessment methodologies; ii) to create synergies to bridge, at global and country level, the scope and findings of research with evidence-based policy making in the context of sustainable development; iii) and to facilitate the creation of an international network of institutions committed to promote research and develop capacities, at national and local level, for more employment and social inclusion in a green economy.

To maximize participation and stimulate experience sharing and networking, the workshop provided a mix of discussion settings and methodologies. Facilitation was provided and altered between both group plenary presentations provided by country representatives, staff of international organizations and other experts, and break-away presentations and discussions held in smaller and more interactive sessions.

The two-day workshop provided participants with interplay of both theory and applied illustrative examples. The first day reviewed green economy and green jobs assessment methodologies from various international agencies (i.e. ILO, UNEP, OECD) and national research institutes (i.e. IDC, KIPPRA). Experiences from various countries followed to illustrate these and other different assessment methodologies. This enabled discussions on the first day to wrap up by underlining the strengths and shortcomings of assessment tools and to put forward suggestions for improvements. The second day focused on the potential for greening sectoral and value chain approaches, skill development and capacity building for green jobs. Various key agencies shared their experiences and provided insight on these topics (i.e. GIZ, UNIDO, UNITAR, and ETF). The workshop concluded with discussions on policy-making for green economy and green jobs, raising issues for future follow-up.

2. Assessment methodologies

The first day of the workshop was dedicated to reviewing different scoping studies and assessment methodologies used to promote jobs and social inclusion in the green economy. Three approaches were presented: i) UNEP green economy scoping studies; ii) ILO green jobs assessment methodologies; and iii) OECD modelling on employment impacts of climate policies. Country experiences followed to illustrate on-going or completed national application of these and other assessment methodologies. Country examples included: India, Malaysia, Mauritius, Mexico, Kenya, Philippines and South Africa. Discussions enabled to highlight the strengths, weaknesses, shortcomings and relevance of the different assessment tools developed so far aimed at facilitating the policy process towards socially inclusive green economies.

2.1 UNEP Green Economy Scoping Studies

UNEP's green economy scoping studies are based on the Threshold 21 model (T21) developed by the Millennium Institute. The modelling explores the impacts of different green economy policy and investment scenarios across national or global economic sectors by accounting for feedback loops within and across the economic, social, and environmental systems in an integrated manner. Indeed, the model measures impacts in terms of traditional GDP as well as its effects on employment, resource intensity, emissions, and ecological impacts amongst others. UNEP's modelling tool, therefore, uses a system dynamics approach that simulates the main short, medium-and longer term impacts of investing in a green economy.

The model focuses on estimating the avoided costs (e.g. reduced fish landings from over-exploitation of marine resources and coral bleaching, and resulting avoided employment losses) and added benefits (e.g. higher biodiversity and production of non-timber forest products, ecotourism revenues and employment from forest conservation) of different policy and investment scenarios to inform the policy-making process.

In short, UNEP's green economy advisory services follow a country customization approach in the different phases of its policy cycle: agenda setting, policy formulation, policy assessment, policy monitoring and evaluation. It focuses on informing the policy making process by identifying key indicators; forecasting the impacts of policies and investments across sectors up to 2050; and analysing the trends to anticipate gaps and opportunities in driving forward a green economy. In terms of employment, the modelling estimations primarily focus on policy-driven direct employment, but also account for combined indirect and induced job creation at the macro level.

Further reading:

- http://www.unep.org/greeneconomy/GreenEconomyReport/tabid/29846/Default.aspx

2.2 ILO Green Jobs Assessment Methodologies

Different methodologies exist to assess the employment potential of green economy policies. Such methodologies offer both a means for identifying and quantifying existing jobs and for projecting new green employment opportunities arising from policies and investment programmes. Green jobs as defined by the ILO are decent jobs that contribute to preserving and restoring the environment. They reduce consumption of energy and raw materials; limit greenhouse gas emissions; minimize waste and pollution; protect and restore ecosystems; and enable enterprises and communities to adapt to climate change.

Below provides an overview of three different methodologies, though in practice assessment studies often use a combination of these methodologies. Indeed, the ILO's practitioners guide "*Assessing green jobs potential in developing countries*" provides guidance on how to estimate the actual and potential level of economic activity and number of jobs related to the environment in a developing country context. It presents a five step approach, encompassing the described methods. The five stages of the assessment consists of: i) a review of the overall structure of the economy and employment structure; ii) an estimation of the environment-related employment; iii) an estimation of core environment-related jobs and green jobs; iv) an assessment of the multiplier effect of direct, indirect and induced jobs for the economy and (v) an elaboration of "what if" public policies scenarios and their implications.

- Inventories and surveys

Surveys and inventories provide a simple and effective way of assessing how many green jobs exist in specific sectors, regions or countries. A survey is usually carried out in the form of a questionnaire sent out to relevant companies, government departments or analysts, whilst an inventory commonly draws on a national or regional database to provide employment statistics. Surveys are a good way of obtaining information in order to split and map sectors and activities into their green components. Surveys are best suited to estimate direct environment-related jobs as they offer a 'snapshot' of the current situation. Such studies can be very comprehensive and can provide accurate estimates for a whole country or different regions.

