Chapter 7

Employment-related schemes

Key contents of the chapter:

1. Employment-related schemes are important to respond to the structural adjustments arising from trade and from the transition to a green economy, particularly for workers and enterprises in ‘brown sectors’, but also to promote the emergence of a workforce with green skills and avoid skill shortages in green industries.

2. The notion of “just transition” embodies the policy objectives of ensuring that job creation opportunities are maximised and potential negative impacts are identified and addressed, so that no one is left behind.

3. Green jobs are decent jobs that contribute to preserve or restore the environment, be they in traditional sectors such as manufacturing and construction, or in new, emerging green sectors such as renewable energy and energy efficiency. Green jobs can be considered through three scales (efficiency, green products/services, decency). Each scale has different degrees. A significant part of green job promotion consists of upgrading skills and retraining the workforce active in other sectors, but also of training workers for entirely new green jobs.

4. The types of policies and measures that can be adopted to tackle challenges arising from structural adjustment and promote green jobs include (a) information gathering and assessment, (b) social dialogue, participation and coordination measures, (c) social protection and structural adjustment policies, and (d) education and training measures.

5. Two representative illustrations of work in this area are the ILO’s Green Jobs Assessment methodology and South Africa’s partnering with the ILO’s International Training Centre to provide green skills training supported by South Africa’s Green Fund.

6. A summary table placing the tools reviewed in this chapter within the overall methodology presented in Chapter 1 is provided at the end of the chapter.
1. Overview

Employment-related schemes may appear, at first sight, to be insufficiently related to the trade policies that can be adopted to transition to a green economy. However, they are of critical importance to ensure that the transition is sensitive to not only prosperity and environmental protection but also to considerations of inclusiveness. Three inter-related reasons for this will be discussed in the following paragraphs.

First, green industrial policy requires the availability of an appropriately trained workforce to avoid mismatches between industry support policies and the availability of skilled-workers. In some sectors such as renewable energies and energy efficiency, such skill shortages have been severe, creating so-called ‘skill bottlenecks’. In addition, green industries (e.g. waste treatment) may entail significant occupational hazards that require further knowledge and training as a matter of risk management.

Second, although trade is correlated with more growth both in developed and developing countries, it may also increase inequalities within and across States, with less developed countries concentrating on lower value-added and potentially more polluting sectors (raw materials and natural resources). Moreover, the opening (or further liberalisation) of trade is normally followed by a restructuring of production and employment. This can lead to significant opportunities for workers. However, it might also lead smaller, uncompetitive industries and low-skill workers to be driven out of the market or pushed into the informal sector (Altintzis/Busser (2014)). It is therefore critical to anticipate the effects of opening to trade on different sectors of the workforce.

Third, in the context of a transition to a green economy, the structural change prompted by opening to trade could be amplified by the adjustment resulting from the transition from brown to green sectors. Thus, for this...
transition to be inclusive, it must take into account job losses in sectors such as forestry and agriculture, mining, fossil fuel-based energy generation and some manufacturing industries (e.g. automobiles) (ILO (2013b)).

Therefore, for the green industrial policy tools discussed in previous chapters to be effective and for the transition to a green economy to be genuinely inclusive, appropriate employment-related schemes must be put in place. Such schemes must take into account the three considerations identified above and their possible effects on employment. Box 1 summarises the specific impacts that can be expected from the transition to a green economy.

**Box 1: Job impact of the transition to a green economy**

- Creation of additional jobs in environmental sectors (e.g. the manufacturing of pollution control devices)
- Substitution of some jobs (e.g. those in fossil fuel-based electricity production are likely to be redirected toward greener industries)
- Elimination of some jobs without direct replacement (e.g. elimination of environmentally harmful packaging)
- Jobs that will be transformed and redefined to account for new greener skill-sets, work methods and profiles (environmental updating and upgrading).

*Source: UN Environment/ILO (2008)*

In this context, Figure 1 presents the definition of *green jobs* developed by the International Labour Organisation’s (ILO) Green Job Programme, which focuses on three scales.

