



European
Commission



Promoting green jobs throughout the crisis:

a handbook of best practices in Europe

EEO Review

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European Commission

Lieve Engelen (Employment, Social Affairs and Inclusion DG, Unit C.1)

Belgium: Robert Plasman, DULBEA— Université de Bruxelles (University of Brussels)
Brussels

Bulgaria: Pobeda Loukanova, Economic Research Institute
Sofia

Czech Republic: Daniel Münich, CERGE-EI— Centre for Economic Research & Graduate Education (Charles University) – Economics Institute (Czech Academy of Sciences)
Prague

Denmark: Per Kongshøj Madsen, CARMA— Centre for Labour Market Research, Aalborg Universitet (Aalborg University)
Aalborg

Germany: Nicola Düll, Economix Research & Consulting
Munich

Estonia: Reelika Leetmaa, Praxis Centre for Policy Studies
Tallinn

Ireland: Jerry Sexton, Economic Consultant
Dublin

Greece: Dimitris Karantinos, EKKE— National Centre of Social Research
Athens

Spain: Elvira González Gago, CEET— Centro de Estudios Económicos Tomillo, SL (Tomillo Centre for Economic Studies)
Madrid

France: Sandrine Gineste, Bernard Brunhes Consultants
Paris

Italy: Giuseppe Ciccarone, Fondazione Giacomo Brodolini (Giacomo Brodolini Foundation)
Rome

Cyprus: Louis N. Christofides, University of Cyprus
Nicosia

Latvia: Alfreds Vanags, BICEPS— Baltic International Centre for Economic Policy Studies
Riga

Lithuania: Boguslavas Gruževskis and Inga Blaziene, Institute of Labour and Social Research
Vilnius

Luxembourg: Patrick Thill, CEPS/INSTEAD— Centre d'Etudes de Populations, de Pauvreté et de Politiques Socio-Economiques (Centre for the Study of Population, Poverty and Socioeconomic Policy)/ International Network for Studies in Technology, Environment, Alternatives, Development
Differdange

Hungary: Zsombor Cseres-Gergely, Magyar Tudományos Akadémia KRTK, Közgazdaságtudományi Intézet (Institute of Economics, Centre for Economic and Regional Studies of the Hungarian Academy of Sciences)
Budapest

Malta: Manwel Debono, Centre for Labour Studies, L-Università ta' Malta (University of Malta)
Msida

Netherlands: Sonja Bekker, ReflecT Institute, Universiteit van Tilburg (University of Tilburg)
Tilburg

Austria: Ferdinand Lechner, Lechner, Reiter & Riesenfelder OEG
Vienna

Poland: Łukasz Sienkiewicz, Szkoła Główna Handlowa w Warszawie (Warsaw School of Economics)
Warsaw

Portugal: Reinhard Naumann, DINÂMIA – Centro de Estudos sobre a Mudança Socioeconómica (Research Centre on Socioeconomic Change)
Lisbon

Romania: Cătălin Ghinărașu, National Labour Research Institute
Bucharest

Slovenia: Miroslav Ignjatović, Fakulteta za družbene vede, Univerza v Ljubljani (Faculty of Social Sciences, University of Ljubljana)
Ljubljana

Slovakia: Luboš Vagač, Centrum pre hospodársky rozvoj (Centre for Economic Development)
Bratislava

Finland: Robert Arnkil, Työelämän tutkimuskeskus Tampereen yliopisto (Work Research Centre, Tampere University)
Helsinki

Sweden: Dominique Anxo, CELMS HB— Centre for European Labour Market Studies HB
Gothenburg

United Kingdom: Kenneth Walsh, TERN— Training & Employment Research Network
Kidderminster

Croatia: Teo Matković, Faculty of Law, University of Zagreb
Zagreb

Iceland: Sveinn Agnarsson, Hagfræðistofnun, Háskóli Íslands (Institute of Economic Studies, University of Iceland)
Reykjavik

Former Yugoslav Republic of Macedonia: Nikica Mojsoska-Blazevski, School of Business Administration, University American College-Skopje
Skopje

Turkey: Hakan Ercan, Orta Doğu Teknik Üniversitesi (Department of Economics, Middle East Technical University)
Ankara

Serbia: Mihail Arandarenko, FREN— Fond za razvoj ekonomske nauke (Foundation for the Advancement of Economics)
Belgrade

Norway: Sissel C. Trygstad, Fafo Institutt for arbeidslivs- og velferdsforskning (Fafo Institute of Labour and Social Research)
Oslo

EEO Network Services

ICF GHK
GHK Consulting Limited
30 St Paul's Square
Birmingham
B3 1QZ
UNITED KINGDOM
Tel.: +44 1212338900
Fax: +44 1212120308
E-mail: eeo@ghkint.com

Director: Patricia Irving
Managers: Leona Finlay and Caroline Lambert
Editors: Marco Barton, Julie Farrell, Leona Finlay, Jo Hawley, Anna Manoudi, Joel Marsden, James Medhurst, David Scott

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the crisis: a handbook
of best practices in Europe
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1. Introduction to the Review

The European Commission has indicated that the green economy is one of the key strategic domains for economic growth and job creation to overcome the employment crisis⁽¹⁾. The Communication *Towards a Job-Rich Recovery* identified that job growth in the green economy has been positive throughout the recession and is forecast to remain quite strong, while the Staff Working Document, *Exploiting the employment potential of green growth*⁽²⁾, which accompanied the Communication, highlighted that the right choice of employment and skills policies can make an important contribution to realising the transition to a low-carbon and resource-efficient economy.

The Commission's view on the potential of green growth is shared by UNEP and the OECD. UNEP maintains that greening economies fuels growth, creates jobs and is a credible way to eliminate persistent poverty, while the OECD (2011) suggests that investment in green activities holds significant potential for job creation⁽³⁾. Other authors, however, state that the jobs potential of environmental policies is overestimated (for example, Morriss et al., 2009; Michaels and Murphy, 2009)⁽⁴⁾. Furthermore, commentators have argued that policy decisions should not be made on the basis of the 'myth' of green jobs⁽⁵⁾.

The Commission's integrated policy approach (implementing environmental policies together with labour market and skills development policies) to manage the opportunities and challenges brought about by environmental change was

previously highlighted in the 2009 *EEO Review*⁶. At that stage the *Review* reported that

'...in general there are no integrated and coordinated sets of labour market policies that would support going green'.

In addition the 2009 *EEO Review* noted that in at least some Member States, an environmental focus was not a priority given the current economic downturn. Without stronger efforts by Member States to implement measures to achieve environmental and in particular energy-related objectives and targets, the attendant investment in emissions reduction and resource efficiency and subsequent employment impacts would not materialise.

Following on from this and in the context of the EU Commission's continuing commitment to greener economies, the purpose of this *Review*— in light of the on-going crisis and high structural unemployment— is to assess:

- Whether and to what extent national and regional governments have re-focused their policy efforts on promoting business development and employment creation in green sectors since 2009; and
- Where Member States have done so, the nature of the policy efforts pursued.

This *Review* summarises the key messages emerging from 33 national articles on the theme of promoting green jobs throughout the crisis. The green economy refers to the European Union's 20-20-20 targets for reducing greenhouse gas emissions, increasing energy produced from renewable sources, increasing resource efficiency in terms of energy and material input consumption and conserving the natural environment. The scope of this *Review* therefore covers the following:

⁽¹⁾ European Commission (2012) *Towards a job-rich recovery*, COM (2012) 173 final. Internet: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2012:0173:FIN:EN:PDF>

⁽²⁾ European Commission (2012) *Exploiting the employment potential of green growth* SWD (2012) 92 final.

⁽³⁾ Quoted in Bowen, A. (2012): *Green Growth, Green Jobs and Labor Markets*, Policy Research Working Paper 5990, Office of the Chief Economist, Sustainable Development Network, The World Bank, March 2012. Internet: <http://www2.lse.ac.uk/GranthamInstitute/publications/WorkingPapers/Papers/70-79/WP76-green-growth-green-jobs-labour-markets.pdf>

⁽⁴⁾ Ibid.

⁽⁵⁾ Hughes (2011) quoted in Bowen, A. (2012): *Green Growth, Green Jobs and Labor Markets*, Policy Research Working Paper 5990, Office of the Chief Economist, Sustainable Development Network, The World Bank, March 2012. Internet: <http://www2.lse.ac.uk/GranthamInstitute/publications/WorkingPapers/Papers/70-79/WP76-green-growth-green-jobs-labour-markets.pdf>

⁽⁶⁾ European Commission (2010), *EEO Review: The Employment Dimension of Economy Greening*, DG Employment, Social Affairs and Equal Opportunities Unit D.2, (Manuscript completed in December 2009), Luxembourg. Internet: <http://www.eu-employment-observatory.net/resources/reviews/EN-EEORReviewAutumn2009-OOPEC.pdf>

- **‘Eco-industries’**, in which ‘jobs are green by nature of activity’⁽⁷⁾; and
- **‘Transformation’** approach, in which ‘all jobs are greening’ including traditional industries, i.e. polluting or energy-intensive activities are undergoing a process of adaptation to the environmental standards required by the EU.

The key questions SYSDem experts were asked to consider in assessing Member States’ progress (or lack thereof) towards greener growth were as follows:

1. To what extent have objectives for low-carbon (green) economies played a role in governments’ employment strategies during the crisis? Do Member States consider this as a pathway out of the crisis?
2. What kind of policy measures have been adopted, if any? Are these measures part of an integrated and coordinated set of labour market policies with a view to supporting the transition to a low-carbon economy?
3. To what extent and how have EU funds supported investments in the greening of the economy?
4. In the absence of any reference to the low-carbon economy in employment strategies, what

plans, if any, exist for integrating low-carbon objectives in future employment strategies?

Section 2 of this report outlines the European policy context for promoting the transition to green growth. This section discusses the different approaches to defining the concept of the green economy. It then outlines key EU policy drivers to promote green jobs, and finally it discusses EU labour market trends in a greener economy, focusing on trends in eco-industries, on the emerging impact of greening on all jobs and sectors and also on specific sectors, and the impacts of greening on skills needs.

Section 3 identifies the types of national and/or regional strategies or single policy measures adopted between 2009 and 2012 for the promotion of employment in green sectors as outlined in the national articles. It then goes on to describe some of these policies in more detail.

With a view to identifying possible preconditions for strategies or measures to be replicated successfully in national or regional contexts, Section 4 draws on the available information from the *Review* articles and outlines the success factors which characterise the formulation and/or implementation of the policies described in Section 3.

The final section presents a summary of findings and lessons learned.

(7) Eurostat defines eco-industries as those ‘activities which produce goods and services to measure, prevent, limit, minimize or correct environmental damage to water, air and soil, as well as problems related to waste, noise and eco- systems. This includes technologies, products and services that reduce environmental risk and minimize pollution and resources’ (Cf. European Commission (2006), *Study on Eco-industry, its size, employment, perspectives and barriers to growth in an enlarged EU*, pp. 15-17. Internet: http://ec.europa.eu/environment/enveco/eco_industry/pdf/ecoindustry2006.pdf

2. European Policy Context

2.1. Introduction

According to the European Commission's Staff Working Document (SWD, April 2012), *Exploiting the employment potential of green growth*⁽⁸⁾, the gradual transition towards a competitive, low-carbon and resource-efficient economy is—above all—seen as an opportunity to minimise the negative consequences of climate change and resource depletion for future generations. The SWD also recognises that transforming Member State economies requires a mix of policy instruments aimed at fostering the advantages such a transition can bring in terms of enhancing energy security, improving the health of European citizens and boosting the international competitiveness and sustainability of EU industries. In relation to employment, while many new jobs will be created, the majority will be redefined and others might be lost⁽⁹⁾.

As well as needing to anticipate the labour market effects of industrial, innovation, energy and environmental policy actions taken, the European Commission also points out that the right choice of employment and skills policies can also make an important contribution to the transition to a greener economy by capitalising on new possibilities and addressing existing bottlenecks. It is therefore essential that labour markets and associated policies at EU and Member State level act as a catalyst, and not an obstacle, to this transformation process⁽¹⁰⁾.

2.2. Defining a Greener Economy

In this context, the question raised here is how 'green', 'green economy' and 'green jobs' should be defined. Two distinct approaches emerge from the policy and research literature:

- **'Eco-industry'** approach, in which 'jobs are green by nature of activity'; and
- **'Transformation'** approach, in which 'all jobs are greening'.

Several international institutions, such as Eurostat and the United Nations Environmental Program

⁽⁸⁾ European Commission (2012), *Exploiting the employment potential of green growth*, Staff Working Document, April 2012, Final 92.

⁽⁹⁾ Ibid

⁽¹⁰⁾ Ibid

(UNEP), define the green economy or green jobs along the lines of specific activities and sectors which contribute to improving the environment, which have traditionally been known as 'eco-industries'. UNEP defined green jobs '...as work in agricultural, manufacturing, research and development (R&D), administrative, and service activities that contribute substantially to preserving or restoring environmental quality'⁽¹¹⁾, while leaving the precise definition of what is meant by a substantial contribution largely open.

The Eurostat methodology for defining the 'Environmental Goods and Services Sector' (EGSS) goes further. Rather than defining 'green jobs', it instead explicitly defines a heterogeneous set of producers of technologies, goods and services in a set of pre-determined sectors that seek to protect the environment or minimise the use of natural resources, i.e. that have an explicit 'environmental purpose'⁽¹²⁾.

On the basis of these standpoints, economic activities are seen as either having an explicit environmental benefit or not. The advantage of such static, activity-based concepts is that they provide a categorical definition of the green economy and thereby more readily allow for the quantitative measurement of output and employment. In practice this may still be difficult as existing statistical classifications may be insufficient to differentiate activities based on their contribution to the environment.

Furthermore, as greener economies develop, the dividing line between 'green' and 'other' work can be expected to shift over time as business processes and related occupational profiles and skill sets are transformed as a result of policies and other environmental and low-carbon drivers. It has been recognised that the transition to a greener economy is a dynamic process of transformation capable of affecting the quantity and nature of work and skill needs across all sectors and occupations. This has been highlighted in research by Cedefop, Eurofound and the ILO⁽¹³⁾. As a result,

⁽¹¹⁾ UNEP and ILO (2008), *Green jobs: towards decent work in a sustainable, low-carbon world*, United Nations Environmental Programme, September 2008.

⁽¹²⁾ Eurostat (2009) *The environmental goods and services sector: a data collection handbook*. Internet: http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-RA-09-012/EN/KS-RA-09-012-EN.PDF

⁽¹³⁾ See for example, Cedefop (2010), *Skills for Green Jobs: A European Synthesis*, GHK Consulting in association with DTI, Economix, CEET and Olav Aarna.

a set of broader definitions have emerged in the research and policy literature which instead position 'green jobs' on a spectrum. Jobs or economic activity in this sense are seen as 'green' as a consequence of the transformative process of 'greening'. To this end, the European Commission defines green jobs as:

'... covering all jobs that depend on the environment or are created, substituted or redefined (in terms of skills sets, work methods, profiles greened etc.) in the transition process towards a greener economy' (14).

The two approaches, while conceptually distinct, are not mutually exclusive. Indeed, the 'eco-industry' approach can be seen as providing a preliminary identification of a core subset of activities that will be affected by environmental and low-carbon drivers. For instance, employment will be **created** through the development and deployment of new technologies such as renewables. Existing jobs in eco-industries will also be **redefined** as, for example, agricultural workers are increasingly required to manage farmland habitats and features or spatial planners need to integrate the needs of habitats and species with those of anthropogenic land uses (15). It is also toward such sectors that much of the EU and Member State policy efforts are directed.

The advantage of adopting the broader 'transformation' approach is that it supports the investigation of impacts across all sectors to take account of the restructuring effects on resource- and energy-intensive sectors. As a result of this environmentally driven transformation, UNEP and the ILO highlight that some jobs are:

- **Created**— through increasing rates of renovation in buildings or carbon capture and storage;
- **Substituted**— the manufacture and sale of hybrid or electric vehicles gradually replace the production and sale of traditional cars; or
- **Redefined**— gas fitters move towards installing gas combined heat and power instead of traditional systems, or builders develop skills in retrofitting (16).

(14) European Commission (2012), *Exploiting the employment potential of green growth*, Staff Working Document, April 2012, Final 92.

(15) GHK, IEEP, Ecologic, Bio Intelligence Service and Naider (2012), *The EU biodiversity objectives and the labour market: benefits and identification of skill gaps in the current workforce*, Report to DG Environment, European Commission.

(16) UNEP and ILO (2008), *Green jobs: towards decent work in a sustainable, low-carbon world*, United Nations Environmental Programme, September 2008.

In addition, indirect knock-on effects may ripple through the economy and induce impacts in other parts of the labour market via price, wage and income effects (17).

Employment policies are needed to address these much broader impacts of greening the economy in order to anticipate and avoid setbacks (labour shortages and skills bottlenecks), and to provide support to the creation of new and emerging industries.

While acknowledging that the concept of 'green' is particularly pertinent to jobs in sectors with an 'environmental purpose', activity-based definitions of green jobs run the risk of focusing on a too-narrow area of the economy. Instead, a 'broad policy-based approach that acknowledges the complex inter-linkages between climate change and environmental sustainability on the one hand and labour markets on the other hand is required' (18). The European policy environment sets the framework for policy actions that support a holistic and integrated approach.

2.3. EU Policy to Promote Green Jobs

The current economic crisis has exposed some of the structural weaknesses present in Europe's economy. The worldwide and long-term challenges of globalisation, climate change and pressures on resources have intensified, as well as technological change and demographic change (related to falling labour supply).

In the midst of the crisis, the European Commission launched the Europe 2020 Strategy on 3 March 2010 to promote collective action to turn the EU into a smart, sustainable and inclusive economy delivering high levels of employment, productivity and social cohesion.

There are a number of EU policies and strategies intended to shift Europe towards a low-carbon economy and reduce its environmental effects. One of the most significant of these, in terms of potential employment effects, is the 'European Energy and Climate Change Package' (ECCP) (19). The targets of the ECCP are collectively known as the 20-20-20 targets. They include:

(17) CE, GHK and IER, 2011, *Studies on sustainability issues – green jobs; trade and labour*, Final Report, Research Project for the European Commission, DG Employment, Social Affairs and Inclusion.

(18) European Commission (2012), *Exploiting the employment potential of green growth*, Staff Working Document, April 2012, Final 92.

(19) The six legislative actions can be found at: http://ec.europa.eu/environment/climat/climate_action.htm

- A reduction in greenhouse gas emissions of at least 20% below 1990 levels;
- Renewable sources to represent 20% of EU final energy consumption;
- A reduction in energy consumption of 20% from projected 2020 levels.