- Input-output analysis and Social Accounting Matrices

Input-output (I-O) analysis and Social Accounting Matrices (SAMs) are empirical tools that rely on the construction of a matrix or table listing all sub-sectors in an economy, which detail how outputs from one sector are used as inputs in others. The rows show the total output of an industry that is consumed by other sectors. The columns show the share of inputs a sector uses in order to reach its final output. Input–output analysis is, therefore, an empirical tool designed to analyse sector interdependencies.

The difference between I-Os and SAMs is, whilst I-O tables provide a disaggregation of the economic system of production and can illustrate the interactions within it, SAMs go further by describing the interrelationships of income and transfer flows between different institutional units, such as government, households, enterprises, and therefore focus on social transfers. These models normally draw on information from the national accounts and are the most widely employed methodology for assessing green jobs.

Significantly, if information on the labour intensity of the different sectors in an economy can be obtained then the input–output modelling approach can be used to estimate the effects on employment resulting from an increase in final demand for the product or service in a given green industry by estimating direct, indirect and induced jobs. Thus, these models can be used to answer questions such as "How many jobs might result from a given program of investment in sustainable economic areas?" or "For a given level of investment, which sector or sectors would yield the greatest number of jobs?" Indeed, I-O models and SAMs are usually used to provide short to medium term projections for policies.

- Computable General Equilibrium models and System Dynamics

General equilibrium models and system dynamics take the work of I-O analysis and SAMs a step further by simulating full economy responses to exogenous changes. Typically they combine empirical data, usually in the form of I-O tables or SAMs, with a series of economic equations designed to comprehensively capture the dynamism and complexity of an entire economy. In this way, they can explore the effects of policies over time on a variety of different macroeconomic parameters, including future employment scenarios. These models allow policy-makers the opportunity to calculate the long-term impacts of policies. UNEP's scoping studies based on the T21 model is an example of a system dynamics model.

Further reading:

- http://www.ilo.org/empent/units/green-jobs-programme/about-the-programme/WCMS_176462/lang--en/index.htm
- http://www.ilo.org/global/publications/ilo-bookstore/order-online/books/WCMS_153458/lang--en/index.htm
- http://www.ilo.org/emppolicy/areas/employment-intensive-investment/WCMS_165131/lang--en/index.htm

2.3 OECD modelling on employment impacts of climate policies

The OECD's modelling exercise in the assessment study "What Green Growth Means for Workers and Labour Market Policies: An Initial Assessment" employs a computable general equilibrium model (CGE): the Environmental-Linkages model. The model divides the world into 15 countries/regions, each with 22 sectors and 7 electricity technologies, to simulate a policy scenario of an emission trading scheme (ETS) which over the period 2013-2050 progressively reduces greenhouse gas (GHG) emissions in all OECD countries by 50% in 2050, compared to their 1990 levels.

Assessing the labour market implications the model shows that up to 2030, there will be quite dynamic expansions and contractions but that these do not translate into a large overall reallocation of jobs. This is because heavily impacted industries represent only a small share of total employment. According to the results, by 2030, the change in the sectoral composition of employment induced by the mitigation policy affects less than 1% of all jobs in OECD countries, as national labour markets are assumed to be fully flexible in the model. The simulation also suggests that by 2030 employment in solar and wind electricity sector in the OECD could be 25% and 40%

higher than it would have been in the absence of the climate mitigation policy. By contrast, employment in the fossil fuel and coal mining sectors in the OECD could contract more than 35%.

Indeed, simulations using the OECD Environmental-Linkages CGE model demonstrate how climate-change mitigation policies may affect labour market outcomes. It also reveals how labour market rigidities could raise the overall cost of reducing greenhouse gas (GHG) emissions. These simulations suggest that one of the main labour market impacts would be to alter the sectoral composition of employment, with fossil-fuel industries experiencing the steepest employment declines and renewable energy industries the sharpest increases.

For further reading:

- http://www.oecd-ilibrary.org/employment/oecd-employment-outlook-2012/what-green-growth-means-for-workers-and-labour-market-policies-an-initial-assessment_empl_outlook-2012-5-en

2.4 Country assessment examples

➢ Mexico

A nation-wide assessment on the existence and potential for green jobs has been conducted in Mexico following ILO's methodological approach in the practitioners guide. Firstly, a general description of Mexico's economic and employment structure was undertaken using the National Survey of Employment and Occupation of 2011. Secondly, green economic activities were identified to estimate environmental and green jobs. Activities identified across sectors include: organic agriculture, sustainable forestry, renewable energy, sustainable construction, clean industry, public transport, waste management, sustainable tourism and certain government functions. A total of 1.8 million environmental jobs were identifies, representing approximately 5% of the total national working population in 2011. The study draws a distinction between environmental jobs that due to their product, service or process generate an environmental benefit, and green jobs which have decent labour conditions besides having positive environmental impacts. Green jobs encompass both the environment and social challenge. Therefore, to account for green jobs, an index on decent work was employed to analyse the labour conditions of green activities as the third step. The cluster analysis included the following variables: adequate payment, proper work hours, stability and employment security, and social protection. To note, monthly income variable received a 50% and the other three variables a weight of 16.6%. For jobs to be considered as green jobs they require an index minimum of 70%. Sectors containing the highest index of decent work are sustainable forestry and renewable energy. Fourthly, an assessment of the multiplier effect of direct, indirect and induced jobs for green sub sectors compared to conventional ones was carried out. An Input-Output matrix of 2008 was used whereby green industries were integrated to calculate the multipliers. The analysis revealed that renewable energy has a particularly high multiplier effect compared to traditional energy. Yet to be finalised is the simulations for different policy scenarios to better inform the policy making process.