The scales reflect the realities on the ground. The *efficiency* scale targets products and services that are widely used in the brown economy but that can be made much more efficient and hence greener. Most of the greening of the job markets will involve upgrading the skills of the workforce to carry out their activities more efficiently. The *green product/service* scale reflects new products and sectors and hence new jobs specifically in green markets, such as renewable energy equipment and generation. The *decency scale* targets a variety of considerations relating to the four dimensions of decent work, i.e. productive employment, including the availability of jobs that are fair, stable and sufficiently rewarding, rights at work, social protection, and social dialogue.
In what follows, the chapter discusses four types of policies that aim to tackle both the risks involved in structural change for workers in the brown sector and the potential for green jobs entailed by a transition to an inclusive green economy (section 2). Two main illustrations are then provided focusing on an international programme (managed by the ILO) and a domestic one (the case of South Africa) (section 3). As in the previous chapters, section 4 summarises the chapter and places this tool within the methodology presented in Chapter 1.
2. The tool-box

2.1. Spectrum of measures used in practice

The spectrum of policy measures that can be used to tackle the employment challenges raised by a green industrial policy relying on trade related instruments ranges from information gathering and assessment, to better coordination and participation, social protection, education and training measures. Some of these measures are very specific (e.g. integrating environmental components in national education curricula or making continuing education tax deductible) whereas others are very general (e.g. improving coordination between employer organisations, trade unions and government or providing appropriate unemployment benefits). But they must all be seen as components of a package that may only work if several of these policies are combined. The ILO Guidelines for a just transition towards environmentally sustainable economies and societies for all (ILO (2015)) present a range of key principles, policy measures and institutional mechanisms that need to be put together in a coherent manner to manage the transition to an inclusive green economy while addressing labour market implication. The following sections briefly discuss information gathering and impact assessment (section 2.2), social dialogue, participation and coordination measures (section 2.3), social protection and structural adjustment policies (section 2.4), and education and training measures (section 2.5).

2.2. Information gathering and impact assessment

One of the main challenges in assessing the potential of green jobs and communicating this potential to the population is the lack of clear information available about them. It is not only difficult to define ‘green jobs’ but, in many cases, even when some reasonably satisfactory definitions are available, the statistical information systems used domestically stick to general information about employment. Information gathering is important to conduct assessments of the impact of a variety of green industrial policy measures (including trade-related measures) on employment.

During an inter-agency workshop held in 2013, three main methodologies where discussed, relying on case-studies of several States, including India, Malaysia, Mauritius, Mexico, Kenya, Philippines and South Africa. The first methodology is that of UN Environment’s Green Economy Scoping Studies, which relies on a country-customised integrated assessment model estimating the impact of certain policies in terms of avoided costs (e.g. the job losses avoided as a result of a more sustainable management of fisheries) and environmental benefits (e.g. higher biodiversity, production of non-timber products, ecotourism income, and employment in forest conservation.
The second approach is ILO’s Green Jobs Assessment Methodology, which may include a range of methodologies, such as inventories and surveys, input-output analysis and social accounting matrices, and computable general equilibrium models, depending on the country’s focus and practical considerations, notably the available budget and the type and quality of data available. To undertake a Green Jobs Assessment in a given country, the ILO proposes a combined five-step approach:

- Review of the overall structure of the economy and the employment structure;
- An estimation of environment-related employment;
- An estimation of core environment-related jobs and green jobs;
- An assessment of the multiplier effect of direct, indirect and induced jobs for the economy; and
- An analysis of scenarios arising from possible policies and their implications.

Furthermore, labour statisticians have adopted guidelines for a statistical definition of employment in the environmental sector, allowing for the integration of green jobs in labour force surveys and the collection of relevant information (ILO (2013a)).

The third approach, developed by the Organisation for Economic Cooperation and Development (OECD), focuses on the impact of climate change policies on employment. It uses a computable general equilibrium model that represents the entire world (divided into 15 regions, each with 22 sectors and 7 electricity technologies) and that, over the period between 2013-2050, estimates a reduction by 50 per cent of greenhouse gases in OECD countries. On this basis, it assesses the implications for the labour markets.

The approaches of these organisations rely on different techniques (quantitative – with simulation models – or qualitative – with surveys) and have different targets (country-specific or the world at large). Box 2 discusses the insights derived from the use of these methodologies into the situation of India (Gujarat), Kenya, and Mexico.
Box 2: Country assessments

**India (Gujarat)**
The ILO Green Jobs Assessment for India showed that the wind energy sector has significant direct and, above all, indirect employment effects (e.g. employment creation in other sectors). Indirect employment effects are indeed higher than those generated by the conventional electricity sector, but also by other sectors such as construction and services.

**Kenya**
The Green Economy scoping study for Kenya showed that a rapid green economy transition offers great opportunities, but it also creates challenges where there are shortcomings in the enabling conditions, such as a robust regulatory framework, access to finance, insertion in international institutional frameworks, and education and outreach. Significantly, short-term costs arise as positive investments returns from green investments need at least 7-10 years to come to fruition.