In March 2011, as part of its *Roadmap for moving to a competitive low-carbon economy in 2050*, the EU signalled its long term commitment to reducing Greenhouse Gas (GHG) emissions to 80–95% below 1990 levels by 2050 in the context of necessary reductions by developed countries as a group⁽²⁰⁾. Meanwhile, the 2011 EU biodiversity strategy to 2020⁽²¹⁾ and the 2010 flagship initiative 'Resource Efficient Europe'⁽²²⁾, extend the need for action beyond climate issues to also halting the loss of biodiversity and ecosystems and considering the sustainability of all natural resources (including water, air, soil, rare earth metals etc.). Taken together, a more efficient, conservative use of resources across all sectors and a greater use of renewable resources are seen to present opportunities to not only tackle the recession but also 'to create a more

productive, more innovative, more inclusive, low-carbon economy'.

Achieving such strategic objectives and realising the opportunities therein is however not without challenges, requiring direction and policy support as well as funding (see Box 1 below). As such, the climate, energy and other environmental targets are supported by a mix of regulatory and legislative measures (for example, Energy Efficiency Directive), market-based instruments (for example, emissions pricing), and 'softer' tools (for example, networks and cooperation).

The transformation of the present global economy to one which can be sustained over the long term, given the physical limits of the use of natural resources, represents a major challenge to businesses and workers. As with any other form of structural change, the speed and extent of the transition to a greener economy will be substantially affected by how successfully technical skills and entrepreneurial abilities are matched to new investment and job requirements, how quickly new technology spreads and how effective labour market policies are in supporting workers and businesses in making the transition.

⁽²⁰⁾ COM/2011/112, *A roadmap for moving to a competitive low-carbon economy in 2050*, Communication from the European Commission.

⁽²¹⁾ COM/2011/244, *Our life insurance, our natural capital: an EU biodiversity strategy to 2020*, Communication from the European Commission.

⁽²²⁾ COM/2011/21, *A resource-efficient Europe: Flagship initiative under the Europe 2020 Strategy*, Communication from the European Commission.

Box 2.1 EU financial instruments to promote job creation in a greener economy

A range of EU funding instruments exists that may contribute to integrating green growth and labour market policies in two ways:

- Directly, by supporting the development of green jobs (for example, through training or employment programmes); or,
- Indirectly, by funding resource efficiency and wider climate and environment projects which require new jobs and/or skills to be created.

A number of European Commission financial instruments could be further targeted to support job promotion in a greener economy in the context of the next multi-annual financial framework 2014-2020. These are presented below:

- **European Social Fund (ESF)** co-finances labour market activation measures and measures to smooth the transition into work
- **European Regional Development Fund (ERDF)** supports investments in education infrastructure and research, development and innovation in low-carbon technologies
- **Joint Action to Support Micro-Finance Institutions in Europe (JASMINE)** can support the promotion of entrepreneurship, business start-ups and self-employment that could be directed towards green jobs
- **European Progress Microfinance Facility** also provides support for the self-employed and micro-companies that could be directed towards green jobs
- **Competitiveness and Innovation Programme (CIP)** and FP7 aim to contribute to economic growth and employment by supporting projects dealing with innovation, including renewable energies and energy efficiency
- **Lifelong Learning Programmes (Leonardo da Vinci)** funds projects which aim to improve sectorial identification and anticipation of skill and competence needs and their integration into vocational training provision
- **European Globalisation Adjustment Fund (EGF)** helps manage restructuring processes by co-financing re-skilling and job-search measures
- **European Agricultural Fund for Rural Development (EAFRD)** supports job diversification into non-agricultural activities and development of small rural businesses
- **European Marine and Fisheries Fund (EMFF)**, supports the transition to sustainable fishing including through training and small business support

Sources: *Agenda for New Skills and Jobs*⁽²³⁾; *Towards a job-rich recovery*; and GHK, IEEP, Ecologic, Bio Intelligence Service and Naider (2012).

⁽²³⁾ COM/2010/0682, *An Agenda for New Skills and Jobs: A European Contribution Towards Full Employment*, Communication from the European Commission.

Legislative reforms and emissions targets will bring about downsizing and restructuring in carbon-intensive industries on the one hand. On the other hand, employment growth can be expected in renewable energies and activities to support energy efficiency, particularly in construction and transportation.

In 2012, the European Commission singled out 'the employment potential of green growth' in its Communication *Towards a job-rich recovery*⁽²⁴⁾. This communication and the accompanying staff working document⁽²⁵⁾ identified **four employment actions** for the European Commission to promote green jobs:

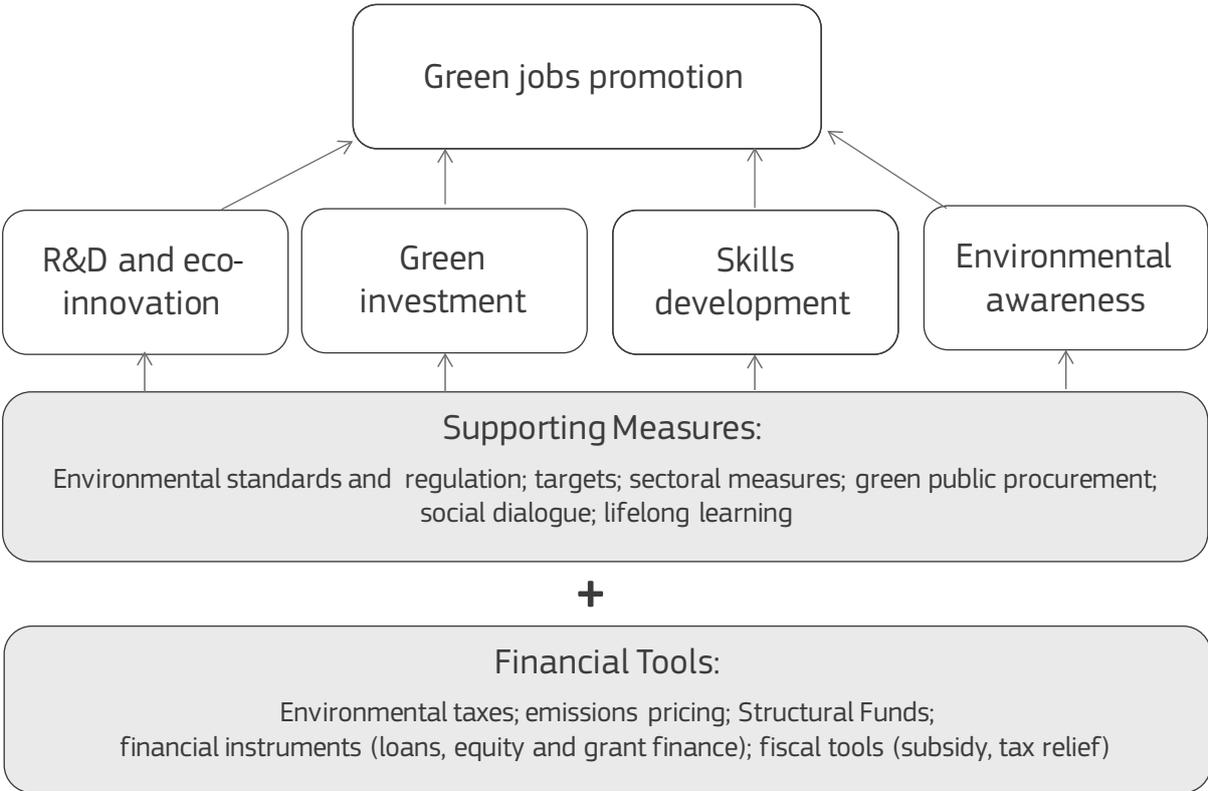
- to mainstream green employment into national job plans;
- to strengthen intelligence on the skills needed in a green economy;
- to promote greater use of EU financial instruments for smart green investments; and

- to build partnerships between labour market actors.

A wide range of fiscal, financial, regulatory and legislative tools are employed at European, national, local and sector levels to stimulate innovations in technology and modes of organisation and enable investments in physical and human capital which support resource-efficient outcomes. Tools are also adopted to raise awareness and understanding of these investments and innovations so that they are diffused throughout industries and used effectively by individual businesses, employees and consumers. Taken together, the aim of these policies is to foster and implement innovation and change that is more resource efficient and which will have impacts on the labour market.

An overview of the range of policy measures at European level to support job creation in a greener economy are provided in Figure 2.1 below.

Figure 2.1: EU Green Jobs Policy Matrix



Source: Developed by ICF GHK.

⁽²⁴⁾ European Commission Communication of 18 April 2012, *Towards a job rich recovery*, COM (2012) 173.

⁽²⁵⁾ COM/2012/173— *Towards a Job-Rich Recovery* and SWD/2012/92 *Exploring the potential of green growth*, 18 April 2012.

Ultimately, a complex web of influences will affect the degree to which progress is made towards a low-carbon, environmentally sustainable economy across EU Member States and thereby the level of demand for ‘green jobs’, which in turn will reinforce the transition process. In addition to the influence of the international regulatory environment and European policy frameworks in place, Member States may adopt their own industrial and fiscal policies to promote transition to greener economies, and these policies will interact with other factors affecting the development of different sectors. Such factors include the development of technology, climatic drivers themselves and, critically, the level of business and consumer demand for environmentally sensitive products and services⁽²⁶⁾.

In this sense, the top-down frameworks are seen as establishing the conditions and certain parameters, while the Member States are largely free to decide on the specific policy instruments to achieve the overarching Europe 2020 goals, leaving room also for initiatives to be developed by the social partners and national, regional and local actors. However, while the interconnectedness of separate policy areas is apparent, European and Member State policies towards environmentally sustainable, low-carbon development and employment creation are generally pursued by relevant government departments in isolation from other government departments⁽²⁷⁾. The need for increased inter-departmental approaches is evident.

One approach described by the OECD (2012a) is approaching green growth from an environmental perspective, i.e. internalising environmental externalities by mainstreaming sustainable development requirements into economic decision-making⁽²⁸⁾. The Dutch approach may be characterised in this way. The policies and regulations that accompany this choice are not directly aimed at the growth of employment. Rather, the conviction is that by supporting the green economy and its companies in some way, this sector will grow and subsequently generate employment and economic growth. The government predominantly wants to set the framework and act as a facilitator. Local actors are expected to jointly develop initiatives that support green growth encompassing all relevant stakeholders

such as private companies, public-private bodies and households.

This suggests that green growth may not require governments to put in place labour market programmes which specifically target green growth in order to achieve it⁽²⁹⁾. The Swedish and Irish governments have adopted similar approaches to fostering green growth, providing stimuli to environmental sectors without preconditions regarding employment. The OECD (2012b) have pointed out that some of the OECD countries that are most advanced in terms of introducing measures to reduce carbon emission are among the sizeable minority of countries (about 40%) without labour market programmes targeting green growth, for example, Denmark, Germany, the Netherlands, Sweden and Norway. With the condition that public training and job placement services are responsive to employers’ evolving needs, this approach appears to be a credible one. According to the OECD, responding to employers’ needs, or shifting the emphasis onto labour demand and off labour supply approaches, may be the best way to avoid instances where green training programmes get ahead of the demand for green products and services and hence have trouble placing trainees into appropriate jobs.

2.4. EU Labour Market Trends in a Greener Economy

In the absence of robust data on labour market trends in greening economies, researchers in Europe tend to rely on the assumptions of what may or may not be considered a ‘green’ sector (an ‘eco-industries’⁽³⁰⁾ approach). However, as noted previously, such an approach is liable to overlook the pervasive impact of ‘greening’ on employment and skills needs throughout the economy.

To fill this gap, empirical evidence in Europe has provided quantitative, scenario-based projections of the employment creation and substitution effects of environmental and low-carbon policy, as well as some qualitative information at the sector or occupation level based on small-scale consultations, surveys and/or case study analysis⁽³¹⁾.

⁽²⁶⁾ Martínez-Fernández, Hinojosa, Miranda, 2010, *Green Jobs and Skills: Labour market implications of addressing climate change*, OECD LEED Programme.

⁽²⁷⁾ Cedefop, 2012, *Green Skills and Environmental Awareness in Vocational Education and Training*, Report by Institute for Employment Studies for the European Centre for the Development of Vocational Training.

⁽²⁸⁾ OECD (2012a), *Green Growth and Developing Countries: A Summary for Policy Makers*.

⁽²⁹⁾ OECD (2012b), *The jobs potential to a shift towards a low-carbon economy: Final report for DG employment*.

⁽³⁰⁾ The recent EU2020 thematic fiche on green jobs that accompanied the Annual Growth Survey 2013 identified that ‘Eco-industries’ encompass a heterogeneous set of sectors in the fields of *environmental protection* (e.g. waste management) and *resource management* (e.g. renewable energy, renewable raw materials and products) and linked this definition to the Eurostat definition referenced in Section 1.

⁽³¹⁾ EU Skills Panorama (2012) *Environmental Awareness Skills Analytical Highlight*, prepared by ICF GHK for the European Commission.

Sectors most directly linked to green or greener economic activities such as renewable energy, transport and construction have been the subject of more extensive research and here the impacts are seen to be both quantitative (in terms of the number of jobs) and qualitative (in terms of job content). When conducting partial analyses of job impacts resulting from specific eco-industries or greening sectors relatively large impacts are foreseen. Several studies pursue this line of enquiry for particular industries, such as renewable energy industries; though a 2011 review of the literature⁽³²⁾ notes that many of the reported jobs are indirect or induced, i.e. resulting from supply chain or multiplier effects.

2.4.1. Trends in eco-industries

Despite all the uncertainty surrounding market and policy developments, it is predicted, with some confidence, that the transition to a low-carbon and resource-efficient economy will require a significant expansion of employment in a number of green economic activities that either replace polluting activities with cleaner alternatives (for example, renewable energy displacing fossil fuels) or provide environmental services (for example, waste management and reforestation)⁽³³⁾. Depending on the definition adopted, EU-wide shares of jobs in such eco 'green' activities or 'eco-industries' are estimated to range from 2–21 %, depending on the definition adopted⁽³⁴⁾.

Reflecting the difficulties in updating existing systems and classifications of statistical measurement, Eurostat data for the EGSS is incomplete and not yet comparable across countries. With that caveat in mind, the overall employment in 2010 of the so-called 'eco-industries' is estimated at 1.5% of total European employment (or 3. million jobs). While relatively small in absolute terms, job creation in these industries has notably been positive throughout the economic recession, even while levels of investment have dropped, and is projected to continue to be resilient in future years⁽³⁵⁾.

Average annual growth in employment in the eco-industries from 2000 to 2008 is estimated at 2.7 %. Total numbers employed have grown from 2.4 million in 2000 to 3 million in 2008 and are projected to have reached 3.4 million in 2012⁽³⁶⁾.

In a separate estimate the European Renewable Energy Council (EREC) estimated the renewables sector in Europe has seen an increase of 290 000 employees within five years (2005–2009)⁽³⁷⁾. Meanwhile, some 14.6 million jobs are estimated to be provided directly or indirectly by biodiversity and ecosystem services⁽³⁸⁾.

2.4.2. The emerging impact of greening on all jobs and sectors

The transformative and dynamic process of change brought about by transition to greener economies is associated with restructuring impacts throughout the supply chain in the short and long term. While some sectors and territories will see increased demand for specific goods and services, others will be challenged by increased resource costs and lower demand. Cedefop highlights that impacts are not however limited to the quantitative effects on the size of industries and number of jobs these support but also have effects at the qualitative level in terms of the job profiles and skills required⁽³⁹⁾.

The evolution of markets for products and services, R&D and innovation policy, new regulatory frameworks and market-based instruments are changing industrial and economic structures towards greater resource-efficiency, leading to a redefinition of many jobs across almost all sectors and considerable churn related to the closure and contraction of existing businesses alongside new and expanding businesses⁽⁴⁰⁾.

At the macroeconomic level, evidence from the literature on the impact of economy greening on balance suggests that after an initial cost from switching to a low-carbon economy

⁽³²⁾ CE, GHK and IER, 2011, *Studies on sustainability issues – green jobs; trade and labour*, Final Report, Research Project for the European Commission, DG Employment, Social Affairs and Inclusion.

⁽³³⁾ Chateau, J., Manfredi, T., Saint-Martin, A., Swain, P. (2011): *Employment impacts of Climate Change Migration Policies in OECD: A general-equilibrium perspective*, OECD Environment Working Paper No 32.

⁽³⁴⁾ GHK, CE, IEEP (2007), *Links between the environment, economy and jobs*, report for the European Commission, DG Environment.

⁽³⁵⁾ Ecorys, DTI, CE, CESifo and Idea Consult (2009), *Study on the Competitiveness of the EU eco-industry*, Study for the European Commission, Directorate General for Enterprise and Industry.

⁽³⁶⁾ Ecorys (2012), *The number of jobs dependent on environmental and resource efficiency improvements*, Study for European Commission, Directorate General for Environment.

⁽³⁷⁾ European Renewable Energy Council statistics available at: <http://www.erec.org/statistics.html>

⁽³⁸⁾ GHK (2011), *The Social Dimension of Biodiversity Policy*, Report to DG Environment, European Commission.

⁽³⁹⁾ Cedefop, forthcoming, *Skills for a low carbon Europe: the role of vocational education and training in a sustainable energy scenario*, Report by ICF GHK, CE and IER for the European Centre for the Development of Vocational Training (Cedefop).

⁽⁴⁰⁾ GHK, IEEP, Ecologic, Bio Intelligence Service and Naider (2012), *The EU biodiversity objectives and the labour market: benefits and identification of skill gaps in the current workforce*, Report to DG Environment, European Commission.

(i.e. implementation of the EU 2020 targets), over the medium term there is a modest net positive outcome in terms of employment and economic growth. The latest scenario-based forecasts, looking only at the impact of additional policies necessary to meet energy and climate targets, project an additional 250 000 jobs in the EU by 2020 as a result of low-carbon policies, i.e. a 0.16% increase compared to business-as-usual⁽⁴¹⁾.

The overall small but positive net effects can be explained by the relative labour intensities of these industries⁽⁴²⁾. Since low-carbon industries typically require a relatively larger workforce per unit of output, it follows that the job gains associated with the shift towards a low-carbon economy offset job losses in the sectors that contract, leading to a small positive employment effect.

2.4.3. Emerging impacts on jobs in specific sectors

On the positive side of this employment balance sheet, job growth related to the greening of economic activities has been positive throughout the recession and is forecast to remain quite strong. When looking at specific policies and the full range of industries affected, the impacts are however much more differentiated, with some sectors such as steel, oil and cement typically reported to experience a decrease in employment, while sectors such as renewable energy, construction and transport are projected to witness positive employment growth by 2020⁽⁴³⁾ — the Commission estimates that renewable energy sectors alone could create 3 million gross jobs by 2020⁽⁴⁴⁾, while energy efficiency improvements could sustain a further 2 million gross jobs by 2020⁽⁴⁵⁾. Investment in renewable

energy sources and energy-efficient equipment and technologies creates jobs in construction, mechanical and electrical engineering, and their supply chains. As also mentioned in the recent EU2020 thematic analysis on green jobs that accompanied the Annual Growth Survey 2013, a further 2.8 million gross jobs could be generated by increasing resource efficiency⁽⁴⁶⁾.