- Gujarat, India

With support from the ILO, the National Council for Applied Economic Research (NCAER) carried out a study on the income and employment impacts of the wind energy sector in India's State of Gujarat, through Input-Output Modelling. The construction of the Gujarat Input-Output table relied on secondary and primary data. The secondary data consisted of using the national Input-Output Table 2006-2007 to create a seven sector matrix for the State. The sectors include: agriculture, mining, manufacturing, construction, electricity, other services and public sector. For the purpose of the analysis, the wind energy sector was disaggregated from the electricity sector. Moreover, primary data on Gujarat's wind energy sector was collected, as a survey sent to wind energy developers.

The main findings from the study are that the wind energy sector is slightly more labour intensive per output of energy produced than the conventional electricity sector. A unit increase of wind energy output generates a total employment of 0.334 man-year compared to 0.268 man-year for conventional electricity. The indirect employment generated in the wind energy sector is also much higher than the direct employment generated for the same unit of energy output produced, more than a hundred times higher. The indirect employment due to the wind energy sector is also significantly higher than indirect employment due to conventional electricity. The indirect employment due to the wind energy sector is also significantly higher than indirect employment due to conventional electricity i.e. 0.331 man-years as compared to 0.242 man-years due to conventional electricity. Indirect employment generated per unit of output in the wind energy sector is also much higher than from other important sectors such as construction, electricity and services. Importantly, an increase in output of wind energy in the State of Gujarat has strong linkages with indirect employment generation in other States in India. The newly developed Gujarat State Input-Output table brought information about the extent to which employment is created in the various sectors, but the methodology did not deal with the question of the profile of the workers.

- Kenya

A Green Economy Scoping Study was completed in Kenya in 2012. The study was customized to reflect the national context and policy framework. It revealed that Kenya is undertaking various programmes and economic activities that support a green economy, notably in the agriculture, industry, energy and transport sectors. Indeed, there are various policy and legal provisions that support sustainable development. The study exposed that while a rapid transition to a green economy offers greet opportunities for higher growth, poverty reduction and clean environment, in the medium to long-term period, there are various challenges to be addressed including developing a robust regulatory framework, access to finance, strengthening of international institutional framework supporting green economy transition, and education and outreach. Economy-wide simulations significantly highlighted that a transition to a green economy is also associated with short run costs as economy-wide policy simulations indicate that it takes about 7-10 years to realize positive returns from green investments.

In the context of strengthened inter-agency cooperation, the ILO has been providing technical assistance to the Kenya Institute for Public Policy Research and Analysis (KIPPRA) for the conduction of a national green jobs assessment to complement the scoping study. The green jobs assessment

aims to strengthen Kenya's sustainable development policy and strategy by focusing on the employment dimension. The main objectives of the green jobs assessment are to (i) analyse existing employment in green goods and services sectors and in sectors that are highly energy, material and water efficient (baseline) and (ii) to estimate the potential of green jobs creation and opportunities in key economic sectors (projection).

The assessment likewise follows ILO's approach set in the practitioners guide, relying on both qualitative and quantitative methodologies. Indeed, desk reviews and surveys were undertaken for the purpose of determining specific sector indicators as well as establishing the share of output and jobs considered conventional and green for every sector. An Input-Output based methodology is then to be carried out to analyse indirect and induced green employment based on various data sources. The assessment analyses is set to shed light on how public and private investment can help to achieve green job creation, secure jobs and can ensure a "just" transition.

- Mauritius

The Maurice Ile Durable (MID) project was launched in 2008, with the objective to make Mauritius a world model of sustainable development. In the context of the MID project, a particular challenge is the creation of green employment. Against this background, the ILO in 2010 provided assistance to further improve the MID strategy. Since then, four studies have been conducted in cooperation with national institutions to: estimate the number of existing jobs and the potential for green jobs; assess actions undertaken by enterprises in the field of green business and greening business; assess the experience of trade unions in the field of green jobs; and investigate into skills for green jobs.

In terms of the green jobs assessment, three methods were used to measure existing green jobs in Mauritius, namely (1) the process based method and (2) the output based method, which captures employment in 'market-valued' products and processes and (3) the natural conservation method which involves jobs providing public goods with no market value. The process-based method defines jobs in enterprises which are among the 10% most energy and water efficient as green jobs. This methodology was used notably for manufacturing and tourism. The output-based method relies on the characteristics of the final product or service having as objective an 'environmental purpose'. This method was for instance applied to the agriculture and renewable energy sector. The natural resource conservation method seeks to identify sectors and employment which have a direct link with protecting or enhancing environmental quality and providing public goods. In addition, further elements were used to determine whether green jobs are also decent.