**Mexico**
The ILO Green Jobs Assessment for Mexico identified a total of 1.8 million existing environmental jobs in Mexico (approximately 5% of the total national population). The study also measured ‘decent’ jobs (based on payment, hours worked, employment security, and social protection). Sustainable forestry and renewable energy were identified as the sectors showing the highest score along both environmental and social criteria.

*Source: ILO/ITC (2013)*

### 2.3. Social dialogue, participation and coordination measures

Aside from the more general measures to allow for workers participation in domestic collective bargaining processes, two types of participation and coordination measures are particularly important for trade-related green industrial policies.

First, the **coordination of worker associations, employment associations, government and training institutions** is important to understand the types of skills that are most urgently required to upgrade the workforce skills, to seize new green opportunities, and to help workers in the brown economy transition to other greener jobs. Indeed, to avoid skill shortages it is important for all the parties that may be affected by structural change in the employment and productive sectors to share their views and make their specific needs explicit so that training schemes can be tailored to such needs and put in place as promptly as possible.
Secondly, the participation of worker representatives in the delegations negotiating trade agreements can both add input on the views of workers and legitimacy to the end result. In some countries, trade unions have regular meetings with trade negotiators. In both the EU and Brazil, trade union leaders are furthermore part of the official country delegations to major trade gatherings, including WTO Ministerial Conferences.

### 2.4. Social protection and structural adjustment policies

Social protection policies are general tools of macroeconomic and social policy. Indeed, collective bargaining rights, minimum wages, protection against arbitrary layoffs, unemployment benefits, and unemployment and replacement services, are not specific to green industrial policy or to trade policy. But the double pressure that may arise from green transition policies and opening to trade makes the use of such social protection policies very important. Box 3 briefly contrasts the cases of Germany and China as regards the transition in coal mining areas.

#### Box 3: Transitions in coal mining

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<th>Germany</th>
<th>China</th>
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<tr>
<td>The German transition was greatly facilitated through worker co-determination as part of a cooperative tripartite structure, offering early retirement and transition periods as well as re-training programmes for younger workers. Furthermore, investments in higher education built the foundation for a knowledge-based economy in the coal-mining region.</td>
<td>In 2013, to address both overcapacity and climate change, the Chinese government announced a plan to close thousands of coal mines, which will lead to an estimated 1.3 million job losses in the coal sector. While this will affect about a fifth of the total workforce in the coal sector, a strategy towards enabling a just transition still remains to be clarified. This case emphasises the need for a carefully designed strategy to deal with the social effects of the structural adjustment arising from a transition to a green economy.</td>
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*Source: ILO (2016)*

This section discusses two policy instruments, selected because of their wide use or their potential relevance for trade-related green industrial policy.
The first policy instrument has been discussed in some detail in Chapter 4 and consists of the adoption of **employment-related local content requirements in green industrial policy**. Such an approach can take several forms. Companies (domestic or foreign) can be required to hire a certain volume of their workforce (e.g. represented by a portion of total employment costs) from the country or the national subdivision (e.g. a federated State, a province, a municipality, etc.) where they operate. Alternatively, the requirement may be to indicate in the bidding process of certain support schemes the contribution of the proposed project to the development of local employment. This, in turn, will be one of the criteria used to give a score to the project and, depending on the overall score, to grant certain benefits. Local content requirements can also contribute to green jobs by requiring a certain volume of services or certain products/inputs to be sourced locally. In such a case, the definition of what is ‘local’ must be carefully assessed to ensure that the companies providing such services, products and inputs employ local workers.

In all these cases, there may be complex considerations regarding the consistency of the scheme with the State's trade and investment obligations. The reader is referred to Chapter 4 for further detail.

**The double pressure that may arise from green transition policies and opening to trade makes the use of social protection policies very important.**

The second policy instrument consists of specific **structural adjustment programmes managed by employment services** in order to facilitate the transition from brown to green jobs. Such programmes have been developed in major markets to tackle structural adjustment arising from the opening to trade. By way of illustration, the United States Trade Adjustment Assistance and the European Union Globalization Adjustment Fund offer a variety of re-orientation services including job search utilities, free counselling, CV writing and job interview workshops, wage subsidies, relocation allowances and public employment services to workers displaced by import competition (Altintzis/Busser (2014)). The same approach can be applied to structural adjustment arising from the transition from brown to green, particularly when such transition also combines structural adjustments arising from coordinated green industrial policies that may help some domestic champion industries to export more but may put great pressure on other industries, particularly brown and uncompetitive industries.
Employment-related local content requirements and structural adjustment programmes may be complementary because the increasing demand arising from the first policy instrument may be satisfied by facilitated re-orientation and retraining policies. A key component for this complementarity to work is a sufficient supply of educational and training services in the relevant green techniques, particularly those identified as necessary by the domestic industry within the context of coordination measures (see section 2.2).