Beyond the 2020 period, the scale of the jobs that will endure is questionable unless the levels of initial investment continue or further investments are made. There will be jobs in maintenance and replacement, but far fewer than those stimulated during periods of heavy investment. Within these investment-intensive sectors there may also be very specific sub-sectors that suffer adverse effects⁽⁴⁷⁾.

Shifts are occurring also within industries as final energy users (industry, transport, buildings and households) adopt new low-carbon technologies and practices. Jobs in the economy in effect mirror this pattern of adjustments in economic activity, with jobs being reallocated either:

- *Across the economy:* from energy-intensive industries towards those sectors with more moderate energy usage; or
- *Within industry:* as patterns of production adjust and every sector moderates energy usage and shifts to more sustainable inputs, jobs are reallocated to take account of these changes

A recent study by the European Commission sought to analyse the sectors and occupations which might benefit in the future from a transition to a low-carbon economy (Table 2.1).

⁽⁴¹⁾ Cedefop, forthcoming, *Skills for a low carbon Europe: the role of vocational education and training in a sustainable energy scenario*, Report by ICF GHK, CE and IER for the European Centre for the Development of Vocational Training (Cedefop).

⁽⁴²⁾ EC-ILO (2011) *Towards a greener economy: the social dimensions*, European Commission, DG Employment, Social Affairs and Inclusion and the International Institute for Labour Studies of the International Labour Organisation (ILO).

⁽⁴³⁾ Cambridge Econometrics, GHK and IER, 2011, *Studies on sustainability issues— green jobs; trade and labour*, Final Report, Research Project for the European Commission, DG Employment, Social Affairs and Inclusion.

⁽⁴⁴⁾ COM/2011/31, *Renewable Energy: progressing towards the 2020 target*, Communication from the European Commission.

⁽⁴⁵⁾ COM/2011/109, *Energy Efficiency Plan 2011*, Communication from the European Commission.

⁽⁴⁶⁾ Internet: http://ec.europa.eu/europe2020/pdf/themes/green_jobs.pdf

⁽⁴⁷⁾ Cambridge Econometrics, GHK and IER, 2011, *Studies on sustainability issues— green jobs; trade and labour*, Final Report, Research Project for the European Commission, DG Employment, Social Affairs and Inclusion.

Table 2.1: Occupations with potential to benefit from the low-carbon transition, by sector

| Sectors | R&D | Manufacture & installation | Operation & maintenance | Management | Administration | Sales |
|----------------------------------|-----|----------------------------|-------------------------|------------|----------------|-------|
| Renewable energy | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Conventional power generation | | | ✓ | ✓ | ✓ | |
| Cement | | ✓ | | | | |
| Carbon capture & storage | ✓ | ✓ | ✓ | | | ✓ |
| Iron & steel | ✓ | | ✓ | ✓ | | |
| Machinery & electrical equipment | ✓ | ✓ | | ✓ | | |
| Construction | ✓ | ✓ | | ✓ | ✓ | ✓ |
| Transportation | | | ✓ | ✓ | ✓ | |

Source: Cambridge Econometrics, GHK, IER (2011).

Managing this industrial transformation requires, among other things, labour markets that facilitate the necessary adjustment in an efficient, sustainable and inclusive way⁽⁴⁸⁾. As well as changing the size and composition of industries, the structural changes have implications for occupational skill requirements. Indeed, the strategic framework for European cooperation in education and training, *Education and Training 2020* (ET2020), highlights that while economic restructuring gains additional pace and unemployment in declining sectors goes hand in hand with recruitment bottlenecks in others, skills requirements are also changing in many existing jobs.

Some 'green growth' literature contends that emissions mitigation policies can drive GDP growth⁽⁴⁹⁾. These arguments centre on using export markets to increase demand for renewable energy or low-emissions goods and on driving environmental technological innovation to increase productivity and real income⁽⁵⁰⁾. The global success of renewable energy firms, for example in Denmark, Germany, and elsewhere,

has made export-led green growth a popular goal⁽⁵¹⁾. Advocates for green growth argue that promoting domestic markets and firms will result in an international comparative advantage that supports jobs and GDP growth at home⁽⁵²⁾. But empirical studies have had difficulty establishing a causal link between export growth and economic growth— at best, they appear correlated⁽⁵³⁾. In addition, research on both proposals (increase export demand & innovation) suggests that either strategy remains highly dependent on local conditions, calling into question their applicability as global approaches to achieving real GDP growth; those nations who gained from a first-mover advantage, particularly Denmark, did so on the basis of pre-existing national competencies⁽⁵⁴⁾. Second-stage countries are now faced with global competition from both developing and developed countries and may lack the foundations for moving into those products⁽⁵⁵⁾. Huberty et al (2011) argue that relying on exports of renewable energy or low-emissions products to drive GDP and jobs growth remains a strategy with limited ability.

⁽⁴⁸⁾ EEO (2009), *The employment dimension of economic greening*, European Employment Observatory Review for the European Commission, DG Employment, Social Affairs and Inclusion.

⁽⁴⁹⁾ M. Huberty, Gao, H. and Mandell, J. (2011), *Shaping the Green Growth Economy: A Review of the Public Debate and the Prospects for Green Growth*, (preliminary version), prepared by The Berkeley Roundtable on International Economy (BRIE) for Mandag Morgen Green Growth Leaders. Internet: http://www.uncsd2012.org/content/documents/Shaping-the-Green-Growth-Economy_report.pdf.

⁽⁵⁰⁾ Ibid.

⁽⁵¹⁾ Ibid.

⁽⁵²⁾ Ibid.

⁽⁵³⁾ Ibid.

⁽⁵⁴⁾ Ibid.

⁽⁵⁵⁾ Ibid.

2.4.4. Emerging impacts of greening on skills needs

As noted above, changes in the physical climate, environmental policies and regulation, in aggregate are having relatively little impact on net employment levels. Looking beyond the relatively stable aggregate economic trends however reveals a much more dynamic and turbulent process of change, with very substantial churn and recycling of factor resources related to the closure and contraction of existing businesses alongside new and expanding businesses⁽⁵⁶⁾.

Moreover, although job growth in low-carbon or green activities is estimated to offset job losses in energy intensive ones, the skills needed in the new activities are not necessarily the same as those in shrinking sectors. Adjustments within sectors can also have a substantial impact on occupational skill needs⁽⁵⁷⁾.

In general, the consensus is that technical change is biased in favour of higher-level skills. This has been the general direction of change

in employment patterns in recent years across most sectors, although in Europe there is some indication of polarisation of demand, with growth in less skilled jobs but fewer jobs requiring middle ranking skills⁽⁵⁸⁾. Green technical change is no different. The more investments made in new technologies— many of which are likely to be energy saving or related to new forms of energy generation the more demand there will be for people in higher skilled jobs. The ILO, for instance, estimates that in the EU-15 the share of high-skilled labour in low-carbon intensive sectors is higher than those in high-carbon intensive sectors⁽⁵⁹⁾.

Supportive labour markets and a vision of the skills needs are essential for supporting and developing a green and resource-efficient economy. In the context of the emerging European strategy towards green growth, this review seeks to provide an overview of the approaches and policy measures taken towards green job promotion in the Member States and identify some success factors and challenges to a successful green transformation.

⁽⁵⁶⁾ GHK, Institute of Environmental Studies (2011), *Impacts of structural change: implications for policies supporting transition to a green economy*, Report to DG Environment, European Commission.

⁽⁵⁷⁾ Cedefop (2010), *Skills for green jobs: a European synthesis*, Report by GHK for the European Centre for the Development of Vocational Training (Cedefop).

⁽⁵⁸⁾ Cedefop (2012), *Future skills supply and demand in Europe*, Report by IER, Alphametrics, Vienna Institute, CE and ROA for the European Centre for the Development of Vocational Training.

⁽⁵⁹⁾ EC-ILO (2011) *Towards a greener economy: the social dimensions*, European Commission, DG Employment, Social Affairs and Inclusion and the International Institute for Labour Studies of the International Labour Organisation (ILO).

■ 3. Policy Measures to Promote Green Employment (2009-2012)

3.1. Introduction

The main purpose of this section is to provide a general overview of national and/or regional strategies or single policy measures for the promotion of employment in green sectors and to describe a selection of these strategies or measures in more detail.

The section is split into two sub-sections:

- The first provides **an overview of the policy measures taken to promote employment in the green economy** over the period 2009-2012 and looks at the following:
 - overall policy approaches taken in the different countries covered by the *Review*;
 - the impact of the economic crisis;
 - funding sources used to finance green economy policies.
- The second sub-section provides a more detailed review by the national experts of **strategies and programmes identified to promote green jobs**.

3.2. Overview of Policy Measures

3.2.1. Policy approaches

The 2009 EEO Review on greening the economy identified a need for countries to pursue an

'integrated policy approach to manage the opportunities and challenges posed by the environmental changes' they faced. Integrated policies can take two forms:

- Green growth strategies that integrate employment and skills policies
- Employment and skills strategies that prioritise the need for green growth

This current *Review* has found that in a small number of countries such **integrated policy frameworks are in place**, such as in Greece, France, Austria, Portugal and Finland, or **progress is being made towards the introduction of a more comprehensive policy response**, such as in Bulgaria, Ireland, Spain, Luxembourg, Malta, Croatia and Iceland. However, there are still many countries which continue to approach the issue of economy greening with **a range of separate instruments and policies**, for example, the Czech Republic, Latvia, Lithuania and Slovenia. Most of the environmental policies identified do not explicitly recognise the potential for green job creation or set quantitative targets relating to employment outcomes, while the identified labour market policies do not always recognise the green economy as a potential source of jobs for the unemployed.

The '*Grenelle de l'Environnement*' in France provides **an example of an integrated approach**, as outlined in Box 3.1.

Box 3.1: The Grenelle de l'Environnement, France⁽⁶⁰⁾

The *Grenelle de l'Environnement* was the beginning of an important policy trajectory relating to green jobs in France. Proposals were formulated through a democratic process with four key stages deployed during the second semester of 2007: workshops, public debate, round table discussions, and finally the development of environmental guidelines and launch of 34 operational committees managed by politicians or experts. The 'Grenelle Environnement' included the following proposals:

- fighting climate change;
- protecting and managing biodiversity and natural environments;
- protecting health and the environment whilst promoting economic growth; and
- introducing a sense of responsibility for the environment into France's democratic institutions.

Between 2008 and 2010, the Parliament adopted 'Grenelle Laws', which were the immediate translation of 'Grenelle Environnement' proposals. In addition, to support the development of the green economy and 'Grenelle Environnement' proposals, the Ministry of Ecology, Sustainable Development and Energy announced in September 2009 a national mobilisation plan for jobs and skills in the green economy with the main objectives being to identify qualitative and quantitative recruitment needs, promote green jobs, and integrate the green economy into the education and training system.

In this context, between October and November 2009 labour, employment and training policies were set out across 11 Committees: agriculture and forests, the car industry, construction jobs, biodiversity and ecological services, water purification, eco-electricity, renewable energy, refining green fuels and green chemicals, jobs at sea, tourism and transport. The Committees' representatives were composed, like the governance of the plan, of five kinds of partners (politicians, social partners, qualified people, economic representatives, and environmental non-profit organisations). The Committees' objectives were mainly focused on identifying future green jobs skills and also priorities for anticipating, supporting and accelerating green change. The Committees produced their first reports for the Minister at the beginning of 2010. A second stage of reports was completed during 2010 where Committees gave their more developed conclusions to the Minister exploring the expected impacts on employment and jobs as a result of shifting towards the green economy.

⁽⁶⁰⁾ See OECD working paper (2012) *The Political Economy of the 2009 French Carbon Tax Project* for further information: <http://www.chaireconomieduclimat.org/wp-content/uploads/2013/01/The-political-economy-of-the-2009-French-Carbon-tax-project2.pdf>

Examples of **established environmental policies and programmes that do not tend to focus on employment outcomes** are illustrated in some of the national articles, for example Germany, Italy, Hungary, the Netherlands, Sweden, the UK, Croatia and Norway. These include policies and strategies relating to (renewable) energy supplies, resource efficiency and climate change. In Hungary for example, the National Climate Change Strategy has been in place since 2000 to tackle the challenges of climate change. Though the strategy serves to provide the direction for policy formulation, it is reported that it does not treat employment as a main aspect of greening policies. Following the implementation of the 2000 National Climate Change Strategy, there are a number of policies in place that range from the Environment and Energy Operational Programme (EEOP) and the Economic Development Operational Programme (EDOP), though again the employment aspect is not key to the EEOP projects.

However, as reported by the OECD (2012), it is interesting to note that some countries that are the most advanced in terms of introducing measures to reduce carbon emissions are among a significant minority reporting that they have **no labour market programmes specifically targeting green growth**— for example Germany, the Netherlands, Sweden and Norway⁽⁶¹⁾. The implicit assumption is that industries and labour markets are automatically able to adjust to environmental policies and enabling measures are either not needed or will be provided by other policy makers.

Job creation may be seen as an indirect consequence of green growth policies. The government in the Netherlands, for example, has set out to achieve 'green growth' and a sustainable economy, as described in the recent coalition agreement (October 2012). Green growth is understood

⁽⁶¹⁾ OECD (2012), *The jobs potential of a shift towards a low-carbon economy: final report for the European Commission*, DG Employment, June 2012.

to mean economic growth without generating negative effects on the climate, water, soil, raw materials or biodiversity. However, while the ambition is to develop green growth, the policies and regulation that accompany this choice are not directly aimed at the growth of employment. Rather, the conviction is that by supporting the green economy and its companies in some way, this sector will grow and subsequently generate employment and economic growth. The government predominantly wants to set the framework and act as a facilitator. It is considered that local actors should (jointly) develop initiatives that support green growth encompassing all relevant stakeholders such as private companies, public-private bodies and households. The development and implementation of such policies in joint cooperation with other stakeholders is supported by other important bodies such as the Social-Economic Council (SER), which delivered advice on an Energy Agreement for Sustainable Growth in November 2012.

Also, the two issues of **environment and economy are not linked** within other countries' policies. For example in Slovenia from 2005 onwards a number of documents have been produced with recommendations and measures to increase economic growth and employment at the national level. These documents also include measures for achieving sustainable development (including addressing environmental issues), but almost all of them do not seek explicit synergies between economy, the labour market (employment) and the environment. One distinctive feature of the majority of Slovenian documents is also that there is no explicit usage of the terms 'economy greening' or 'green jobs', although there are implicit intentions and expectations that the measures used would have these effects.

3.2.2. The impact of the economic crisis

The European Commission has indicated that the green economy is one of the key strategic domains for economic growth and job creation to overcome the employment crisis⁽⁶²⁾. Indeed, **some countries have included reference to green jobs in their economic recovery packages**, for example, Belgium (Wallonia), Bulgaria, Denmark, Germany, Latvia, Romania, Slovakia, Sweden and Norway.

The **green economy has been recognised as a potential source of employment and a**

⁽⁶²⁾ European Commission (2012) Towards a Job-Rich Recovery, COM (2012) 173 final. Internet: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2012:0173:FIN:EN:PDF>

contributor to economic recovery in Belgium (Wallonia), Bulgaria, Denmark, Germany, Latvia, Romania, Slovakia, Sweden and Norway. In Belgium (Wallonia), for example, the 'Marshall Plan 2.Green' is a continuation of the 'Marshall Plan 1.0' which was initiated in 2005 with the aim of offering Wallonia a structural recovery strategy. The new plan incorporates an employment-environmental alliance dimension (a 'green' focus); one of the areas of the plan is entirely devoted to this alliance (Area V). In addition, several employment-environment alliance policies are included in other areas of the plan and as a cross-cutting issue. Employment-environment related initiatives as a whole are estimated to account for EUR 1.27 billion over four years, i.e. 45.8% of the total Marshall Plan 2.Green.

In *Slovakia*, the Building Insulation Programme, described in Box 3.2 below, is considered to be one of the most cost-effective stimulus measures adopted in the country.

Box 3.2: The Building Insulation Programme, Slovakia

The Building Insulation Programme⁽⁶³⁾ was launched in mid-2009 as part of the government's stimulus package to mitigate the negative impacts of the economic crisis. The idea was to use revenues from emissions quota sales to improve energy savings and reduce housing costs for households by way of subsidising the thermal insulation of residential buildings built before 1989. Support was provided to applicants (individuals and legal entities) in the form of interest-free loans of up to 100% of the costs (upper limit EUR 80 per m²) provided projects led to heating energy savings of at least 20%. A government evaluation report confirmed the 'creation of approximately 8 000 job opportunities' and rated the programme one of the most cost-effective stimulus measures⁽⁶⁴⁾. Applications significantly exceeded available funds and the government decided in 2011 to extend the programme (EUR 10 million was allocated in 2011, EUR 24 million in 2012, and EUR 25.5 million⁽⁶⁵⁾ is budgeted for 2013).

⁽⁶³⁾ Internet: <http://www.rokovania.sk/Rokovanie.aspx/BodRokovaniaDetail?idMaterial=10357>

⁽⁶⁴⁾ Internet: <http://www.rokovania.sk/Rokovanie.aspx/BodRokovaniaDetail?idMaterial=10357>

⁽⁶⁵⁾ EUR 11 500 000 is allocated from the European Regional Development Fund (ERDF).

However, as was the case when the *2009 EEO Review* was produced, this latest *Review* has found that **the current economic crisis has diverted attention, or financial resources, away from the green jobs agenda** in many countries, for example Belgium, Spain, Italy, Cyprus, Latvia, Lithuania, Slovenia.

The current economic crisis has resulted in a **declining focus on the green jobs agenda for some countries**. For instance in Cyprus, after the government applied in 2012 for financial support from the IMF, ECB and the EU, Country Specific Recommendation 7 (CSR7) of the 2011 National Reform Plan (NRP) which dealt with 'Improving resource efficiency and reducing greenhouse gases' was replaced with a CSR dealing with wage setting and competitiveness. Indeed, no environment-related CSRs were issued following the 2012 NRP. These developments signalled a reduction in the, albeit fragmented, interest in environmental issues that had previously been in place in the country.

In Belgium the crisis and the need to reduce the public debt have forced the federal and regional authorities to reduce their support for the greening of the economy. The federal government was previously offering a 40% tax rebate on amounts invested in energy-saving work such as boiler replacements, solar panel installation, double glazing and other insulation work. However from the 2013 tax year (2012 income year), the tax rebate for low-energy, passive and zero-energy dwellings has been removed, along with all tax rebates for energy-saving costs, with the exception of loft insulation, the rebate for which has simply been reduced⁽⁶⁶⁾. In 2009, the Central Economic Council and the National Labour Council estimated that the replacement of 10 000 old boilers, the technical renovation of half of Belgium's housing stock and the replacement of all single glazing with double glazing could create work for 34 700 people for one year⁽⁶⁷⁾. This measure will reduce public spending in this regard but will also most likely cause a slowdown in the growth of a sector that has strong employment potential.