The findings from the assessment revealed that green jobs in Mauritius stands at around 6.3% of total employment (35,160 jobs out of a total of 558,100). Moreover, the study examined the potential for green jobs using a "what if" policy scenario of a one million rupee increase in final demand. For this, output and employment multipliers were calculated through the input-output method, whereby conventional and green sectors were disaggregated to assess both the direct and indirect linkages amongst sectors and assess their potential in creating employment. The simulations highlight how redirecting growth towards a greener scenario can result in higher output and more jobs, notably in the renewably energy sector. Besides, various case studies were presented as a guide for green options across the sectors. The policy recommendations from the assessment

informed a policy validation and planning workshop held in 2012 in Mauritius to develop an Action Plan.

For further reading:

- http://www.ilo.org/empent/units/green-jobs-programme/about-the-programme/WCMS_184298/lang--en/index.htm
- http://www.ilo.org/empent/units/green-jobs-programme/about-the-programme/WCMS_206295/lang--en/index.htm

➢ The Philippines and Malaysia

In the Philippines and Malaysia green jobs mapping studies were initiated in 2012 by the ILO. The methodology employed to estimate green jobs nationally comprised numerous steps. Firstly, a description of the overall structure of the domestic economy and total employment was undertaken. Secondly, the studies identified environment-related economic activity and employment across sector profiles. Thirdly, screening criteria was developed for identifying and estimating 'core' environmental employment across sectors. Fourthly, decent work criteria were likewise applied to screen 'core' jobs to estimate the number of green jobs.

In the Philippines, the green jobs mapping study was carried out in partnership with the Department of Labour and Employment (DOLE) and the Institute for Global Environmental Studies (IGES) assisted in the conduction of research activities. Results revealed that in the Philippines most green jobs are found in agriculture, construction, transportation and fisheries. For instance, activities such as organic farming and/or environmentally friendly fertilization are considered the main drivers of green jobs. In Malaysia, the ILO was requested to assist the Malaysian Ministry of Human Resources (MOHR), Ministry of Energy, Green Technology and Water (KeTTHA), and social partners since KeTTHA is developing a Green Jobs Framework for Action to provide policy coherence and guide programs for green jobs. The Malaysian green jobs mapping study showed that most of the core-environment related jobs were found in the construction, transportation and agriculture sectors. Besides, as a follow up to the mapping study in Malaysia, research will also estimate the impact of different policies and programs in terms of direct and indirect employment effects.

➢ South Africa

The Industrial Development Corporation (IDC), the Development Bank of Southern Africa (DBSA), and the Trade and Industrial Policy Strategies (TIPS) have provided an estimate of the net direct formal employment potential of greening South Africa's economy. Bearing in mind that South Africa does not dispose of disaggregated sectoral data, and thus not feasible to construct input-output models and simulate different scenarios, the study developed a different methodology to estimate the national green jobs potential.

The initial step involved a scoping exercise which identified 26 segments and technologies that could result in employment opportunities as the greening of the South African economy unfolds. These

were grouped under four distinct broad types of activities: energy generation; energy and resource efficiency; emissions and pollution mitigation; and natural resource management. Moreover, the study categorized employment potential creation associated with building, construction and installation activities; operations and maintenance services; and manufacturing. The employment potential for each of the 26 segments and technologies were estimated for the short term (2011 – 12); the medium term (2013 – 17); and the long term (2018 – 25). Besides, a consistent approach was used to analyze the different segments and technologies to facilitate comparability. This included amongst others: a listing of main advantages and disadvantages, a snapshot of the global usage and key players, an assessment of its introduction potential in South Africa and in the rest of the African continent, an analysis of the potential job creation, including assumptions made an outline of the assumptions made; and identification of key challenges and implications for policy-makers and other key stakeholders. The research and analysis process involved a review of numerous domestic and international publications, research papers, strategy documents and industry-specific information. Interaction with experts, industry players, government officials and state-owned enterprises also provided valuable guidance as to the strategic direction.

The analysis reveals the potential of an unfolding green economy to lead to the creation of approximately 98 000 new direct jobs, on average, in the short term, almost 255 000 in the medium term and around 462 000 employment opportunities in the formal economy in the long term.

For further reading:

- http://www.idc.co.za/projects/Greenjobs.pdf

3. Sectoral and Value Chain approaches

The second day of the Inter-Agency Workshop kicked off by discussing "Sectoral and value chain approaches" to assess the scope and potential of greening at the industry level and along value chains. Introductory remarks were provided by the DCED on greening sectors and enterprises. Two parallel presentations followed on UNIDO's Greening Industry initiative and GIZ green value chains approaches.

3.1 Greening industries

UNIDO's *Green Industry* concept promotes sustainable industrial development through patterns of production that are resource and energy efficient, low-carbon and low waste, non-polluting and safe, and which produce products that are responsibly managed throughout their lifecycle. Its *Green Industry Initiative* covers both the greening of industries, under which industries improve their resource productivity and environmental performance and the production of environmental goods and services, for example, waste management & recycling services and renewable energy technologies.

Launched in 2009 at the International Conference on Green Industry in Manila, the Initiative helps developing countries adopt clean technologies and implement environmental agreements, and provides services and expertise to promote sustainable patterns of production.