### 2.5. Education and training

Education and training measures are important not only from the perspective of employment but also from that of consumption. Integrating environmental education in the curriculum of primary and secondary schools is critical for a transition to an inclusive green economy but also to make consumers sensitive to the implications of purchasing certain goods (green goods) rather than others (brown goods). Education policies are fully consistent with trade law and they provide the basis for other policies, such as standards (labels and disclosures), to fully deploy their effects. They are, moreover, the groundwork of any policy aimed at promoting green industries and to make green jobs more appealing. Within the broad category of educational policies one finds not only the integration of environmental awareness in national curricula but also the promotion of education and research at the university level, including the provision of directed research grants that can lead to green technologies and entrepreneurship (see Chapter 3). More fundamentally, an inclusive green economy requires an education system that incorporates the idea of continuous life-learning and focuses on a variety of transferable skills. It is indeed by ingraining the idea that learning continues through life and by building skills (statistical, communicational, entrepreneurial, etc.) that are transferable from one activity to another that a solid basis for more targeted training relevant for the green economy can be promoted.
Among such more targeted training measures, the organisation and valorisation of quality apprenticeships may be key to orient young people towards green industries. Apprenticeships usually start after a period of general formal education at an age between 15-16 years old and they allow the apprentice to gain immediate hands-on experience to certain activities. At the same time, they provide lower-cost labour input for small and medium enterprises, as well as a useful integration approach for young migrants. Apprenticeships may thereby strengthen the small business sector, particularly small and medium enterprises, and they often lead to the creation of new enterprises.

Continuing learning and retraining opportunities are also key because a large part of the impact of a green transition on employment consists of skill upgrading needs and retraining (for workers formerly active in brown economy sectors). As noted earlier, coordination among workers associations, employer associations, government institutions, and training providers is very important to understand the specific needs of the industry and the workers at any point in time. It allows the training services industry to react more promptly and accurately with the provision of training programmes. Governments can support the process by providing tax deduction or even subsidies to encourage individuals to upgrade their skills or retrain themselves. Employment services can also participate in this process by encouraging unemployed people to consider retraining opportunities in the green sectors. The target of such training must be matched with the target of the broader green industrial policy. Specifically, it is important to avoid skill shortages in supported green domestic industries as well as to ensure that a sufficiently trained workforce is made available in conjunction with employment-related local content requirements, including the provision of green services.

In the following sections, two case studies look in more detail into the experience of the ILO and South Africa in promoting green jobs and an inclusive transition to a green economy.
3. Case-studies

3.1. The ILO’s Green Jobs Assessments methodology

The perceived effect of a policy on the job market is often one, if not the main, decisive argument for or against its adoption. This makes the ability to estimate the employment potential of green policies very important. In its effort to support a just transition and green jobs, the ILO has developed guidelines on how to undertake Green Jobs Assessments and compiled methodologies towards assessing the employment potential offered by green policies. It furthermore supports the development of national-level Green Jobs Assessments. The ILO’s Practitioner’s Guide provides a comprehensive assessment tool along a combined five-step approach, as also outlined in section 2 of this chapter. The ILO draws attention to several factors that policy makers will need to consider when conducting Green Jobs Assessments, including a clear definition of green jobs and a decision on what they want to measure (e.g. direct, indirect or induced jobs). It must furthermore be decided, whether gross or net employment effects shall be calculated. While gross employment effects only take into consideration new green jobs created, net employment effects are calculated by taking into account new jobs generated, as well as potential job losses. The kind of employment effects that may be measured depend on the data availability and the methodologies chosen. Different methodologies may be applied to assess different dimensions of green jobs. Methodologies may offer a way to identify and quantify existing jobs, or they may project the effect of policies and investment programmes on new, green employment.