In Spain, Italy, Latvia and Slovenia the crisis has led to cuts in funding for green economy strategies and programmes as efforts to tackle unemployment and cut national deficits have taken priority. For example, in Lithuania successful achievement of the targets set under various strategies in 2008–2012 was affected by the economic crisis. There was a shortage of public finances at national level due to the deterioration in the economic situation in the country and

plummeting state revenues. Furthermore, there were difficulties in the general funding of business projects due to tightened loan-granting procedures introduced by Lithuanian financial institutions in response to the deterioration in the economic situation of the country. As a result, a number of project applicants had to give up the EU structural assistance they had been granted due to their inability to secure funds for their contribution to the projects (In particular, this reduced opportunities for SMEs to receive loans from commercial banks).

3.2.3. Sources of funding

In terms of funding for policies, strategies and programmes to stimulate and support the green economy, **the European Structural Funds appear to have a key role to play in many countries**. The bulk of Structural Funds for environmental purposes are directed to the funding of infrastructure for water supply, waste water treatment and waste management facilities. Smaller amounts are allocated for renewable energy and risk management.

National funding sources were identified in some countries, including new schemes in Slovakia, Sweden and the United Kingdom, while Norway has provided **financial support for 'green innovation' projects** in a number of EU countries. Finally, the intention is to finance the transition to the green economy through **private sector investment** in Croatia, incentivised by the 'polluter pays' funding principle.

EU funding has been a key source of green job support in Belgium, the Czech Republic, Germany, Lithuania, Luxembourg, Hungary, Malta, Poland, Portugal, Romania and Serbia. In Luxembourg, for example, EU funds play a vital role in the development of greening initiatives and have an important impact on job creation. Up to 2011, the European Regional Development Fund (ERDF) subsidies in Luxembourg covered around 17 projects related to the greening of the economy, either in the field of energy efficiency, research, or environmental protection. The ERDF is also used in Germany to fund projects relating to the environment and climate protection. For instance, the Land of Bavaria is promoting the development of renewable energies in economically weaker and remote regions. In addition, the European LIFE fund is often used to support projects relating to environmental protection; and projects funded by the Intelligent Energy Europe programme have also played an important role. A large number of environmental projects are also carried out in the context of territorial programmes (for example, Alpin Space Programme)

⁽⁶⁶⁾ Law dated 28 December 2011 on different provisions.

⁽⁶⁷⁾ Higher Council for Employment (June 2010).

and INTERREG, and there are also environmental projects funded through ESF.

Green jobs policies have largely been funded through the country's national budgets in Denmark, Spain and Austria. In Bulgaria the 'Energy Efficiency and Renewable Sources Fund' manages funds allocated to energy efficiency investment projects according to the priorities set out in the annual Energy Efficiency Programmes. Romania also has an 'Environment Fund' which finances initiatives of business and enterprises to 'green' their energy generation sources (both power and heat).

Two funds created at national level to support environmental enterprises and activities were also identified in Sweden and the United Kingdom:

- During autumn 2008 when the global financial crisis hit the export markets for the automotive industries, the government in Sweden established a joint-stock company with the aim of supporting research and development (R&D) in environmentally friendly technologies within the Swedish automotive cluster. The government also supported companies in the automotive industry introducing 'green technology' by providing state credit guarantees for loans in the European Investment Bank.
- In the UK the Green Investment Bank was launched in November 2012. The stated mission of the bank is to 'provide financial solutions to accelerate private sector investment in the green economy' and is designed to step in where the market is failing to deliver the finance needed for viable green projects. It will operate on fully commercial terms and while there will be some government funding (a maximum of around GBP 3 billion / EUR 3.5 billion) the main idea is to lever in private finance through parallel funding and the coverage of risk. A number of projects have already been identified that will be among the first recipients of loans, including GBP 5 million (EUR 5.8 million) for a company to reduce its energy consumption.

Other approaches to fund the green economy are seen in other countries studied. In Croatia the 'Strategic Guidelines for the development of the Green economy' are based on the principle that the green economy should be financed by non-budgetary means through private investment and provide no additional tax burden or tax-deductions, relying on a 'polluter pays' basis. The Norway Grants Scheme (also referred to as the 'Norwegian Financial Mechanism') is also mentioned in a number of countries, for example Latvia, Lithuania and Poland as a source of

financial support for projects relating to innovation in green industries. In Latvia and Lithuania the Green Industry Innovation Programme, which is funded through the Norway Grants Programme, supports activities including:

- new green product and material development or modification of existing products and materials to minimise their environmental impact;
- development of new green technologies or fundamental modification of existing technologies in industries in order to reduce production waste, energy consumption and emissions;
- the implementation of green innovative technologies in industries.

In Lithuania implementation of the Programme is expected to create opportunities for business representatives and researchers to make contacts and develop partnerships with equivalents in Norway. This will promote the process of transferring technology and know-how and is seen as being a particular benefit of the scheme, as the transnational cooperation aspect can help accelerate the process of adopting technology and contribute to appropriate adaptation of working conditions, labour relations and labour culture in general, which are necessary for the effective use of the new technologies. As the implementation of the Programme has just started, it is not possible to evaluate the effects of the Programme on employment, but it is expected to promote the creation of green jobs in SMEs in Lithuania.

3.3. Green Employment Promotion Strategies and Programmes

The following section is intended to provide an overview of the types of green employment promotion strategies and measures which are currently being implemented across Europe. The types of measures have been clustered under the following headings:

- Development of education, training and skills to support greener economies,
- Shifts in taxation,
- Promoting the development, dissemination and use of green technologies among industry,
- Promoting the take-up of green technologies among consumers/households,
- Enabling investments in green infrastructure and climate change adaptation,

- Creating awareness of and social pressure for the transition to a greener economy.

One different approach described by the OECD (2012a) that warrants attention is approaching green growth from an environmental perspective, i.e. internalising environmental externalities by mainstreaming sustainable development requirements into economic decision-making⁽⁶⁸⁾. The approach in the Netherlands may be characterised in this way. The policies and regulations that accompany this choice do not directly aim at the growth of employment. Rather the conviction is that by supporting the green economy and its companies in some way, this sector will grow and subsequently generate employment and economic growth. The government predominantly wants to set the framework and act as a facilitator. Local actors are expected to jointly develop initiatives that support green growth encompassing all relevant stakeholders such as private companies, public-private bodies and households.

3.3.1. Development of education, training and skills to support greener economies

The shift towards a green economy requires a shift in the skills profile of the workforce. A mismatch in the skills in supply in the labour market and those in demand by employers can lead to unemployment and can slow down the process of greening the economy. The new jobs which will be created in the green economy are likely to be high- and medium-skilled, thereby requiring lower-skilled and older workers to adapt to the needs of the new employers⁽⁶⁹⁾. A number of measures to address this change in skills demand on the labour market have been pursued in the different countries covered by this *Review*. These include the creation of new qualifications, and/or new skills and occupational profiles; the provision of training; skills anticipation and forecasting exercises and supporting public employment services to understand the needs of green employers.

New profiles or qualifications to meet changing skills requirements have been introduced or are being developed in Bulgaria, Germany, France, Italy, Austria, Portugal and Romania. The rationale for these activities is that the provision of such training responds to the needs of developing industries. In Austria, for example, a key focus of the Green Jobs Masterplan is on developing and

enhancing education and training programmes to integrate new 'green' areas of competence and introduce green job profiles in the tourism and leisure industry.

In Bulgaria a sectoral initiative has been established that will anticipate future skills needs and competences by occupation in green sectors. Supported by education and training institutions at various levels, this project will develop appropriate education and training responses linked to identified needs. The project, 'Development and application of an information system for the assessment of workforce competences by branches and by regions'⁽⁷⁰⁾ is an initiative of the Bulgarian Industrial Association, which represents Bulgarian businesses. It is linked to the ongoing initiative of the European Commission on the establishment of the European Skills, Competences and Occupations taxonomy (ESCO)⁽⁷¹⁾. By the end of 2012, studies of workforce competences were elaborated for 40 sectors, including the development of occupations linked to the transition to the low-carbon economy. Results drawn from the project indicate its importance for the Bulgarian green economy and employment. It will provide a general assessment of competences and occupations at sector level by considering the requirements of sustainable development. The project's results will be transposed into the standards (and other requirements) for secondary education, into university programmes and into modules for training in order to contribute to workforce efficiency.

In Italy, a relatively new type of post-secondary technical qualification— Higher Technical Institutions (Istituti Tecnici Superiori, ITS)— is being used to create job profiles which are suitable for the green economy. ITS courses cover technological areas considered to be national priorities: energy efficiency, sustainable mobility, new technologies for life, new technologies for the manufacture of 'Made in Italy' products, innovations for cultural activities, and ICT. They therefore play an important role in the development of green skills in the Italian productive system. The first ITS courses were launched in 2011, and at present there are 62 altogether; 23 of them offer courses linked to renewable energy sources, energy efficiency sustainable mobility or make reference to 'green skills'. In addition, many of the remaining 39 courses relate to industrial innovations or sectors which are often linked to the green economy (mechatronics, tourism, high-quality and organic food, etc.).

⁽⁶⁸⁾ OECD (2012b), *Green Growth and Developing Countries: A Summary for Policy Makers*.

⁽⁶⁹⁾ European Commission (2012) *Towards a job rich recovery*, COM (2012) 173 final. Internet: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2012:0173:FIN:EN:PDF>

⁽⁷⁰⁾ See internet <http://www.bia-bg.com/initiative/1/>

⁽⁷¹⁾ See internet <http://ec.europa.eu/social/main.jsp?langId=en&catId=89&newsId=852>

In terms of the effectiveness of training measures, in Romania, where a range of activities have been introduced to develop skills and create qualifications, it is suggested that the initiatives might have a certain impact, if not on job creation, at least on job churning, thus activating the market for green jobs and qualifications.

Some countries have recognised the potential of the green economy as a source of employment for the unemployed and a few examples of **training courses for the unemployed in 'green' skills** were identified in Belgium, Germany, Greece, Poland and Portugal. In Belgium and Germany the unemployed are supported to access similar roles in conducting household energy 'audits', whereas in Portugal young people are supported to access employment in the agriculture sector. The example identified in Poland employs participants in the maintenance of drainage facilities.

The 'Energy Scanners' project in Belgium that started in 2007 has helped a significant number of unemployed people to return to work, as outlined in Box 3.3 below.

Box 3.3: The Energy Scanners project, Belgium (Flanders)

The Energy Scanners project involves training the low-skilled long-term unemployed in different energy-saving activities. They thus become 'energy scanners', offering households free installation of low-cost water and energy-saving devices plus advice on how to save energy. The services provided by this project are gradually being expanded to cover insulation work (roofs, walls and floors) and recycling. To enable this expansion to take place, the training courses offered— which are conducted in coordination with the public employment services of Flanders (VDAB)— are also being diversified. More than 30 social economy organisations are currently involved in the project in around 75% of the communes of Flanders. In 2011, around 34 000 households benefited from advice enabling them to reduce their energy bills and/or get their roofs insulated. Moreover, the project has got around 4 000 people back to work.

Some **new job creation** has resulted from new regulations. Croatia also introduced a new profession of 'energy auditor' to support new certification procedures and requirements with respect to energy efficiency in buildings. About 500 persons upgraded their education in order to qualify for the energy auditor certification, but no other direct employment effects were discernible from this effort, as construction sector activity and employment within it continued to decline steadily over the same time period (from 101 000 jobs in November 2009 down to 76 000 jobs in November 2012).

New regulations requiring energy audits together with a programme to upgrade public sector buildings to improve their energy efficiency were expected to lead to the creation of up to 14 000 jobs (as projected by the United Nations Development Programme (UNDP) in 2010), but due to several problems these ambitions were not achieved. Firstly, many of the applications for building upgrades were incomplete, as institutions often could not correctly submit basic evidence about energy use (many buildings still have not had an energy audit). Second, despite early announcements of having 250 certified project managers to support implementation, there were substantial problems with the preparation of project plans. Thirdly, the construction sector showed little interest in the proposed arrangements. Potential contractors were reluctant to engage with the uncertainty of an arrangement in which they have to guarantee energy consumption reduction (for which many lacked both practical experience and technical capacity to assess), while having to finance the investment (and most likely take on commercial loans) themselves.

A key point raised in relation to the development of new qualifications and training courses is that they should be developed on the basis of regular reviews and forecasts of the skills in demand in the labour market. Furthermore, the provision of green skills must not be generic but respond to the emerging needs in specific sectors and to the needs of the locality.

Yet across the 33 countries only a small number of examples of **skills anticipation or forecasting were identified** in the national

articles— for example in Ireland and France⁽⁷²⁾. In Ireland in December 2010, the government-sponsored Expert Group on Future Skill Needs (EGFSN) published a report entitled 'Future Skills Needs of Enterprise within the Green Economy in Ireland' which is the only substantive study produced in this country which has dealt specifically with labour market issues in a green economy context⁽⁷³⁾. Action is also being taken in France in relation to the identification of skills needs; the National Observatory of Green Jobs is an important base for future prospective work on jobs and skills, giving more visibility to those jobs and to future needs by coordinating and capitalising all the work managed in different areas of France.

The **public employment services (PES) are seen as having a key role** in identifying and managing green jobs and occupations in France, Upper Austria and Romania. In Romania the PES staff is therefore being given training in order to be able to fulfil this role, as outlined in Box 3.4 below.

Box 3.4: Green Jobs Project, Romania.

The Green Jobs project of the Romanian National Agency of Employment (NAE) benefits from a total financing of around RON 13 million (approximately EUR 2.9 million) and is due to take place over a period of 24 months. It aims at training 83 staff of the public employment services in techniques specific to job market orientation in the field of green jobs, identifying specific greening opportunities for the labour market, identifying and managing green jobs and qualifications, including for the benefit of the unemployed, and encouraging employers to generate and maintain such workplaces. Partners involved are the NAE jointly with two Romanian companies (CREARE Resurse Umane and Senior Interactive) and a transnational partner from Spain⁽⁷⁴⁾.

⁽⁷⁴⁾ For more details see <http://www.locuridemuncaverzi.ro>

⁽⁷²⁾ Job estimates/forecasts relating to specific sectors— especially renewables and energy efficient buildings— or policies are relatively more widespread including in Germany, the UK, Spain, Austria and Hungary. Ref— Cambridge Econometrics (CE), GHK Consulting and (Institute for Employment Research (IER), 2011, *Studies on sustainability issues— green jobs; trade and labour*; Final Report, Research Project for the European Commission, DG Employment, Social Affairs and Inclusion.

⁽⁷³⁾ EGFSN (2010). *Future Skills Needs of Enterprise within the Green Economy in Ireland*. Internet: www.egfsn.ie Note. The EGFSN is subsidiary body of the Development Agency Forfás.

3.3.2. Shifts in taxation

Shifts in taxation towards environmental 'bads' can be used to support the greening of the economy by discouraging the production or consumption of products and services which are harmful to the environment. Tax exemptions can also be used to encourage the development of new green activities. A number of countries have introduced **fiscal instruments to encourage firms and individuals to divert their consumption or production to more environmentally friendly products and services**. These include Denmark, Estonia, Lithuania, the Netherlands and Norway, with Slovenia outlining plans to introduce such policies.

Lithuania also has a law in place stipulating that the revenues from selling excess emissions allowances must be used for 'green' investments. Slovakia has similar legislation, and in Ireland a carbon tax (introduced in 2011) is used to fund a range of grants and incentives (for example, accelerated capital allowances, subsidised tariffs for renewable energy generation) to support businesses in adopting environmentally sustainable and resource-efficient approaches to their business or to take advantage of the opportunities presented by the increasing demand from consumers and clients for green products and services⁽⁷⁵⁾.

However **not all countries recognise the potential of fiscal instruments to promote employment** in the green economy. Although there are financial schemes and tax arrangements in the Netherlands to facilitate green growth (environmental taxes, environmental fees, and implicit or explicit subsidies), these schemes are mainly aimed at improving the prospects for green economic growth or reducing pollution and much less at job creation.

3.3.3. Promoting the development, dissemination and use of green technologies among industry

A number of examples of policies to promote the use of green technologies among industry were identified in the national articles, including support for innovation and/or Research and Development (R&D), the establishment of networks or clusters to promote knowledge transfer

⁽⁷⁵⁾ Further information about the Irish Carbon Tax can be found in a presentation delivered by Frank Convery at the European Employment Research Dialogue meeting on 20 February 2013 on 'Shifting the burden of labour taxation to environmental resources: open challenges and the way ahead', found at <http://www.eu-employment-observatory.net/resources/meetings/11-Convery-Session3Presentation4.pdf>

Box 3.5: Fiscal Instruments to encourage 'green' production and consumption

The labour market in Denmark is well prepared for a greening of the economy. Denmark has implemented environmental regulation and protection for many years, as well as 'green taxes' on non-renewable energy and other scarce natural resources like drinking water. This in itself has stimulated the creation of green production and green jobs due to the demand from both consumers and firms for products that could reduce environmental damage and the use of resources subject to green taxes. Tax subsidies and favourable price setting for wind-produced electricity and solar panels have also acted as important incentives. One of the priorities emphasised in Estonia's National Reform Programme (NRP) is the continuation of the gradual reduction of taxes on labour and profits and an increase in taxes on consumption and the use of natural resources, the so-called 'ecological tax reform'. Given that an increase in income tax is more likely to limit economic growth than the equivalent amount of taxation on consumption and environmental impacts, there is a need to shift towards green taxation. This principle has been followed since 2006 and at other times when gradual increases in environmental pollution charges and energy excise duties have taken place together with a reduction in the marginal income tax rate. However, the actual employment outcome of this policy so far has not been studied in detail.

Lithuania has some fiscal instruments to promote electricity generation and energy efficiency which have the potential to contribute to the development of greening activities and thus promote employment growth in the areas concerned. For example electricity generated using renewable energy sources and energy products manufactured from materials of biological origin are exempt from excise duty. Also, a law was adopted in 2009 stipulating that revenues from selling excess emission allowances will be invested into energy efficiency, renewable energy resources and other projects undertaken in the field of climate change management.

In Portugal, the government plans to revise its comprehensive strategy to promote energy and environmental targets by introducing a diverse set of taxation, incentive and financing systems. In Norway the Ministry of Environment announced in 2012 that the CO₂ tax for offshore petroleum operations on the Norwegian continental shelf is being raised by NOK 2 000 (EUR 270) per tonne from January 2013. This corresponds to an emission charge of roughly NOK 410 (EUR 56) per tonne of CO₂. It has also been proposed that a CO₂ tax of NOK 50 (EUR 7) per tonne of CO₂ emitted should be imposed on the fishing industry.

and the introduction of green public procurement processes. Some examples are discussed in more detail below.