With regard to policy frameworks for green(er) industries, UNIDO highlights that a mix of market-based, regulatory, voluntary, and information-based instruments proved to be most effective. Policy frameworks, therefore, can comprise both hard and soft type approaches.

One of the Initiative's key activities is the joint UNEP-UNIDO Programme on Resource Efficient and Cleaner Production (RECP), which consists of preventive environmental strategies in industrial processes, products and services to increase efficiency and reduce risks to humans and the environment. Indeed, it aims to increase natural resource productivity, minimize waste and emissions, and foster safe and responsible production. To date, approximately 50 cleaner production centers have been created worldwide.

Besides, a Green Industry Platform has been implemented to catalyze, mobilize and mainstream actions on green industry around the world. As a global high-level multi-stakeholder partnership, it intends to provide a framework to bring together government, business and civil society. Member organizations can make tools available for developing road maps to integrate green industry policies and practices in organizational strategies and business plans, and share best practices.

For further reading:

- http://www.unido.org/greenindustry.html
- http://www.unido.org/fileadmin/user_media/Services/Green_Industry/web_policies_green_industry.pdf
- http://www.greenindustryplatform.org/wp-content/uploads/2012/11/Green-Industry-Platform-Introductory-Note.pdf

3.2 Greening value chains

Greening value chains is an emerging concept and entails systematically integrating ecological aspects into value chain development strategies to make them more resilient. Value chains can have a negative impact on the environment and climate, and in turn can be affected by increasing environmental degradation and climate change. Yet, greening value chains can contribute towards mitigating climate change and help transition towards a green economy, notably through green service and product development. Integrating ecological sustainability enables to broaden the strategic perspective of value chain promotion.

Various approaches and methods exist to analyse, design and implement interventions in order to green value chains. For example, climate proofing and climate maps and vulnerability assessments enable businesses to explore adaptation options and buffer environmental impacts.

For instance, a GIZ project is focusing on the impact of climate change on the coffee value chain in Kenya. Climate forecasts in terms of temperature, rainfall and extreme weather events for 2020 and 2050 conducted by the International Centre for Tropical Agriculture (CIAT) have helped predict the climate change impact on coffee growing and identify the best adaptation options. To illustrate, the adaptation options identified included both crop diversification to phase out coffee growing or diversify coffee varieties, increase resilience through agronomic measures, and social resilience.

A more recent method developed is the Hot Spot Analysis which assesses the environmental of value chains. This approach consists of elaborating a matrix where the different value chain levels are scored by both the relevance and relative importance of difference resource categories to the operation of that value chain, such as raw material consumption and water consumption. Multiplying the scores attributed (each between 0-3) to both criteria allows to identify the hot spots for intervention. This enables to set resource efficiency targets as well as targets addressing other environmental impacts such as pollution and waste.

For further reading:

- http://www.valuelinks.org/

4. Skills development and capacity building for green jobs

The workshop session on "*enhancing skills, training and capacity building for green jobs*" addressed the central issue of competencies and skills at national, sectoral and enterprise level to accelerate progress towards a green economy transition. The fish bowl setting[1] enabled a large number of participants to actively contribute to the discussion, which addressed three main issues: the skills challenge in the green economy; assessing skill needs in relation to the expected employment shifts; and strategies for skills development and capacity building for green jobs.

4.1 The skills challenge in the green economy

Paying close attention to the occupational requirements of green economy strategies and their implications for skills development and capacity building at national level is crucial. Skills development must go hand in hand with the promotion of green jobs to avoid skills gaps/mismatches, unemployment and a stalling of the green economy transition. Indeed, the shift to greener economies will bring about structural changes in national labour markets. Even though ILO studies demonstrate, notably through the report "*Working towards sustainable development: Opportunities for decent work and social inclusion in a green economy",* that newly created jobs will offset jobs losses, the occupational profiles across sectors will change and require for the most part new and different skills. This poses the great challenge of retraining and upgrading the skills of those workers who will lose their jobs and providing the right skills to those entering the changing labour market.

4.2 Assessing the employment shift and related skills needs

Early identification and assessment of skill needs is important to capture and allow for integration of skills development measures into the measures that target greening economies and enterprises. Current national initiatives for green skill development provide great insight. For instance, in China emphasis has been placed on analysing those sectors strongly affected by the green transformation, notably the carbon intensive industries and new green industries. The ILO and national stakeholders have established a work process with the aim of generating greater consultation with all relevant partners, which resulted in the development of a pilot program.

ILO is working on green jobs assessment methodologies to allow incorporating the level of educational attainment and occupations as proxy variables for skills, and therefore identify potential skill needs across the economy. The results could indeed help identify skills requirement resulting from greening sectors and help provide education and training institutions with an indication of future needs for better institutional preparedness.

[1] The fish bowl is a learning methodology conceived to facilitate dialogue between experts in a way that exposes others to their knowledge while expanding the collective understanding of a subject. For more information, see: www.itcilo.org/compass

4.3 Skills development and capacity building for green jobs

Attention should not solely be centred on promoting greener workplace practices and green entrepreneurship without developing training curricular standards and qualifications for new green job profiles. Such skills development can include both technical vocational training and higher education, as well as on the job enterprise training.