The ILO Green Jobs Assessment in Lebanon may serve as an illustrative example. The study assesses the green jobs potential of four sectors, i.e. energy, building and construction, agriculture and waste management. The assessment first provides a general overview over the four sectors, related policies and legislations and the available and planned financing and

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16 For more on ILO’s national level assessments see here: http://www.ilo.org/global/topics/green-jobs/publications/WCMS_190963/lang-en/index.htm


18 Direct jobs are those that have resulted from investment in sustainable sectors and thus an expansion of production. Indirect jobs are created in supplier industries through a higher demand for inputs. Induced jobs are created through increased consumer spending linked to the direct and indirect jobs created.
investment. On this basis, it offers an estimation of the number of green jobs that can be created if green policies relevant to these sectors are implemented. Sectoral assessments were based on an extensive literature review and meetings and interviews with policymakers and other stakeholders. Due to the lack of availability of input-output tables, the study on Lebanon relies on a number of assessments and quantified only direct jobs, excluding indirect and induced jobs. The report evaluates the need for occupational skills and re-training needs required for the creation of green jobs or greening of existing jobs. Additionally, the assessment identifies obstacles to the implementation of policies related to green job creation and finally presents recommendations to address the challenges identified. Overall, the assessment found considerable job creation potential in going green in Lebanon. The study also demonstrates the importance to work with data constraints and use a variety of methods to assess the potential of green jobs.

3.2. Green jobs training in South Africa\textsuperscript{19}

To promote green jobs and decent work in the context of the transition to a green economy in South Africa, the International Training Centre of the ILO (ILO-ITC) and the Green Fund of South Africa collaborated to device a two-year training programme. The Green Fund is a government-wide initiative, established by the Department of Environmental Affairs of South Africa and implemented by the Development Bank of Southern Africa, to support the South African transition towards a low-carbon, resource efficient and climate-resilient growth path.

The green jobs trainings aimed to develop the capacity of key stakeholders to realize the job creation potential of a green economy and to ensure that the labour market is well-equipped to respond to changing skill-sets demanded by a green economy. The programme consisted of two overarching training sessions on the topic ‘Green jobs for sustainable development: concepts and practises’, followed by two sector-level trainings. The two overarching training sessions aimed to provide participants with the knowledge and tools (i) to assess the green jobs potential in South Africa, (ii) to strengthen their ability to build upon these findings with appropriate policies and strategies, and (iii) to understand investments and technology options and evaluate progress.

In a first workshop in November 2014, a group of about 30 representatives of key national departments and institutions came together with experts from the ILO’s Green Jobs programme, the ILO-ITC in Turin, the ILO Decent Work Support Team for Eastern and Southern Africa and specialists from

\textsuperscript{19} This section is based on ILO, \textit{Green Jobs. Progress Report} (2014-2015).
the Department of Environmental Affairs and the Industrial Development Corporation (IDC) of South Africa. In addition to national-level policies, sectoral approaches were discussed and illustrated by a site visit to the new green building of the Department of Environmental Affairs in Pretoria. In March 2015, a second course followed comprising about 50 participants. The course provided delegates with the opportunity to learn about the job creation potential in a South African green economy, discuss challenges and opportunities, and how to realise these at a local level. Methods included training sessions, panel discussions, group work and a one-day knowledge fair that sought to map existing policies, illustrate investment options, existing skill-gaps, sectoral approaches and share good practise across the nine provinces of South Africa. As part of the training, nine consolidated action plans were developed which were then followed up on in the months following the conference through an online community of practise. Finally, two additional courses were organised around the topic of ‘Green Jobs in the Waste Sector’ and ‘Green Jobs in the Natural Resources Sector’ that set to introduce the concept of green jobs to key stakeholders in those particular sectors.
# Summary table

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<td>• Avoiding skill shortages and coordination problems in green sectors</td>
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<td><strong>Selecting the tools</strong></td>
<td>Matching selected policy rationales with policy options. Policy options within the broad category of employment-related schemes:</td>
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<td>• Information gathering and assessment programmes</td>
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<td><strong>Design and assessment</strong></td>
<td>Specific design of policy option. Selection within each variety of the tool of specific design features:</td>
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<td></td>
<td>• Information gathering and assessment programmes (methodologies include UN Environment’s green economy scoping studies, ILO’s green jobs assessment methodology, OECD’s computable general equilibrium model)</td>
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<td>• Participation and coordination measures (coordination across workers-, employers- organisations, government and training entities regarding skills needs, participation of workers representatives in delegations negotiating trade agreements)</td>
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<td>• Social protection (minimal wages, unemployment benefits, employment-related local content requirements, structural adjustment services)</td>
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Resources

NB: all links last visited on 15 September 2017

- ILO, Guidelines concerning a statistical definition of employment in the environmental sector (2013a).
- ILO, A just transition to climate-resilient economies and societies. Perspectives for the world of work (December 2016).