3.3.3.1. The use of research & development subsidies

Some countries provide **support for innovation and/or R&D in the form of grants, subsidies and investments**, for example Belgium, Denmark, Germany, Estonia, Ireland, Lithuania, Malta, the Netherlands, Slovenia, Finland, the former Yugoslav Republic of Macedonia and Norway. In doing so, they may help to build the foundations of the process of innovation, something which businesses may consider too risky to do. As an example, the Danish government's Fiscal Bill for 2013 has allocated EUR 49 million to initiatives which fall under the heading 'Green employment through new technologies, innovation and global marketing'. This includes the establishment of a 'green development fund' to support business innovation; the production, sale and marketing of green products; a special fund to support growth and green production in the 'agriculture sector';

and funds targeted to strengthen the research and development of green technologies that can contribute to Danish high-tech companies in the green sector. In another scheme, 'Green Labs DK', the concept is that Denmark should act as a 'green laboratory' for the development of new technologies that will increase the potential for green production and employment.

Networks have been established in several countries in order **to promote innovation and knowledge transfer and to exploit synergies** between the organisations involved. Again, by joining together the partners can reduce the risks associated with making investments in (the development of) new technologies. These networks bring together private enterprises and also other relevant partners such as local authorities, universities, chambers of commerce etc. Networks, clusters or 'communities' were identified in Germany, Italy, Latvia, Lithuania, Luxembourg, Austria and Finland.

In Italy for example, the so-called 'Network Contracts' (Contratti di Rete) allow small enterprises to exploit the benefits of sharing know-how

with other enterprises. The government has allowed Network Contracts to become legal subjects⁽⁷⁶⁾ when a common capital fund is established among the enterprises concerned in order to give these institutions greater leeway. In particular, by adopting an integrated supply chain perspective, network contracts can offer an opportunity for small enterprises to reap the benefits of creating links with medium and large enterprises (investments, increased competitiveness) and this in turn may generate positive effects on employment. Currently, there are 87 Network Contracts for the promotion of sustainable development.

3.3.3.2. The use of public procurement

Within the context of Luxembourg's economic diversification, the government is seeking to promote new sectors which can create jobs in the long term. The **mobilisation of public and public/private investments in the field of the green economy** are playing a vital role with strong multiplier effects, for example with respect to new research clusters. A new EcoInnovation⁽⁷⁷⁾ cluster has been established, covering a network of actors in the clean technologies sector with a focus on activities in eco-construction, energy consumption and renewable energies. These networks feature a large number of private and public actors engaged in information sharing (for example private companies from the construction sector such as Luxcontrol, the University of Luxembourg, the Ministry of the Economy and Foreign Trade, the Chamber of Commerce).

As mentioned above, the Green Industry Innovation Programme, funded by the aforementioned Norway Grants Scheme, promotes innovation in the 'green industry' sectors of Latvia and Lithuania. Collaboration between Norway and the recipient countries— for example for business representatives and researchers to make contacts and develop partnerships— is intended to promote the transfer of technology and know-how. The programme has only recently started but it is expected to promote the creation of green jobs— indeed it has set targets in this respect. In Latvia these targets relate to: the number of environmental technologies to be improved/developed (20), the number of 'green' jobs to be created (80), and the number of identified ideas with business potential in the 'green' industry area (70).

Public procurement processes are seen as a vehicle to promote the development of the green economy in Bulgaria, Malta, Portugal, Romania, Slovenia and Finland. Green procurement is thought to both reduce the negative effects of the public sector on the environment and also to set a positive example for the business sector and consumers. In Bulgaria, for example, amendments were introduced in the Public Procurement Act in 2010 to stimulate investments in technological innovations. In Finland, the public sector is pioneering sustainable procurement, which is considered to be a key factor in promoting a sustainable, green society and business, particularly as the value of public procurement in Finland is worth EUR 27 billion per year. The Finnish government recently passed a resolution that encourages all public actors to adopt sustainable procurement including the central government, regional governments and the municipal sector. In Malta, the Green Public Procurement (GPP) National Plan was developed to address the key barriers to implementing green public procurement. The Plan is described in more detail in the Box 3.6 below.

Box 3.6: The Green Public Procurement (GPP) National Plan, Malta

The GPP National Plan was developed to address the key barriers to implementing green public procurement in Malta, including a 'lack of policy and strategic vision, fragmentation of institutional responsibilities, poor awareness of the benefits of the GPP, and lack of technical capacity at the level of public procurers'⁽⁷⁸⁾. The GPP National Plan aims to create the opportunity for suppliers to adapt operations in favour of more environmentally friendly goods and services, which in turn should create green or greener jobs while avoiding market distortions. A National GPP Task Force will monitor implementation, while training programmes for both public authorities and private suppliers will be carried out. The target of the Plan, which covers a three year period, is noteworthy, as 50% of public procurement by 2014 should be compliant with the EU GPP common criteria.

⁽⁷⁸⁾ Office of the Prime Minister, Green Public Procurement Plan – National Action Plan, 2011a. Internet: <https://secure2.gov.mt/tsdu/file.aspx?f=6365>

⁽⁷⁶⁾ Legge n. 33 del 9 Aprile 2009; legge n.122 del 30 luglio 2010.

⁽⁷⁷⁾ Internet: <http://www.ecoinnovationcluster.lu>

3.3.4. Promoting energy efficiency and the use of renewable energies

A number of countries have taken measures to encourage individual consumers/households to take up green technologies, primarily in relation to energy efficiency and the use of renewable energies. In particular, many countries are implementing schemes to convert existing buildings in order to make them more energy efficient, with the use of thermal insulation or solar panels for example.

3.3.4.1. The use of incentives

Programmes facilitating the renovation of buildings to make them more energy efficient

can be found in a number of countries. These tend to cover private households, but some countries have chosen to finance this kind of renovation work in public buildings and industrial buildings as well. Belgium, the Czech Republic, Germany, Estonia, Ireland, Italy, Latvia, Lithuania, Hungary, Austria, Poland, Romania, Slovenia and Serbia all have building renovation initiatives in place. Although job creation may not be the primary aim of such initiatives, these programmes are recognised as having positive employment effects in a sector which often has been severely affected by the economic crisis (construction). They may also grant social benefits by improving the buildings and thereby the living/working conditions of their inhabitants/employees.

For example, the 'Green Savings' (Zelena usporam) programme was launched in late 2009 in the Czech Republic. This large-scale project operated by the Ministry of Environment (MoE) focuses on achieving savings in heating energy through the installation of additional thermal insulation. The programme has subsidised new insulation for family houses and apartment buildings, including the replacement of windows and doors, the replacement of environmentally unfriendly heating devices, as well as the construction of new houses which meet the passive energy standard and solar energy technology, primarily in residential housing⁽⁷⁹⁾. Since 2011 the programme has paid out almost CZK 20 billion (EUR 792 million), as over 250 000 households were able to use the programme support to insulate their dwellings, and supported 19 000 jobs per year. A second programme—the 'Panel programme' focused on heat insulation in panel technology for concrete apartment buildings inherited from the communist era. The insulation projects supported by the Panel programme created about 6 000 jobs annually. In addition, it is suggested that the fiscal multiplier

effect of the 'Green Savings' programme has been larger than those of other public expenditures thanks to the requirement for co-financing of each insulation project from private funds.

Austria's programme for the thermal reconstruction of buildings project was also effective in terms of employment generation, namely in the construction sector, where more than 20 000 jobs were secured or created in 2011 and 2012 alone.

In Belgium, according to estimates from the Construction Federation, the energy renewal of existing buildings (excluding wall and floor work) should provide jobs for a total of 13 500 people over the next 10 years⁽⁸⁰⁾. More rigorous criteria will result not only in an increase in green jobs but also in a greening of existing employment, given that these regulations have an impact on the working methods and kinds of activities required by these jobs (technological modifications, choice of materials, replacing the maintenance of heating systems with that of a far more substantial ventilation system in passive houses, etc.).

Germany's building restoration programme, which was promoted by the unions and employers' organisations, is the biggest programme of its kind worldwide. It mobilised around EUR 100 billion in the past decade and (besides enhancing energy efficiency) created around 300 000 direct jobs per year (ILO, 2012). The programme is supported by loans from the German development bank KfW. However, although the Government promised further subsidies and loans from KfW in December 2012 (Federal Ministry of Transport, Building and Urban Development, 2012), these conditions are still significantly lower than the former funding of EUR 2 billion in the year 2009 (Süddeutsche Zeitung Online, 2012). This stagnation was criticised repeatedly by trade unions such as the construction union IG BAU (IG Bau, 2012).

In Romania one of the objectives of the government scheme to improve the energy efficiency of large multi-storey apartment buildings was to support the construction industry at a time of crisis (the legislation was issued in 2009 when the construction industry was at an all-time low). However it is not precisely known how much the scheme has actually sustained employment in this particular sector as no assessments on this matter are available to date. It is probable that some training opportunities have been generated, as activity in the construction sector had to be supported by at least some basic training. Again however, no

⁽⁷⁹⁾ Internet: http://www.mzp.cz/cz/articles_priorita0902greenjobs

⁽⁸⁰⁾ Construction Confédération, *Rapport annuel 2010-2011 : Les emplois verts dans la construction* (Annual report 2010-2011 : green jobs in the construction sector), 2011.

particular assessment is yet available. This lack of data and evaluation evidence was also identified in other countries as being an issue and makes it difficult to analyse the effectiveness of the programmes discussed in this *Review*. This issue will be looked at in further detail in Section 4.

Other grant and subsidy schemes can be found in Malta (grants for the purchase of photovoltaic equipment) and Romania (the ‘Green House/Casa Verde’ initiative described in Box 3.7 below), while in the UK an energy efficiency grants scheme has been replaced by the ‘Green Deal’ loan scheme which households can access to pay for work such as insulation. The Romanian Green House initiative is thought to help support employment in the construction sector, as described in the box below.

Box 3.7: The Green House (Casa Verde) Initiative, Romania

The ongoing Green House initiative, which started in 2009, aims to promote energy efficiency among households and business establishments by providing subsidies for the installation of heating and power plants using renewable energy sources (RES). The measure encourages the use of RES while in the meantime supporting employment in a specific sub-sector of the construction sector and also providing an incentive for training in green qualifications. The scheme encourages individual and community initiatives and promotes entrepreneurship. In 2011 some 11 000 households and 170 businesses benefited from the initiative.

3.3.4.2. The use of regulatory approaches

The government’s use of **energy use reduction agreements** with companies and housing corporations in the Netherlands will require offices, schools and other premises to become more energy efficient. The government aims to support such initiatives by removing legislative obstacles. In Turkey, **energy efficiency regulations** are in place and will apply to future construction activities.

3.3.5. Enabling investments in green infrastructure and climate change adaptation

Investments in green infrastructure identified across the *Review* countries seemed to primarily relate to the increase in provision of renewable energies and to efforts to tackle climate change and reduce greenhouse gas emissions. Other substantial investment programmes described in the articles include spending on transport and waste management.

The renewable energy sector presents a potential source of green jobs, but these are dependent on the development of relevant infrastructure. In Germany, Ireland, Cyprus, Luxembourg, Sweden and Serbia, **investments in the infrastructure required for the production of renewable energy** are being made. Often countries have formulated strategies or action plans relating to energy supplies and these may also outline proposals for the development of renewable energy sources. In Cyprus for example, progress is being made in relation to the country’s National Renewable Energy Action Plan (NREAP) and National Energy Efficiency Action Plan (NEEAP). Three wind parks have been installed and four others are in the process of completion. Progress is also being made in relation to electricity production from biomass; twelve units have already been installed and more units have been approved which will operate before the end of 2013. There is also a lot of interest in the installation of photovoltaic systems and applications far exceed the ability of the system to subsidise them.

Investments in renewable energies can bring a range of benefits both to the economy and to the environment. In Serbia the government has adopted bylaws with the aim of encouraging investment in renewable energy sources, which are expected to contribute to the generation of new jobs, rural development, reduced dependence on energy imports, reduced greenhouse-effect-causing gas emissions, as well as long-term development of the energy sector. However, low electricity prices together with institutional and political uncertainty (including recent correction of feed-in tariffs) are dramatically slowing down the investment in this sector.

In the German region of Bremen, the expansion of renewable energy provision is seen as an important means of creating jobs in order to compensate for job losses in traditional sectors, as outlined in Box 3.8 below.

Box 3.8: The Bremerhaven Wind Energy Agency (Windenergieagentur), Germany

In the region of Bremerhaven, one area of regional development has been the promotion of renewable energies. In 2001 the Windenergieagentur Bremerhaven/Bremen e.V. (WAB), a wind energy sector network, was founded. Furthermore, the town of Bremerhaven concentrated on attracting wind energy companies to the local area. Then in 2003, an 'on- and offshore strategy' was decided by the Bremen senate. In the following years infrastructure investments were made, wind energy research was promoted, and the vocational and training system was adjusted to consider the skills needs of the wind energy industry. A network of wind energy-related research, services and production came into existence in Bremerhaven. By 2006, about 100 people were working in the onshore-wind sector in the town of Bremerhaven. This number rose to 800 in 2009 and was predicted to have reached 1 000 in 2011. It is worth mentioning that even in the crisis year 2009, total employment in Bremerhaven rose. The green jobs of the (onshore) wind energy industry were therefore thought to have compensated for negative employment effects in maritime areas affected by job losses in traditional sectors. In an optimistic scenario with good export conditions, it is estimated that there will be a net employment of around 165 300 persons in the onshore wind energy sector in Germany by 2030⁽⁸¹⁾.

⁽⁸¹⁾ Distelkamp, M. et al. (2011), Erneuerbar beschäftigt in den Bundesländern: Ausgewählte Fallstudien sowie Pilotmodellierung für die Windenergie an Land. Studie im Auftrag des Bundesministeriums für Umwelt, Naturschutz und Reaktorsicherheit (Employed in the renewable energy sector in the Federal States: Selected case studies and modelling for onshore wind energy. Study on behalf of the Federal Environment Ministry). Internet: http://www.erneuerbare-energien.de/fileadmin/ee-import/files/pdfs/allgemein/application/pdf/erneuerbar_beschaeftigt_bl_bf.pdf

In Belgium, in order to achieve the target of 13 % of final energy consumption coming from renewable sources by 2020, the federal and regional governments have put in place a system of green certification. Through this system electricity suppliers are required to purchase, at a minimum price, the renewable energy produced by private individuals or companies that have renewable energy-producing infrastructure: solar, wind/water, biomass energy, or even cogeneration. However, this measure has been criticised by both the unions and the business federations since its inception. In fact, electricity suppliers are passing on the higher cost at which they must buy to domestic and industrial consumers⁽⁸²⁾. The employment effects of this measure are therefore mixed: the total number of jobs in the wind sector has grown by 74 % since 2007⁽⁸³⁾, and nearly 100 000 solar panel installations on Belgian territory⁽⁸⁴⁾ have clearly created jobs, but the increased cost of energy will have reduced spending on other goods and services, resulting in lower employment demand.

In Germany, Italy, Hungary, Finland, Sweden and Norway, funds have been set up to **support projects to reduce greenhouse gas emissions**. The Parliament in Sweden allocated close to SEK 2 billion (EUR 230 million) to support investments reducing greenhouse gas emissions between 2003 and 2008. The investment programme, which

was administered by the Swedish Environmental Protection Agency (Naturvårdsverket), supported in total 913 environment-related projects with a total investment cost of SEK 8 billion (around EUR 931 million). In Italy the Kyoto revolving Fund, established in March 2012, aims at implementing projects for the reduction of greenhouse gas emissions through public and private initiatives (for example loans to support investments in renewable energy and other sectors).

The German Federal Government promoted 1 414 projects within the climate protection initiative (Klimaschutzinitiative) introduced in 2008. The initiative was aimed at encouraging energy-efficiency and CO₂ emission reduction by promoting projects, for local authorities and companies for example, and is financed by the federal budget and by fund assets of the energy and climate funds. Until August 2012 the projects promoted by the initiative had a total volume of EUR 400 million. It is estimated that the projects directly had a gross employment effect of 19 400 full-time equivalents. Taking into account indirect employment effects, the initiative created a total of 35 500 green jobs during the period 2008–2011.

With regard to climate change and its effects, a new fund has been established in Norway to support climate change mitigation, renewable energy and energy conversion, while in Slovakia the introduction of Flood Control Support⁽⁸⁵⁾ has

⁽⁸²⁾ Collard F. in Les analyse du CRISP en Ligne (19 December 2012).

⁽⁸³⁾ Deloitte, (December 2012).

⁽⁸⁴⁾ CREG, p. 13 (October 2011).

⁽⁸⁵⁾ Internet: http://www.upsvar.sk/sluzby-zamestnanosti/nastroje-aktivnych-opatreni-trhu-prace/prispevky-pre-zamestnavatela.html?page_id=13119

helped to create around 11 500 jobs, as described in Box 3.9 below.

Box 3.9: Flood Control Support, Slovakia

Flood Control Support was introduced in September 2010 in response to extensive floods affecting large parts of Slovakia. The rationale was to support the employment of jobseekers in the prevention and/or elimination of the negative consequences of floods and other natural disasters. Support was provided to municipalities and specified legal entities⁽⁸⁶⁾ in the form of a financial contribution covering up to 95% of total monthly labour costs per employed jobseeker (a ceiling which is equivalent to twice the minimum subsistence level). The Ministry of Labour allocated EUR 42.4 million for the policy (with an 85% ESF contribution) with the expectation of creating 15 300 jobs up to September 2013. By March 2012 almost 11 500 jobs had been created, of which approximately two thirds were filled by the long-term unemployed.⁽⁸⁷⁾ An amendment to the act on employment services currently being discussed and tentatively scheduled to enter into force on 1 May 2013 now proposes merging flood control contributions with funding to support regional and local employment.

⁽⁸⁶⁾ Legal entities founded by municipalities and self-governing regions and legal entities which administer watercourses and drainage systems.

⁽⁸⁷⁾ More recent statistics are not available due to the introduction of a new information system at the Central Office of Labour, Social Affairs and Family.

In Finland, as part of a programme called 'Smart City', efforts are underway to develop Carbon Neutral Municipalities (HINKU)⁽⁸⁸⁾. The HINKU project has brought municipalities, businesses, citizens and experts together to create and carry out solutions to reduce greenhouse gas emissions. Six local authorities have pioneered this. Following this initiative, the Ministry of Employment and the Economy has also launched opportunities to apply by February 2013 to a new Innovative Cities (INKA) programme⁽⁸⁹⁾ for larger cities with the aim of establishing synergies in promoting innovations in sustainable land-use, housing and traffic solutions.