It is important to note that green skills are transferable and enjoy good employability, and can be well applied to "brown" jobs. This could considerably contribute to greening traditional sectors. Besides, evidence demonstrates that developing core portable skills, such as leadership, team work, systemic thinking, management, project implementation, environmental awareness and resource efficient management systems, can raise workers employability prospects not only in green sectors but across the economy. Emphasis should as a result be placed on developing workers' core portable skills.

Effective social dialogue amongst all stakeholders to define skills and education policies is central for the policy-making process. Sectoral approaches enhance social dialogue through a direct contribution of employers in strategizing and designing training programmes relevant to industries' demand. A cross-sectoral approach, which creates synergies among sectors to account for indirect and induced jobs, enables coherent skills development policies. Moreover, not only a top-down policy development is important: bottom-up approaches are equally, if not more vital for insuring that the needs of the private sector and communities are reflected in the training provision and for establishing a direct communication line with training providers. Public-private partnerships for skills and capacity development proved to be an effective means for enhancing relevance of skills supply to greening economy demand.

For further reading:

- http://www.ilo.org/skills/projects/WCMS_115959/lang--en/index.htm

5. Policy-making for an inclusive green economy and green jobs creation

The workshop concluded by addressing the link between assessment and policy making, including institutional and policy arrangements to promote green economy strategies. A keynote presentation and discussion on South Africa's Green Economy Accord was followed by group-discussions on selected policy-making themes based on issues raised from the South Africa case and earlier debate, in the form of a "WORLD CAFE". The five topics for discussion were: i) stakeholders participation and dialogue, ii) using data, assessments for better policy formulation and monitoring; iii) employment policies and labour market instruments; iv) financial policies; v) poverty reduction and targeting vulnerable groups.

5.1 South Africa's Green Economy Accord

The Green Economy Accord launched in South Africa in 2011 is one of the most comprehensive policies promoting green jobs worldwide. It aims at developing a green economy nationally with the goal of creating at least 300,000 green jobs by 2020. The process of greening the economy is framed to promote employment creation and improve conditions for the poor in particularly. This Accord fits within the framework of South Africa's New Growth path which sets to create five million new jobs by 2020.

Based on a successful process of social dialogue, the Accord brings together representatives of Government, business representatives, organised labour and the community constituency to implement an agreed set of wide-ranging commitments across economic sectors.

The different stakeholders agreed to work in partnership to realise twelve commitments. They include amongst others increased use of renewable energy as well as rollout of one million solar-water heating systems; expanded production of efficient stoves; support for biofuels through regulatory measures and assistance to small farmers; waste recycling; retrofitting buildings; investment in mass transit and to shift freight from road to rail; establishment of various finance facilities for green projects; and a target of 80% of new jobs to go to young workers, who face high levels of unemployment.

For further reading:

- http://www.info.gov.za/view/DownloadFileAction?id=159756

5.2 How to drive policy formulation and implementation for a green economy?

The points below summarise key messages and leanings from the workshop and exchange of country experiences:

Few governments have developed and implemented employment policies which specifically focus on promoting green jobs. South Africa is to date one of the few countries who have established a comprehensive multi-sectorial framework, aligning Government and major social groups in promoting green jobs nationally. Driving policy-making for green jobs and social inclusion in a green economy rests on different key policy instruments and approaches for policy coherence.

Multi-stakeholder participation and social dialogue should be a key factor driving the policy-making process. Mobilising and ensuring the close cooperation between Government and the social partners is central to the success of green economy and green jobs strategy development. Promoting social dialogue and ensuring the active participation of all the actors is critical to reflect all interests and needs. The consultation process should be broad enough to include, for instance, consumer groups who tend to be marginalised. Yet, for social dialogue to be effective it should be led by one agency to facilitate exchange.

Moreover, green economy and green jobs assessments are certainly an important means to help guide the policy-making process, as they reveal the opportunities and sectorial entry points for investment. Assessment results can indeed help define policy and investments priorities. However, such assessments should be conducted in a manner that is timely in order to be useful in policy making and planning processes. Yet, data collection is often difficult due to lacking information. In addition, limited national technical capacity for conduction such assessments also prove to be a challenge.

Macroeconomic fiscal and monetary policies are essential as they can redirect demand and investment by enterprises, consumers and investors through price signals and incentives towards green activities across the economy. In addition, channelling resources to invest and finance a green economy transition is often a challenge, particularly for developing countries. However, international finance initiatives and funds do exist to help countries, yet often there is little awareness of their existence.

Finally, it is important to stress how green economy policies must contribute towards poverty reduction and be socially inclusive. There needs to be an active participation and engagement from local communities and not solely the Government. For instance extensive public works programmes and community based resource management initiatives are two examples that contribute to both environmental sustainability and employment opportunities for the most vulnerable social groups.

6. Way forward

The event facilitated the creation of an international network of institutions committed to promote research and develop capacity, at national and local level, for more employment and social inclusion in the green economy.

Revealed was the fact that many countries face serious challenges of institutional capacity and expertise to conduct relevant assessments. In many cases, national policy research institutions have limited capacity or unfamiliarity with appropriate methodologies and quantitative tools to assess effects on employment.

Therefore, the newly created network of policy research institutions and experts on assessing employment-related effects of greening policies, as an outcome of the workshop, aims to fill a clear institutional and capacity gap for green jobs related assessments particularly in developing and low-income countries.

The network has as objective to i) **build and improve knowledge** on quantitative and analytical methodologies and tools relevant for the assessment of employment dimensions of greening policies, including Input-Output tables, Social Accounting Matrixes, DySam, Computable General Equilibrium models, System Dynamic models, surveys and other assessment approaches; ii) to **share knowledge and build capacity** for country assessments as well as regional and global assessments by involving partner institutions. Those participating in the network will be in a position to carry out green jobs related assessments in their own countries, but also support the conduct of similar assessments in neighbouring countries where expertise may be lacking, thereby promoting a pooling of expertise within their region.

7. Annexes

7.1 Workshop Agenda

MONDAY 4 March

Session I. Opening and context setting **09 00 – 10 30**

- Opening of the workshop — 10 min
  Robin Poppe, ITC-ILO
- The social and employment challenges in the green economy: a country perspective — 10 min
  South African Department of Environmental Affairs
- Introductory remarks on behalf of convening agencies — 15 min
  Kees van der Ree, ILO, and Ashley Aarons**,** DCED
- 'Give&Take' session to allow connecting and sharing of views/expertise — 45 min
  Interactive exercise among participants
- Agenda overview and facilitation remarks/ground rules/ instructions — 10 min
  Robin Poppe, ITC-ILO

BREAK

Session II. Expert panel on scoping studies and assessment methodologies **11 00 - 13 00**

- Part 1: Introduction to assessment methodologies
  - Green economy - UNEP, Andrea Bassi — 10 min
  - Green Jobs - ILO, Christoph Ernst — 10 min
  - Questions & Answers — 10 min
- Part 2: National experiences from countries to illustrate and discuss the presented approaches
  - Vincent Jugault (ILO ROAP) and Christoph Ernst (ILO): National applications in Asia — 20 min
  - Dickson Khainga (KIPPRA Kenya): Kenya's experience — 20 min
  - Questions & Answers — 10 min
- Part 3: OECD Assessment Methodology
  - Jean Chateau: Environment and employment in OECD countries — 20 min
  - Questions & Answers — 5 min
- Plenary discussion (debate on the entire Session) — 15 min

LUNCH

Session III: Reviewing a completed national scoping study and assessment **14 00 - 14 45**

- Jorge Maia, Industrial Development Corporation, South Africa — 20 min
- Plenary discussion — 25 min

Session IV: Reviewing other on/going scoping studies and/or assessments **14 45 - 16 30**

- Elevator pitch: 3 minutes allowed to each presenter to introduce the country cases — 15 min
- Two parallel sessions in break-out rooms: — 1h30min
  1. Mauritius (Riad Sultan, Univ. of Mauritius) & Philippines and Malaysia (Jane Romero, IGES)
  2. Mexico (Empleos Verdes/Regina Galhardi, ILO) & India (Anushree, NAECR)

BREAK

Session V: Learning Talks on national scoping studies and assessments **16 45 - 17 30**

- Moderated session for Governments and Agencies' representatives to discuss the advantages of presented assessments, shortcomings and suggestions for further improvements.
- End of day feedback by participants (on coloured cards they mention 'highlights' and 'suggestions')

TUESDAY 5 March

Session VI. Recap of Day 1 **09 00 – 09 20**
Interactive session to review 'suggestions' expressed at end of day 1

Session VII. Sectoral and value chain approaches **09 20 – 10 30**

This session focuses on sectors and assesses the scope of greening at industry level and along the value chain

- Introductory perspective on greening sectors and enterprises, DCED 15 min
- Elevator pitch for each presenter to introduce the approach 10 min

Parallel working groups: 45 min

- Greening Industry, Pilar Murillo, UNIDO
- Promoting green agro/processing value chains, Hans-Joachim Zinnkann and Eberhard Krain, GIZ

BREAK

Session VIII. Enhancing skills, training and capacity buildings for green jobs **11 00 - 12 30**

This session addresses the issue of competencies and skills required at enterprise and institutional level to accelerate progress towards a green economy and more green jobs:

- Country representatives able to give a perspective on the importance of vocational and entrepreneurial skills, as well as institutional capacities to promote green work place practices, entrepreneurship and effective institutions
- Response and contributions by ILO (Olga Strietska-Ilina)
- Response and contributions by UNITAR (Amrei Horstbrink and Rob Visser)
- Floor open to all participants, following 'fish-bowl' rules and modalities

LUNCH

Session IX. From assessments to policy making **14 00 - 15 45**

- Key note presentations and discussion on the Green Economy Accord in South Africa 30 min
  South African Department of Environmental Affairs and City of Tshwane
- Debate on how to drive policy formulation for a greener economy 15 min
- WORLD CAFE : Table-discussions on selected policies based on thematic questions emerged from the South Africa case and earlier debate 45 min
- Conclusions by Kamal Gueye, ILO: What do we learn from policy processes and how does it inform our assessments methodologies? 15 min