Investments in water and waste management have been introduced in Bulgaria and Lithuania, supported by the

⁽⁸⁸⁾ Internet: <http://www.ymparisto.fi/default.asp?node=22737&lan=en>

⁽⁸⁹⁾ Internet: <http://www.tem.fi/inka>

structural funds. In Bulgaria, under the Waste Management Act (2012), administrative and financial instruments were established, which provide mayors with powers to implement investment projects for systems for waste storage, separate treatment and recycling and for the development of sustainable towns. During the period 2009 to 2012, 36 investment projects were implemented for the construction or reconstruction of wastewater treatment plants and rehabilitation of water supply and sewerage networks. In Lithuania the National Strategy for Sustainable Development notably includes funding for sludge treatment projects and other water management projects (system development, renovation, etc.), while the implementation activities of the National Strategic Waste Management Plan for 2007–2013 are directly related to the development of the green economy and will have a direct impact on changes in employment in this area.

Finally, steps towards **the creation of greener public transportation systems** have been funded in Denmark and Germany:

- As part of its climate protection initiative, the German Federal Government promotes electro-mobility in public transport by subsidising hybrid buses for example;
- In Denmark a plan for 'greener public transportation' is envisaged, which has been allocated EUR 89 million for the period 2013 to 2018, with particular focus on further electrification of the railway system and the modernisation of railway stations.

3.3.6. Stakeholder involvement: creating awareness of and social pressure for the transition to a greener economy

A range of measures have been identified which aim **to raise awareness amongst relevant stakeholders and the general public of the need to make a transition towards a greener economy**. These measures are instigated by various parties, including national ministries (introducing measures to raise awareness among the general public and the private sector), the social partners (aiming to raise the awareness of the government and policy makers, as well as employers and workers, for example in Italy) and special bodies or councils which have been set up to take responsibility for raising awareness of this issue. In Finland for example, the Ministry of Employment and the Economy, together with the Finnish Funding Agency for Technology and

Innovation (TEKES)⁽⁹⁰⁾ and in connection with the Cleantech Strategic Programme, launched a campaign called 'Promise on Promoting Green Growth' in the autumn of 2012⁽⁹¹⁾. In the process, public, private and third sector actors give, over the Internet, a concrete promise on their role and goals in promoting green growth. So far over 50 institutions have given a 'promise'⁽⁹²⁾. In addition, the Ministry of Environment website is used to present a compilation of best practices in Finland on addressing the green challenge⁽⁹³⁾.

A key role for social partners is raising awareness and also providing training to support resource- and energy-efficient work and workplaces, as is the case in Belgium, Germany, France, Italy, Luxembourg and the United Kingdom.

In Italy the trade union General Confederation of Workers (Confederazione Generale Italiana del Lavoro, CGIL)⁽⁹⁴⁾ and the environmental organisation Legambiente have carried out some joint initiatives to promote green development and employment. In 2009 they issued a document in order to push for government action in the green sector, given its potential for economic recovery after the crisis. More recently, they presented the first report by the joint observatory of Fillea Cgil and Legambiente. According to the study 600 000 new jobs may derive from energy requalification and safety building services through the development of innovation and sustainability solutions in the construction sector. Finally, the Association of Renewable Energy Producers has organised several training courses on the European and national legislations in the field of energy and the environment.

Out of a concern to integrate environmental issues into union practice and create jobs in sectors favourable to the environment, there has been an inter-trade union network to raise awareness and provide training on environmental and climate issues in the three regions of Belgium since the late 1990s. This has resulted in the 'RISE' (in Wallonia), 'BRISE' (in Brussels) and 'Arbeid en Milieu' (in Flanders) platforms being established, platforms helping and training trade union representatives on environmental issues.

In Germany increasing energy efficiency is perceived by the social partners as one way to reduce costs (and thus indirectly save jobs). In order to

better prepare works councils, the trade unions run training courses and issue guidelines. The industry union IG Metall has elaborated a guideline for works councils and employees on increasing energy efficiency, while in the chemical industry a society for the information of works councils was set up by the social partners in 2001. It offers seminars and training courses in various fields such as environmental protection and energy efficiency, eco-auditing, safety, emission certificates and other energy policy instruments⁽⁹⁵⁾.

The French Network of Chambers of Trade and Industry trains employers in the field of sustainable development and energy control, promoting corporate social responsibility and environmental management, supporting eco-activities development, and promoting sustainable development internally and externally (in territories where chambers are represented).

In Luxembourg at the collective bargaining level, social partners have been increasingly involved in the promotion of the greening of the economy and the quality of jobs (both green and traditional), notably through awareness-raising campaigns, wage bargaining strategies (at tripartite level on wage indexation or in sectors for collective labour agreements), critical position papers on government policy and incentives to encourage the greening attempts of firms.

The trade unions in the United Kingdom have been involved in the debate on industrial change and the potential in the green economy for some time, coming at it from a number of different perspectives, including environmental concern and the push for a low-carbon economy, as well as the potential for job creation. Moreover, the previous government began to involve the trade unions in playing a key role in heightening awareness of the skills needed and employment opportunities in the green economy. The 'Green Workplaces' initiative in 2006 aimed to develop every workplace into a green workplace by helping introduce initiatives on such aspects as energy savings at work, waste reduction, recycling, and green travel. A key feature of the initiative is that it facilitates a discussion between workers and management under this common concern for the environment.

In France, Italy, Austria, Finland and the United Kingdom, **special councils have been set up** to bring together key stakeholders and encourage a dialogue on the topic of the environment and economy greening, with Grenelle Environment (France) and Klima:active (Austria) especially well developed.

⁽⁹⁰⁾ Internet; <http://www.tekes.fi/en/community/Tekes/339/Tekes/1279>

⁽⁹¹⁾ Internet; <http://www.tem.fi/index.phtml?s=4860>

⁽⁹²⁾ Internet; <http://www.tem.fi/index.phtml?s=4978>

⁽⁹³⁾ Internet; <http://www.ymparisto.fi/default.asp?contentid=79126&lan=en>

⁽⁹⁴⁾ CGIL is Italy's largest trade union.

⁽⁹⁵⁾ Internet; <http://www.chemie-sozialpartner.de/institutionen/gibuci/wir-ueber-uns/>

The Italian Economic and Social Council of Environmental Policies (Consiglio Economico e Sociale per le Politiche Ambientali) was created in 2006. Chaired by the Ministry of the Environment, its main goal is to oversee social dialogue with reference to Italy's climate change strategies. In that respect, both employers and trade unions have engaged in green issues, bringing the need for clear environmental legislation to the attention of the government.

In Finland the key hub for sustainable development is the Finnish National Commission on Sustainable Development (FNCSO), which was established in 1993 and has continued to operate through several changes of government⁽⁹⁶⁾. The Commission is chaired by the Prime Minister and includes a broad set of stakeholders.

The Green Economy Council (GEC) in the United Kingdom is a tripartite group set up in 2010, comprising high level business leaders from a cross-section of industries, trade union representatives and the three main government departments (the Department for Business, Innovation and Skills, BIS, Department of Energy and Climate Change, DECC and the Department for Environment, Food and Rural Affairs, DEFRA). The aim of the Council is to provide government with advice on green growth issues relating to infrastructure development, innovation, investment and unnecessary regulation. One of the perceived benefits of the formation of this advisory group was the presence of the three main government departments (BIS, DECC and DEFRA) around the same table, which appears to be a unique opportunity for bringing together policy strategies in this wider high-level forum.

⁽⁹⁶⁾ Internet: <http://www.ymparisto.fi/default.asp?node=4412&lan=en>

4. Successes and Barriers— Setting a framework for a green jobs toolkit

4.1. Introduction

The SYSDM experts were invited to outline the success factors that characterise the formulation and/or implementation of the policies described in the previous section. The aim is that by pinpointing the factors which may contribute to the success of a measure, possible pre-conditions for strategies or measures to be replicated successfully in other national or regional contexts can be identified. Simultaneously, and again with a view towards cataloguing the lessons for other countries, the experts were also asked to outline the factors they believe may be constraining the development of strategies or measures that support the greening of the economy.

This section summarises the experts' responses and is thus divided broadly into two main sections, one looking at possible success factors and the other looking at possible barriers to success. The section also starts to identify potential solutions to the barriers identified.

4.2. Potential Success Factors

A number of factors which experts believe may contribute to the success of policies or approaches to transitioning to low-carbon, resource-efficient economies emerged from the national articles. This section outlines some of the common factors occurring across countries:

- Access to EU Funding
- Integrated policy approach to environmental and economic/employment issues
- Taking a long-term view: identifying training needs and implementing training activities to meet the needs of 'green' employers
- Co-operation with and between various actors
- Focusing on specific sectors for development

4.2.1. Access to EU Funding

Success factors: Access to EU Funds

- The availability of EU Funding for infrastructure development, partnership building, training and job creation
- The improved capacity of public administrations to manage funds for innovative purposes
- How EU funds are used:
 - to enhance cooperation between social partners and to set up partnerships with local stakeholders at the regional level, including representatives from civil society.
 - to provide training
 - to fund green projects and research

The availability of EU funding and governments' capacity to make use of this funding

for the development of comprehensive strategies to promote a low-carbon economy appears as a success factor for policy measures in this area. EU funding has taken on a greater significance in the face of limited national funding for green activities in some countries. As stated in the previous section (Section 3.1.3), it has been a key source of green job support in Belgium, the Czech Republic, Germany, Lithuania, Luxembourg, Hungary, Malta, Poland, Portugal, Romania and Serbia, with the European Structural Funds (ESF) in particular playing a key role in many countries.

The *Review* articles suggest that the use of EU funds has resulted in a range of impacts. The impacts identified include for example, an increased interest in the greening of traditional industries in Bulgaria, the restructuring of industry and services sectors and increased cooperation between social partners in Bulgaria, the creation of jobs and the provision of training in Greece, Luxembourg and

Portugal, and the successful implementation of renewable energy strategies in Austria.

In Bulgaria EU funding together with the improved capacity of the public administration in managing these funds for innovative purposes have been identified as contributing to a more consistent and increased interest in the greening of traditional industries along with the development of green jobs in eco-industries. EU funds have also been used to support restructuring in sectors of industry and services.

By **allowing countries to invest in training programmes and green projects**, EU funding has also contributed to the success of policies in Greece, Luxembourg and Portugal. Some 70% of the total estimated EUR 18.5 million budget for the Portuguese Employment Passport Agriculture is European funding that has benefited around 6 000 young people.

In Luxembourg, until 2011, European Regional Development Fund (ERDF) subsidies⁽⁹⁷⁾ covered around 17 projects related to the greening of the economy, created 63 research analyst posts and 113 new jobs. ERDF projects range from creating new production facilities for renewable energies, rehabilitating industrial sites, or offering technical guidance to companies pursuing carbon reduction. The funds are also helping to set up partnerships at the regional level with local stakeholders or civil society more generally.

Box 4.1: EU Funding and the Burgenland Region of Austria

The highly successful implementation of the renewable energy strategy in the Burgenland region of Austria is in a major part attributable to access to EU funding. Burgenland is a former EU Objective 1 region in Austria (1995 until 2006) and has since been announced to be the model region for renewable energy from 2013 onwards. In Burgenland, between 1995 and 2006 approximately 250 projects were implemented and co-financed through the European Regional Development Fund (ERDF), the European Agricultural Guarantee Fund, Interreg II and III, and Leader+. The total eligible costs of the projects amount to EUR 180 million, from which 15.8% were co-financed by the EU. In the current phasing out period 2007-2013, approximately EUR 4 million has been spent to date in the ERDF programme for projects in the field of renewable energies.

⁽⁹⁷⁾ European Regional Development Fund (ERDF). Internet: http://ec.europa.eu/regional_policy/country/prordn/index_en.cfm

4.2.2. Integrated policy approach to environment and economic/employment issues

Success factors— Integrated Policy Approach to Environment and Employment Issues

- The development of a supportive legislative framework within which environmental and employment policy-making takes place
- Creating links between environmental and employment policy-making— complementing measures to protect the environment with strategies to increase jobs and skills in the green economy, and vice versa
- Government investment in green projects (for example, grant programmes) which includes a focus on wider social and economic outcomes, including jobs
- Government investment in employment initiatives targeting eco-industries and services (for example, employment subsidies)
- EU funding for employment projects in the area of the environment
- Activities that involve local and regional actors (for example, PES) and the use of ALMPs to promote employment in the green economy

As seen in a number of cases outlined in Section 3, another possible success factor is **the existence of strong links between environmental and employment policy-making**. These have been identified in a number of countries— Bulgaria, Greece, France, Luxembourg, Malta, Austria and Poland. For example, the proposals in France (Grenelle de l'environnement) for improving and protecting the environment were accompanied by a large number of crossover initiatives in the field of training and skills development. The design of this approach to green growth is seen as an important factor that is expected to lead to the creation of more than 600 000 jobs between 2009 and 2020.

Similarly, Malta's National Environment Policy (NEP) 2012 is the country's most important policy document regarding the promotion of green jobs. Within the context of this policy, the preparation of a Green Jobs Strategy by 2013 along with a Green Jobs Training Strategy (to be completed by 2014) was announced. The training strategy will support the implementation of the jobs strategy that will identify the key areas to be targeted for green jobs.

Other factors of success for policies in Luxembourg appear to be the government's use of funding schemes to create synergies between green activities and job creation as well as making use of the legal framework to allow funding to be invested in new projects and research with the aim of producing a positive dynamic between investment and job creation. A 2010 law on government grants for environmental protection⁽⁹⁸⁾ assisted companies to undertake projects in the field of sustainable development. The law provides for funding schemes on a larger scale for companies and individuals to invest in renewable energy production and environmental protection. The rationale behind the funding is creating synergies, jobs, national and international partnerships, and to diversify the economy away from the traditional sectors. Data reveal that 85 projects (up from previous years) have created 478 jobs and led to investments of more than EUR 290 million⁽⁹⁹⁾. The legal framework facilitated new projects and research funding by the National Research Fund and the National Agency for the Promotion of Innovation and Research (*Agence Nationale pour la Promotion de l'Innovation et de la Recherche*), which has become the most important actor in the greening of the economy. Recent data⁽¹⁰⁰⁾ points towards a positive dynamic in the longer run, although data also show that it is difficult to detect green jobs. In 2011 58 companies applied for funding projects (10 projects in the field of energy and environment), and 135 participations in EU programmes were funded by Luxinnovation to a total of EUR 15 million. In terms of job creation, 23 start-ups were funded in 2011.

Turning to **employment initiatives with a focus on the environment**, initiatives at national level in Bulgaria and Greece and regional level in Poland have been reported.

A key factor in the success of the promotion of employment in eco-industries in Bulgaria included government subsidies for employment targeted for eco-industries and services. The box below provides an example of use of active labour market policies to promote green jobs.

Box 4.2 Employment Subsidies targeted for eco-industries and services, Bulgaria

The adoption of the Bulgarian path for flexibility 2009–2011⁽¹⁰¹⁾ provided the impetus for employment subsidies targeted for eco-industries and services. The section of the plan on 'Effective policies in the labour market' included a measure for promoting employment in support of the transition to a low-carbon economy. A new provision in the Employment Promotion Act was also adopted that regulated the opening of green jobs; it stipulated that a green job opened by an employer will be subsidised for a period of 12 months if the employer hires a person unemployed for six months or more recommended by a regional office of the Employment Agency. The measure for the promotion of employment in green jobs represents a typical instrument of the active labour market policy for subsidised employment. Simultaneously, employers wishing to access the subsidy needed to show that the occupations in which the beneficiaries will be employed are in eco-industries and services. In 2011, 70 employers submitted applications for subsidised green jobs. In 2011, 902 green jobs were created, and 785 unemployed persons were hired. In 2012, the respective figures were 51 employers, 341 jobs created and 376 unemployed persons hired. In both years some 85% of approved applicant employers operated in the water supply and sewerage, waste management and restoration sectors.

⁽¹⁰¹⁾ Internet: www.mlsp.government.bg/bg/docs/Patekata_prieta_otMS.doc

⁽⁹⁸⁾ Law of 18 February 2010 on government aid schemes regarding environment protection, Mémorial A, Number 44, 18 March 2010.

⁽⁹⁹⁾ Internet: http://www.eco.public.lu/documentation/rapports/rapport_ministere/Rapport_2011.pdf

⁽¹⁰⁰⁾ National Agency for the Promotion of Innovation and Research, *Report 2011*. Internet: <http://www.luxinnovation.lu>

Focussing on green employment initiatives at the regional level, engaging actors (for example, local labour offices) and using instruments (regional employment action plans, ALMPs and other funding sources) were other identified success factors. In Poland green employment initiatives appear stronger in the policy measures implemented at the regional level. The need to invest in green jobs is highlighted in both Regional Employment Action Plans and the Regional Operational Programmes. Each year each of the 16 province labour offices is obligated to create a Regional Employment Action Plan. During the period 2009 to 2012, five out of 16 offices included different types of projects related to promoting employment in the green economy in their Regional Employment Action Plans:

- *Podlaskie* - Partnership for the development and promotion of green jobs;
- *Lubuskie* - Renewable energy sources as an opportunity in the labour market;
- *Dolnośląskie* - Unemployed for water management and flood protection;
- *Małopolskie* - Green jobs;
- *Mazowieckie* province labour office— Protect our forests.

At the local level, labour offices can support the creation of new jobs in the green economy under the basic scope of active labour market policy measures. For example, they can support the start-up of green economy businesses or subsidise employment among those companies reporting a need for extra staff. All 16 Regional Operational Programmes⁽¹⁰²⁾ include measures in the area of renewable energy sources (RES) support that may indirectly influence the creation of green jobs. A number of RES and green jobs-related projects have been co-financed, mainly by the European Regional Development Fund⁽¹⁰³⁾.

In Italy a combination of incentives and public funding has played a central role in the

government recovery strategy despite financial resources having been diverted away from the green economy. Numerous training courses connected to the green economy have been activated in the recent years by universities, high schools and vocational training centres at the regional level, sometimes with the support of the European Social Fund. As a result, between 2009 and 2011 the green economy generated 38% of the total number of jobs demanded by enterprises in Italy.

- 4.2.3. Taking a long-term view: identifying training needs and implementing training activities to meet the future skills needs of 'green' employers

Success factors—addressing training requirements to meet future skills needs

- Establishing what the long-run objectives, potential and outcomes are of addressing environmental challenges before deciding on approaches or policies
- Establishing a national strategy for green jobs training
- Having flexibility at the local or regional government level to provide training which reflects green skills needs in the locale
- Establishing dedicated national training centres for green skills
- Setting up national observatories for green jobs to identify skills needs and anticipate future skills needs by undertaking studies at sector and/or company level
- Having successful, highly responsive training and educational institutions ready to take on new training and educational projects in the area of the green economy

Another success factor is a 'future focus', where **governments are focusing on the long-run objectives, potential and outcomes of environmental challenges** in Poland and Finland. In Finland for example, as part of the national government's programme to address green challenges, it has been agreed that a ministerial working group will be established with the task of drawing up and implementing a foresight study. The anticipated *Foresight Report for Sustainable Growth and Well-Being 2030* will focus on the Finnish approach for sustainable growth in a changing world and will examine future developments from the viewpoint of the

⁽¹⁰²⁾ As based on the analysis of the National Action Plan for RES, Ministry of Economy, Warsaw 2010.