BREAK

Session X. Way Forward **16 15 - 17 15**

Evaluative group-work exercise: *How to strengthen and better link our work on assessments, capacity building and policy making for employment and inclusion in the green economy.*

Workshop evaluation 17 15

Conclusions and closing remarks 17 30

7.2 List of Participants

Inter-Agency Delegates

	Name	Institution	Country
1.	Nicholas Sofroniou	European Centre for the Development of Vocational Training (CEDEFOP)	Greece
2.	Ashley Aarons	Donor Committee for Enterprise Development (DCED)	UK
3.	Manfred Niholaus Wallenborn	European Training Foundation (EFT)	Italy
4.	Ashley Aarons	Donor Committee for Enterprise Development (DCED)	UK
5.	Mymoonath Animon Mohammed Illias	FAO	Italy
6.	Claudia Haller	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)	Germany
7.	Eberhard Krain	GIZ	Germany
8.	Ariane Kresse	GIZ	Germany
9.	Stefanie Reiher	GIZ	Germany
10	Hans Joachim Zinnkann	GIZ	Germany
11	Qian Cheng	ILO	China
12	Regina Galhardi	ILO	Mexico
13	Adina Fulga Radi	ILO	Switzerland
14	Christoph Ernst	ILO	Switzerland
15	Moustapha Kamal Gueye	ILO	Switzerland
16	Marek Harsdorff	ILO	Switzerland
17	Dorit Kemter	ILO	Switzerland
18	David Kucera	ILO	Switzerland
19	Daniel Samaan	ILO	Switzerland
20	Valentina Stoevska	ILO	Switzerland
21	Olga Strietska-Ilina	ILO	Switzerland
22	Kees van der Ree	ILO	Switzerland
23	Ozan Cakmak	ILO	Turkey
24	Jean Chateau	OECD	France
25	Ben Slay	UNDP	Slovakia
26	Asad Naqvi	UNEP	Switzerland
27	Pilar Murillo	UNIDO	Austria

	Fuentes		
28	Robert Peter Visser	UNITAR	France
29	Amrei Horstbrink	UNITAR	Switzerland

Country Delegates

	Name	Institution	Country
30	Lukonde Luansi	Ministère du Commerce (Geneva, Switzerland)	Angola
31	Maria Celestina Pacavira	Commercial Ministry and Embassy (Milano, Italy)	Angola
32	Henrik Vistisen	Ministry of Foreign Affairs of Denmark	Denmark
33	Leulseged Tadese Abebe	Permanent Mission of Ethiopia (Geneva, Switzerland)	Ethiopia
34	Antti Rytkönen	Ministry of Foreign Affairs	Finland
35	Anushree Sinha	NCAER	India
36	Angela Renata Cordeiro Ortigara	University of Trento	Italy
37	Alessandra Zucca	Emblema S.R.L	Italy
38	Jane Rovira Romero	Institute for Global Environmental Strategies (IGES)	Japan
39	Dickson Oruko Khainga	Kenya Institute for Public Policy Research and Analysis (KIPPRRA)	Keny
40	Joya Bhankari	Ministry of Environment& Sustainable Development, MID Fund Committee	Mauritius
41	Riad Mohammed Akthar Sultan	University of Mauritius	Mauritius
42	Orly Goldsmith Oppenheim	Empleos Verdes	Mexico
43	Elena Catalina Jauregui Nolen	Empleos Verdes	Mexico
44	Juvenal Dengo	Permanent Mission of Mozambique (Geneva, Switzerland)	Mozambique
45	Vicki Erenstein Lynne Ya Toivo	Ministry of Labour and Social Welfare	Namibia
46	Jenitha Badul	Department of Environmental Affairs	South Africa
47	Jorge Humberto de Carvalho Maia	Industrial Development Corporation of South Africa (IDC)	South Africa
48	Mapula Tshangela	Department of Environmental Affairs	South Africa
49	Lemao Dorah Nteo	South Africa	South Africa
50	Andrea Marcello	KnowlEdge SRL	Switzerland

	Bassi		
51	Selen Arli Yilmaz	Turkish Republic Ministry of Development	Turkey
52	Sinem Capar Dirioz	Ministry of Development	Turkey
53	Abdullah Bugrahan Karaveli	Ministry of Science, Industry and Technology	Turkey
54	Ebru Voyvoda	Middle East Technical University	Turkey
55	Gizem Fatma Cetin	Ministry of Labour and Social Security	Turkey
56	Kathryn Ann Olson	Stockholm Environment Institute	USSA

Organisers, Facilitators and Support Staff

	Name	**Institution**
57	Robin Poppe	ITC-ILO
58	Valter Nebuloni	ITC-ILO
59	Alice Vozza	ITC-ILO
60	Anna Maria Damouni	ITC-ILO- EPSD
61	Elisabetta Bellora	ITC-ILO-EPSD
62	Chandni Lanfranchi	ITC-ILO-EPSD
63	Anna-Maria Fyfe	ILO Geneva

Design and printing by the International Training Centre of the ILO, Turin – Italy

Made of paper awarded the European Union Eco-label, reg.nr FI/11/1, supplied by UPM.