⁽¹⁰³⁾ Examples of such projects include:

- Renewable Energy Sources— an innovative concept of training future personnel in Bielsko – Biala.
- The utilisation of ashes in Zakłady Azotowe w Tarnowie S.A— systematic project.
- Reconstruction of the heat source in Opole— the construction of the high-efficiency cogeneration - systematic project.
- Construction of an agricultural biogas plant with a capacity of 1.36 MW of electricity Melno— A cogeneration power plant.
- Construction of biogas plants in Nactaw, Świelin and Uniechówek— sources of high-efficiency cogeneration.
- Solar roofs for community Dzierzgoń.

economy, people's well-being and the environment. Its time-scale will cover the next 10–20 years. Poland is another example and appears to be taking a long-term view with the production of its National Strategies and Action Plans. At national level a number of strategic documents focus on the potential for creating green jobs.

It is generally assumed that addressing **training and education requirements to meet the future skills needs of green employers** is fundamental to the successful growth of or transition to a green economy⁽¹⁰⁴⁾. Assessing the information provided in the *Review* articles, training requirements of the green sector are either addressed via national strategies as in Greece, Malta and Poland or via labour market training initiatives that do not necessarily refer to green jobs, such as in Austria. Concerning green skills forecasting, while relatively little information has been reported on in the national articles, Bulgaria has provided an illustration of the importance of this issue.

Examples of national strategies to address training requirements include Malta's Green Jobs Training Strategy (mentioned already in Section 4.2.2). Regional government projects to address training requirements for the green sector are seen in the various regional projects in Poland (see also Section 4.2.2), which have provided important green skills training to unemployed people. One noteworthy initiative is a project implemented by the Białystok regional labour office (Podlaskie Province) called the 'Partnership for the development and promotion of green jobs'⁽¹⁰⁵⁾, which among other things aims to increase awareness of green jobs and improve green skills.

Other measures address training requirements for a specific green or greening sector, for example

the BioRefine programme⁽¹⁰⁶⁾ in Finland or the training of building craftsmen and installers in the European BUILD UP skills initiative in Portugal.

An example of labour market initiatives which do not promote green jobs directly but which provide training in green occupations is Austria's ESF funded programmes, which showed that in 2010 approximately 2 200 persons participated in green training measures or employment projects. Neither the labour market policy objectives provided by the Minister of Labour, nor the objectives of the Labour Market Office (*Arbeitsmarktservice, AMS*) highlight green jobs as an issue; however, the scope of labour market measures being implemented, such as training or subsidised employment, includes a broad variety of occupations and skills training linked to green jobs/competences. One example is the Public Employment Service (PES) in Upper Austria, which promotes green competences through different measures, including training opportunities for green energy technology⁽¹⁰⁷⁾.

Little has emerged from the national articles on activities taking place with regard to **forecasting future skills needs in the green economy** or indeed how successful these activities have been. Some work in this area is happening, however, in Bulgaria, Ireland, Spain and France (see Section 3.3.1). A national observatory for green jobs has been established in France and is seen as an important development for the identification of skills needs. Anticipating future green skills needs by studying occupations and competences at sector and/or company level may be a factor leading to the success of green growth policies. The Integrated National Centre for Training in Renewable Energies established in Spain (see Box 4.3 below) is carrying out sectoral studies and is working with companies to identify skills needs.

⁽¹⁰⁴⁾ UNEP (2012), *21 Issues for the 21st Century: Results of the UNEP foresight Process on Emerging Environmental Issues*.

⁽¹⁰⁵⁾ This is a systematic project developed under the Human Capital Operational Programme (Priority VI: Labour market open to all, Measure 6.1: Improving access to employment and supporting economic activity in the region; Sub-measure 6.1.1: Support for the unemployed in the regional labour market). The project is in its implementation phase and will run from 1 May 2011 until 3 April 2013. The budget of the project is PLN 1 838 000 (around EUR 448 000).

⁽¹⁰⁶⁾ *BioRefine— New Biomass products 2007–2012*.

⁽¹⁰⁷⁾ When a person completes an apprenticeship for installations and building technology, they receive an additional training course in green energy technology. In addition, green competences are also promoted through qualification networks such as the network 'green' that was launched in 2012. Participating enterprises in the network define training modules in the areas of 'green' technologies, 'green' production and 'green' services and employees receive accreditation and certification. Another field of 'green' activities in the active labour market policy are employment projects and socio-economic enterprises such as the Dismantling and Recycling Centre D.R.Z in Vienna (as discussed in more detail below).

Box 4.3 Spain's Integrated National Centre for Training in Renewable Energies (*Centro Nacional Integrado de formación en energías renovables— CENIFER*)

CENIFER (Internet: <http://www.cenifer.com>) is one of 44 national educational reference centres for vocational educational training. These centres were created to perform actions for innovation and experimentation in the field of vocational training for professional families included in the vocational training system. They are intended to analyse training trends and skills needs and to implement innovative practices, establishing benchmarks and good practices for the other vocational educational centres. They also seek to promote networks with business and universities.

In this context, CENIFER, which was set up in 2006, seeks to promote training in renewable energies and green skills among companies, workers and vocational training students. It is located in Navarra, one of the regions that have made greater efforts in the development of renewable energies during the past decade.

The CENIFER centre addresses the development of training needs at different levels:

- Vocational training in two different areas: 'maintenance of bioclimatic installations of buildings' and 'maintenance of renewable energy industrial installations' for secondary students.
- Training for unemployed and employed workers and specific training for teachers and professionals.

CENIFER encompasses six areas: thermal-solar energy; photovoltaic solar energy; regulation and control of industrial communication nets; wind energy; hydropower; and a common area covering for example regulation, environmental aids and grants, electronics, air conditioning and industrial processes, etc. In 2011 31 courses were delivered, attended by 388 students, a fall of 21 % from 2010 figures.

Moreover, CENIFER is responsible for designing and updating training courses at national level and for coordinating universities, private companies and education centres in order to meet the needs of the labour market. It has been conceived as a laboratory to test innovative training methodologies and approaches launched as a response to the demands of companies in the energy sector. One of its main activities is linked with the anticipation of skills demands through sectoral studies. The centre also develops methodological tools and guides aiming to improve the training programmes currently in force in the vocational training centres throughout the country. Finally, the staff members of the centre arrange visits to companies to identify their skill needs and promote the training of workers accordingly.

4.2.4. Cooperation with and between various actors

Success factors— cooperation with and between various actors

- Political commitment and cohesive multi-departmental approach at the level of government to green issues
- Setting up national coordinating bodies or commissions for sustainable development (allowing governments, business associations, trade unions and business leaders to work in partnership to raise awareness of green issues and to advise government on green growth issues)
- Involving business sector networks in promoting environmental business
- Involving trade unions on green issues
- Associations/partnerships which bring together local stakeholders and actors with a focus on developing green jobs, for example, public-private partnerships for human resource development in the area of green jobs
- Establishing transnational partnerships for increasing experience or knowledge of best practices in the field

Associations of businesses and corporate entities, strong links between social partners, trade union activities and political commitment in the co-ordination of green economy initiatives are highlighted by a number of experts as crucial to success in this area. Germany, Poland, Slovakia, Finland, Sweden and the United Kingdom describe some of the links that have been forged between various actors. Another important aspect of partnership mentioned in the Latvian and Lithuanian national articles is working in partnership with other countries and transferring learning from one country to another. The use of partnership working is consistent with the findings of the European Foundation for Working and Living Conditions (Eurofound) 2012 report *Greening of industries in the EU: Anticipating and managing the effects on quantity and quality of jobs*, which acknowledged that most companies manage green skills development with various partners, including business associations and networks⁽¹⁰⁸⁾.

In Finland social partners are actively involved in green economy initiatives. The Confederation of Finnish Industries leads in Cleantech Finland⁽¹⁰⁹⁾, which is a network of clean technology experts developing clean technology solutions. The Confederation also runs an Environmental Forum⁽¹¹⁰⁾, a platform and information channel for environmental companies and organisations promoting environmental business. In addition, Finnish trade unions are active in environmental and green issues. For the first time a new joint industrial growth programme, *Responsible Competitiveness*⁽¹¹¹⁾, was published on 8 January 2013 by the Confederation of Labour Unions (SAK) and The Finnish Confederation of Professionals (STTK)⁽¹¹²⁾. Political commitment is another key factor to success and this is especially true for Finland. It appears that they have arrived at a new era in terms of political will, cohesiveness and coordination of green economy initiatives, and a rich policy palette is already established and in the pipeline.

Similarly, in Slovakia the Association of Legal Entities (BIOMASA)⁽¹¹³⁾ has become the leading organisation in the area of biomass utilisation. The association brings together in partnership

municipalities, schools and health care institutions in the Zilina and Trencin regions. BIOMASA's activities range from the production of CO₂ neutral energy-efficient biomass pellets, the production and sale of heat to members and other customers and reconstruction of boiler rooms, to consultancy and promotional activities. Activities have also led directly to the creation of 30 full-time jobs (in BIOMASA) while part-time workers account for an additional 5 FTE. The Swedish article identifies a key success factor in the creation of green jobs is the creation of clusters of firms, customers, infrastructure and educational institutions. The rapid development of the green economy in some Swedish regions (*Skåne and Västra Götaland*) indicates that interdependency and close cooperation between local stakeholders and actors are crucial for the development of green jobs.

In the United Kingdom the importance of adopting a national, integrated approach and cooperation with and between social partners in raising awareness of green policy is emphasised. In 2010 the UK government set up the Green Economy Council (GEC), a tripartite group comprising high-level business leaders from a cross-section of industries, trade union representatives and the three main government departments:

- The Department of Business, Innovation and Skills (BIS)
- The Department of Energy and Climate Change (DECC)
- The Department for Environment, Food and Rural Affairs (DEFRA).

The GEC had its first meeting in February 2011, which aimed to provide the government with advice on green growth issues linked to infrastructure development, innovation, investment and unnecessary regulation. One of the perceived benefits from the formation of this advisory group was the presence of the three main government departments (BIS, DECC and DEFRA).

The trade unions in the United Kingdom have been involved in the debate on industrial change and the potential in the green economy since the 'Green Workplaces' initiative was introduced in 2006. A key feature of the initiative was to bring together workers and management under this common concern for the environment in order to discuss how things could be improved in the workplace.

A good example of partnership approaches at a regional level can be seen in the Polish project Partnership for the development and promotion of green jobs implemented by the Białystok

⁽¹⁰⁸⁾ Internet: <http://www.eurofound.europa.eu/pubdocs/2012/48/en/1/EF1248EN.pdf>

⁽¹⁰⁹⁾ Internet: <http://www.cleantechfinland.com>

⁽¹¹⁰⁾ Internet; <http://www.ek.fi/ymparistofoorumi/fi/toiminta/index.php>

⁽¹¹¹⁾ Internet: <http://www.sak.fi/aineistot/julkaisut/esitteet-ja-julkaisusarjat/kilpailukyky-vastuullisesti-2013-01-08>

⁽¹¹²⁾ Internet: <http://www.sttk.fi/fi-FI/uutiset/uutinen/uutiset-2013/sttk-ja-sak-osaamisesta-ja-tuottavuudesta-lisaa-kilpailukyky-suomelle>

⁽¹¹³⁾ Internet: <http://www.biomasa.sk/en/index.php>

regional labour office in the Podlaskie Province and discussed previously in Section 4.2.2. Keys to the project's success in creating conditions for the development of the green economy are public-private partnerships in the area of human resource development in green jobs and transnational partnerships for the purposes of increasing experience and knowledge of best practices in the field.

4.2.5. Focusing on specific sectors for development

Success factors— a focus on specific sectors with green growth potential

- Government support for sectors with potential: information is key in identifying sectors with potential
- Tailor-made training schemes
- Public-private partnership initiatives

Success for some countries has resulted from **focusing on specific sectors with a view to encouraging and supporting them to become greener and more sustainable**, for example in Estonia, Luxembourg, Malta and Austria. Access to information is key in identifying sectors with potential. Indeed, Eurofound's report *Greening of industries in the EU* found that businesses typically manage green skills rather than anticipate them, and hence there is a role for government in anticipating which sectors require which skills and how skill gaps might be filled.

In Luxembourg the Chamber of Crafts forecasts potential in the eco-construction sector. The market for renovations in Luxembourg is considerable, with a potential for around 2 000 new jobs to be created. Nonetheless, the sector has developed momentum in the field of greening activities, marked by tailor-made training schemes and private-public collaborations which position it as a laboratory for other sectors in Luxembourg. A

good practice example in private sector eco-construction is NEOBUILD SA⁽¹¹⁴⁾, a project funded by the Ministry of the Economy promoting sustainable construction and materials in Green ICT. The good practice resides again in knowledge and research involving multiple stakeholders from the sector.

Energy Efficiency Measures for the Hospitality Sector, launched by Malta Enterprise (which is now closed) in 2011, aimed to help hotels, guest-houses, hostels, farmhouses, snack bars and restaurants reduce their energy expenses through the promotion of energy saving solutions and the adoption of renewable energy systems. An example of the positive results of the scheme was recently on the news; aided by the scheme, the hotel Milano Due managed to reduce its energy costs by 56% (Schembri Orland, 2013). In Estonia, the Wind Farm Support measure that commenced in late 2010 as part of the green investment scheme is expected to induce carbon abatement in the coming years; wind energy is considered to have the most potential as a renewable energy source, besides biomass. There is also support for renewable energy sources in energy production.

4.3. Overcoming Potential Barriers to Progress

The purpose of this section was to identify potential barriers to developing the green economy as a basis for outlining action gaps that may usefully be addressed by the countries involved in this review. The action gaps or recommendations include:

- Recognising the employment dimension within environmental policies (and vice versa)
- Anticipating skills shortages/the need to re-/up-skill workers;
- Accessing Funding
- Administrative coordination and the continuity of political engagement

⁽¹¹⁴⁾ Internet: <http://www.neobuild.lu>

4.3.1. Recognising the employment dimension within environmental policies (and vice versa)

Recognise the employment dimension

- Ensure integration between environment policies and labour market policies
- Avoid fiscal consolidation (adjustment) measures that move away from environmental concerns
- Invest in efforts at building capacities and planning;
 - Provide training/support for managers and officers in relevant ministries on the importance of including employment and social objectives in strategies
 - Monitor the relationship between environmental expenditure and job creation
 - Improve clarity around concepts—for example green economy and green jobs—in order to contribute to increased coherence of policy debate and research
 - Improve data collection processes and data on the scale and scope of the green economy
 - Build capacity of national statistics offices to participate in national data collection exercises for Eurostat

In assessing whether policies have been successful or not in promoting and/or sustaining the green economy, a key concern identified in the *Review* articles is the link between environmental and employment policies or lack thereof. All things being equal, if the presence of good links between employment and environmental policies imply the successful development of the green economy, then the absence of those links would imply the opposite. However, there appears to be a question mark in relation to whether this is always the case given that for some of the most advanced green countries in the OECD, **labour market programmes targeting green growth** are not in place, for example in Denmark, Germany, the Netherlands, Sweden and Norway⁽¹¹⁵⁾. Here green job creation appears as an indirect consequence of green growth policies.

As well as the need to create links between environmental and employment policies to facilitate positive employment outcomes, **structures are required to better anticipate changes**

in employment and skills needs. Such activities include integrating environmental drivers into existing labour market information systems at national, regional and local levels (including employer survey, forecasts, qualitative needs assessments etc.).

The *Review* articles from the Czech Republic, Spain, Italy, Lithuania, Slovakia, Sweden, Croatia, Iceland, the former Yugoslav Republic of Macedonia and Turkey point to a need **to improve strategic policy thinking and/or structures in relation to the green economy.** For example in Croatia the *Sustainable Development Strategy of the Republic of Croatia*, published in February 2009, covered a broad range of environmental and social issues, but more needs to be done in relation to connecting environmental and employment concerns. Work to promote employment, vocational training, working conditions and the quality of work issues needs to be included in connection with eco-friendly economic growth strategies and programmes in Lithuania. The National Strategy for Sustainable Development has a separate section addressing employment; however, there are no links to the other activities described in this strategy⁽¹¹⁶⁾.

Efforts to build capacity and planning in some countries are necessary to improve the greening of the economy. In the Czech Republic statistical data are not available to monitor the relationship between expenditure on environmental policies and the impacts on employment, making it difficult to report on the status quo or contribute to the compilation of strategies and analysis for the sector. Existing statistics need to be improved to allow the monitoring of trends in employment in green sectors or international comparisons of employment structures focused on green jobs. Work on defining clear concepts of 'green sector' and 'green employment' is underway in Italy as traditional statistics do not allow the identification of a green sector and the corresponding green workers (as well as their characteristics, wage levels, etc.). Information on green employment is hence based on ad-hoc surveys, which may adopt different definitions of the green sector and green jobs. Establishing a common definition will make it easier to carry out cross-national comparable analyses aimed at devising effective policies and evaluating their

⁽¹¹⁶⁾ One way of addressing this would be to organise training for managers and officers of different ministries in Lithuania on the inclusion of employment and social objectives into future strategies, as currently these issues are reflected only in strategic documents of the Ministry of Social Security and Labour (MSSL). However, the strategic documents of the MSSL address general employment trends and activities carried out by the institutions subordinate to the Ministry (e.g., Lithuanian Labour Exchange) without linking them to the programmes undertaken by other ministries. (Czech Republic's national article).

⁽¹¹⁵⁾ OECD 2012, op. cit.

effects. In Turkey, work on an in-depth inventory of primary sources supported by further academic analysis to identify current and potential green jobs is needed. Currently, there is no data on green employment in the private sector, although the ILO is planning to run a project on 'Decent Jobs in Green Sectors'. There is a need to build capacity among some national statistical offices, in Slovakia for example, in order to allow increased participation in wider Eurostat data collection exercises on employment and production in the environmental goods and services sector (EGSS).

Improving ways to evaluate the actual impact of local and regional programmes is key for the development of measures sustaining the greening of the Swedish economy. The decentralised government structure in Sweden makes it possible to adapt measures to local conditions, but evaluation and monitoring of the results remain difficult to achieve. As a result, less efficient measures in one part of Sweden may be repeated in other regions.

While the types of barriers described in this section are perceived as significant for the countries concerned, Section 4.2 already identified that a supportive legislative framework; building complementarity between environmental and employment policy-making, though for example capacity building and projects that combine green and employment ambitions at different spatial levels; and the relevant use of EU funding— for infrastructure development, partnership building and jobs— can all contribute to turning the identified barriers into opportunities in the new programming period, particularly given the focus on growth and jobs.

4.3.2. Anticipating green skills shortages/the need to re-skill or up-skill workers

Anticipate green skill shortages

- Identify and address green skills shortages in specific green sectors
- Improve education response to skills shortages: a need for education and training roadmaps for addressing skill shortages based on market needs

Another potential barrier to a smooth transition to a low-carbon economy is green skill shortages. Evidence of such skills shortages was identified in Ireland, Malta and Croatia. Two main points emerged here with respect to shortages in green skills or competences:

- A shortfall of green skills in general or a lack of skills in specific green sectors
- A discrepancy between the needs of the economy and the education and training response.

In Ireland companies across green economy sub-sectors point to the need for improving skills in occupations relating to engineering, ICT skills and core business skills (for example export marketing). The need for additional expertise was also identified in emerging areas such as wind, solar, geothermal, biomass, tidal and wave energy, as well as the use of sustainable materials and renewable energy systems. A need to enhance a range of generic competences important across occupations was also indicated, including commercial awareness, foreign language fluency, finance, communications skills etc. The 2010 Expert Group on Future Skills Needs (EGFSN) study of skill needs in the green economy contained an audit of current green skills courses at secondary and higher educational level. The audit indicated duplication at degree level in parallel with omissions elsewhere in the system. One notable finding from the audit is that more green training programmes targeted at technicians are needed in the Institutes for Technology. In Malta improvement is needed in the rate at which the education sector develops new training programmes in response to present and future green skills needs. In Croatia the shortage of adequate skills and an experienced workforce is highlighted as an issue in relation to the energy efficiency upgrade of public sector buildings initiative. To that end, a broad project 'CROSKILLS' was initiated in July 2012 and coordinated by the Faculty of Civil Engineering under the umbrella of the 'IEE BUILD UP Skills Initiative'. The main task of this 18-month project is stocktaking, aiming to create a national roadmap for energy efficiency education and market evaluation of the construction sector workforce in order to efficiently upgrade current knowledge and skills.

The types issues outlined here are reflected in the equivalent subsection on training (see Section 4.2.3), which identified that a future focus based on an assessment of anticipated needs that includes some form of roadmap or strategy can provide the basis for an appropriate policy response. Policy actions linked to, for example, a national strategy for green jobs training may provide the basis for key stakeholders to establish an education and training response (to greening through transformation and green job creation) that reflects both the more immediate priorities of businesses managing the greening process and medium-term needs. This type of approach is entirely consistent with the strategic direction of both the *Communication Towards a job-rich*

recovery⁽¹¹⁷⁾ and the legislative proposal for the Structural Funds in the 2014–2020 programming period, which foresees the introduction of multi-fund programmes⁽¹¹⁸⁾.

4.3.3. Accessing funding

Efficient Use of Available Funding

- Consider ways to offset the impacts of rolling back co-financing initiatives by governments (as a result of the economic crisis)
- Reliance on EU Structural Funds has limited the potential to adopt innovative solutions (in a context where the sources limit the uses for which the funds can be used). Governments should explore a more flexible range of funding sources where available.
- Actors should explore a more integrated approach to funding green economy initiatives as separate EU funding sources for employment projects and environmental projects may limit the scope for pursuing integrated approaches
- Improve capacity amongst companies and public entities to access EU funding
- Improve the efficiency of public procurement procedures to avoid delays in the commencement of projects
- Ensure the effective use of public funds
- Increase the availability of low-cost funding opportunities for businesses to improve energy efficiency

Problems with **financing green initiatives** have affected several countries including Greece, Latvia, Lithuania, Romania, Slovenia, Iceland and the former Yugoslav Republic of Macedonia:

- Governments' financial situations arising from the economic crisis, such as Greece, Slovenia and Iceland;
- Difficulties accessing available EU funds, for example, Latvia, Romania;

- Structural or procedural problems accessing finance in Lithuania, the former Yugoslav Republic of Macedonia.

In Slovenia the financial situation and fiscal consolidation (adjustment) measures pose great obstacles to achieving green economy objectives. Thus in September 2012 ten representatives of nature conservation organisations and institutions addressed an open letter to the Ministry of Agriculture and Environment, Ministry of Finances and the Prime Minister in which they drew attention to a deteriorating use of European funds in the field of nature conservation and environment. Furthermore, the Ministry of Agriculture and the Environment announced that it will not contribute 20% of the value for the new LIFE+ projects, which were until now co-financed predominantly (50–75%) by European funds (Polak, 2012). In addition, in the last year the Slovenian government abolished four institutions that worked in favour of sustainable development and carbon reduction.

The Iceland article identifies that few green employment strategies or programmes have been introduced in the last few years due to the difficult state of public finances and the economic crisis, with the centre-left government unable to form a comprehensive investment policy. Due to the serious and protracted recession in Greece, the country has been severely limited in terms of its access to resources.

In relation to problems posed by **EU funding mechanisms**, in Latvia reliance on the Structural Funds for many interventions has limited the scope for innovative solutions; the division of the funds into the ESF, which addresses human (employment) issues, and the ERDF, which addresses infrastructure issues, has made it difficult to develop an integrated 'green economy' approach. In Romania two problems are evident with respect to EU funding: there seems to be relatively low capacity to access EU funds both amongst companies and public institutions, together with a gap in the country's main Sector Operational Programme Supporting Human Resources Development (the SOP HRD), which lacked any specific structure aimed at green skills, green qualifications and/or green jobs. This omission helps explain why there is a relative scarcity of initiatives in the area as well as why existing ones lack scale.

Structural and procedural issues appear in relation to Lithuanian projects where the expeditious implementation of projects has been impeded by public procurement procedures delaying the commencement of the projects for at least six months. A more rigorous monitoring regime may improve the effectiveness of funding.

⁽¹¹⁷⁾ European Commission (2012) *Towards a job-rich recovery*, COM (2012) 173 final. Internet: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2012:0173:FIN:EN:PDF>

⁽¹¹⁸⁾ Brochure: 'Cohesion Policy 2014–2020: Investing in growth and jobs', available from http://ec.europa.eu/regional_policy/what/future/proposals_2014_2020_en.cfm

In the former Yugoslav Republic of Macedonia improving the availability of low-cost funding opportunities at a business level for energy efficiency might facilitate the introduction of green innovations and technologies. This would be particularly useful in light of the high proportion of micro firms within the business sector which tend to have relatively poor financial positions and the limited access to funds to support energy efficient projects.

While access to funding is a problem in some countries covered by this review, other countries have built up the capacity of public administrations to manage EU funding and have invested in setting up partnerships at the regional level to enhance cooperation, improve research on green issues and provide training. Transferring the lessons learned from one country to another may help those countries who are experiencing problems in accessing funding to find innovative solutions that can help them draw on available resources.

4.3.4. Administrative coordination and the continuity of political engagement

Ensure administrative coordination and continuity of political engagement

- Aim for overall policy coordination at national level to avoid fragmentation of efforts across various governmental departments
- Identify and address disjuncture between local and national government
- Identify and address weaknesses in capacity at various levels of government in environmental protection
- Develop data sources as a basis for effective evaluation of the impact of local and regional projects
- Improve awareness of green economy issues
- Address the misperception that eco-industries are not strategic industries
- Seek ways to address the perception that green issues are not priority issues in the context of economic crisis
- Find ways to strengthen collaboration with social partners in relation to environmental issues

Some factors have been described which may contribute to the **general political uncertainty making it difficult for further progress in the green economy and green jobs**. Political uncertainty emanates from factors like the decentralisation of environmental policy and the fragmentation of efforts across government departments; the difficulties presented in defining a measure of the green sector for statistical purposes and the co-existing problem of inadequate availability of data or reliable information on which to base policy/business decisions; and finally the ‘crisis perspective’ affecting many levels of government and society in general that greening is not an urgent necessity or indeed a potential source of growth out of the crisis. Belgium, Estonia, Ireland, Latvia, Lithuania, Slovakia, Finland, Sweden, the former Yugoslav Republic of Macedonia and Turkey illustrate some of these factors.

Greater policy coordination across various governmental departments is recommended in Belgium, Finland and the former Yugoslav Republic of Macedonia. Apart from the difficulties related to the actual definition of a ‘green job’, the plethora of actors in Belgium makes it difficult to gain a comprehensive overview of the issue. Although the federal government is responsible for coordinating environmental policy with the European Union, it is the regions that are responsible for the environment and nature conservation. In Finland, although there is good stakeholder commitment, there appears to be a fragmentation of efforts between the Ministries. At a government level in the former Yugoslav Republic of Macedonia a clearer allocation of responsibilities between the numerous bodies involved could facilitate enhanced environmental protection. Other related factors that should receive attention are possible improvements in the functional connection between local and national level as well as a strengthening the capacity of the various units of autonomous government in all domains of environmental protection.

The **problem of defining a statistical measure of the green sector and the accompanying lack of adequate data** is raised in the *Review* articles from Estonia, Ireland, Slovakia and Sweden. The expert for Ireland reports that one metric that is not currently available is an estimate of employment for the entire green sector. Bearing in mind the various aspects that the green economy purports to include, defining a measure for statistical purposes is challenging given the need to balance simplicity with adequacy of cover. The international organisations are

currently considering this issue, and while various proposals are circulating, thus far no agreed text has emerged. The main barriers for the development of measures sustaining the greening of the economy in Sweden involve the difficulties in evaluating the actual impact of local and regional programmes and projects. The decentralised government structure in Sweden makes it possible to adapt measures to local conditions, but evaluation and monitoring of the results remain difficult to achieve. As a result, less efficient measures in one part of Sweden may be repeated in other regions. In Estonia, it is felt that there is a need for improvement in the collection of data on employment within the green economy.

In many countries it seems there is **a pervasive feeling that the environment, per se, is not an urgent issue**⁽¹¹⁹⁾ in the face of the more urgent issues arising from the global economic crisis. There is a perception that greening the economy is not a priority given that it is not a sufficient or worthwhile source of growth out of the current crisis. This may result from lack of political awareness of green issues or from a studied view that there is little potential for economic growth via the green economy. Regardless of the origin of this perspective, it does appear to exist, and some countries have noted it in their articles. It manifests itself both at different levels (national, regional and local) and across different types of stakeholders (public and private sector and social partners).

For example in Latvia, according to the Eco-Innovation Observatory (2011), the barriers to the development of strategies or measures to support the greening of the economy are located in the political sphere: 'eco-innovation and Cleantech are not seen by policy-makers as being strategic industries, which is due to the policy-makers' lack of awareness about "green growth" (p.17)⁽¹²⁰⁾.

In Lithuania it would appear that better cooperation with the social partners, administrations of cities/towns and regions would improve the use of opportunities provided by the various programmes in place to support green activities.

There is a need in Turkey for a government ministry (for example, the Ministry of Development) to play a leading role in order to make use of EU funding for the development of a comprehensive strategy to promote a low-carbon economy.

Returning to the success factors identified in Section 4.2.5, dialogue appears key to overcoming political uncertainties. While dialogue adds time to decision-making processes, coordinating bodies and or commissions for sustainable development communicate policy intent and provide a basis for engaging with social partners and partnership working across different spatial levels. Providing governments and other stakeholders with information on what works, where, how and why (and how much such structures cost to implement) may provide the necessary impetus to affect change.

⁽¹¹⁹⁾ Indeed, the *Industrial Relations in Europe Report 2012* identified that 'greening as such is not a topic of major importance to the social partners. The social partners at sectoral and company level in particular tend to be less active in this area ...' available from: <http://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=7498&furtherPubs=yes>

⁽¹²⁰⁾ Eco-Innovation Observatory Latvia Report (2011). Internet: http://www.eco-innovation.eu/media/EIO_Country_Brief_2011_Latvia.pdf

■ 5. Conclusions

5.1. Summary of Evidence on the Key Questions

5.1.1. To what extent have objectives for low-carbon (green) economies played a role in governments' employment strategies during the crisis? Do Member States consider this to be a pathway out of the crisis?

The importance of moving to a low-carbon economy is widely recognised and informs at least the context of Member State economic and employment strategies.

While the European Commission has indicated that the green economy is one of the key strategic domains for economic growth and job creation to overcome the employment crisis⁽¹²¹⁾, a number of Member States have recognised the green economy as a potential source of employment and a contributor to economic recovery, such as Belgium and Slovakia among others.

Technology transfer is evident as a means through which Member States can stimulate enterprise and job creation, through programmes such as the Norway Grants Scheme, which is having success in Latvia, Lithuania and Poland. Other Member States, such as Belgium and Bulgaria, have used domestic energy efficiency schemes as a means to create new jobs and transform construction jobs throughout the worst of the crisis.

However, the *Review* suggests that **Member States did not necessarily consider 'green' growth strategies as 'the' pathway out of the crisis**, but rather as a part of the wider agenda for recovery.

Most importantly, in a number of Member States **crucial resources for maintaining progress**

towards the transition to low-carbon economies have been diverted away to other 'priority' areas during the crisis. Such an approach is particularly pertinent in Programme Countries such as Cyprus, where an earlier Country Specific Recommendation on green growth has been superseded by the current Memorandum of Understanding.

5.1.2. What kind of policy measures have been adopted, if any? Are these measures part of an integrated and coordinated set of labour market policies with a view to supporting the transition to a low-carbon economy?

The *2009 EEO Review* on economy greening stressed that effective progress among Member States towards green growth necessitated an integrated policy approach to environmental challenges. Three different approaches appear across the countries reviewed.

- **Integrated and coordinated policy frameworks are evident** in a minority of Member States, for example Greece, France, Austria, Portugal and Finland, while progress has been made towards such frameworks in a further seven countries— Bulgaria, Ireland, Spain, Luxembourg, Malta, Croatia and Iceland.
- **Separate environmental and employment measures are evident** in a small group of countries— the Czech Republic, Latvia, Lithuania and Slovenia.
- **Labour market outputs appear implicitly in environmental policies** and measures in a small group of countries— Germany, Italy, Hungary, the Netherlands, Sweden, the United Kingdom, Croatia and Norway.

The number of countries that are experiencing success in generating employment outcomes

⁽¹²¹⁾ European Commission (2012), Towards a job-rich recovery, COM (2012) 173 final.

in the absence of an explicit integrated policy framework indicates that such frameworks are not necessarily relevant for all countries.

The types of measures adopted that stimulate green growth are multifaceted. Policies and measures identified include those that stimulate labour supply and/or labour demand, create the conditions for growth (tax breaks and green investment funds), and support awareness raising activities that promote the demand for greener products and energy efficiency.

5.1.3. To what extent and how have EU funds supported investments in the greening of the economy?

The Structural Funds appear to play an important role in stimulating green growth, particularly in those countries making significant infrastructure investments. While in the majority of cases there appears to be a positive relationship between the Structural Funds and green growth, there is some evidence that when diverse sources of EU funding (ERDF, ESF, R&D) are not integrated in a comprehensive strategy, outcomes in terms of green growth risk are being inhibited.

The intended ear-marking of Structural Funds for climate-related expenditure in the 2014–2020 programming period should help to safeguard investment in climate change mitigation and (increasingly) for climate change adaptation.

The Norway Grants Scheme is mentioned by some Member States as a source of financial support for projects relating to innovation in green industries. This programme has been seen to benefit transnational cooperation and can help to accelerate the process of adopting technology as well as contributing to adaptation of working conditions, labour relations and labour culture in general, which are important for the effective use of new technologies.

5.2. The Jobs Potential of Green Growth— the Debate

The weight of evidence indicates that investment in environmental policies and resource

efficiency will, as with any investment stream, generate employment; the issue is whether there is a net effect, taking account of those sectors that might otherwise have received the investment. In net employment terms, the evidence indicates that there is only a small but positive effect on employment. In other words, the pursuit of a greener economy is entirely consistent with employment objectives and, contrary to some concerns, not responsible for any overall loss of economic competitiveness and activity. There is merit in considering whether indeed DG EMPL should focus on green transitions if employment creation remains small.

5.3. Policy Approaches to Environmental Objectives

The evidence available indicates that the most economically efficient approach to pursuing environmental objectives is through well-designed market instruments, in comparison with regulatory or voluntary measures. Because of concerns, especially from interests adversely affected by new instruments, of adverse economic impacts, environmental measures tend to be scaled back. This weakens the driver for green growth. An alternative approach is to complement well designed and targeted environmental measures with additional measures that seek to assist economic and social actors who are adversely affected to adjust. Recycling of tax revenues from environmental taxes in ways that enhance competitiveness (for example innovation support) and/or employment (for example reductions in labour taxes) is possible (the so called ‘double dividend’)⁽¹²²⁾.

5.4. The Impact of the Economic Crisis on Green Growth Initiatives

The initial interest and commitment to investment in the ‘green’ economy to counter the economic crisis rested in part on the need to justify unplanned investment in terms of addressing market failures and the achievement of wider social welfare objectives. As the crisis has continued and new strategies have had to be introduced, including reductions in investment because of budgetary restrictions, the pursuit of green

⁽¹²²⁾ The ‘double dividend’ was discussed at a European Employment Research Dialogue meeting in February 2013. Further information about this meeting and the associated discussion can be found at <http://www.eu-employment-observatory.net/explore.aspx?document=1343>

growth as a remedy to the crisis has slowed or in some cases has been reversed. A view that Member State governments tend to consider environmental investment as something that can only be afforded at times of prosperity, as if the avoidance of environmental damage was a luxury item, is hard to escape and argues against a deep seated commitment to realise an effective decoupling of economic growth from the use of environmental resources.

5.5. The Impact of Funding on Green Initiatives

The design of the next round of Structural Fund programmes in 2013–2014, with explicit earmarking for climate-related expenditure and specific effort to mainstream low-carbon objectives provides an opportunity to integrate the low-carbon agenda into mainstream economic development.

5.6. Examples of Green Employment Promotion Strategies and Programmes in Member States

In the current *Review*, SYSDM experts were asked to detail a selection of green employment promotion strategies and measures currently being implemented across Europe. The following types of measures have emerged from the review:

- Measures for the development of education, training and skills to support greener economies
- Shifts in taxation
- Policies promoting the development, dissemination and use of green technologies in industry
- Investment in green infrastructure for the development of the renewable energy sector
- Creating awareness of and social pressure for the transition to a greener economy.

5.6.1. Measures for the development of education, training and skills to support greener economies

The first type of measures to emerge from the *Review* are measures for **the development of education, training and skills to support greener economies**. The shift towards a green economy also requires **a certain shift in the skills profile of the workforce**. A mismatch in the supply of skills in the labour market and those demanded by employers can lead to unemployment and slow down the economic greening process. According to the European Commission, the new jobs which will be created in the green economy are likely to be high- and medium-skilled, therefore requiring lower-skilled and older workers to adapt to the needs of the new employers⁽¹²³⁾. Responding to the needs of developing industries, **new profiles or qualifications to meet the changing requirements have been/ are being introduced** in a number of countries according to the national articles, for example France, Italy and Austria.

The OECD conducted a questionnaire⁽¹²⁴⁾ as part of its report to DG Employment which revealed that approximately 60% of the respondents have implemented at least one labour market measure targeting green growth. The OECD (2012) found that training is the most common type of measure in OECD countries— this focus is consistent with the finding that green jobs have distinct skill requirements which perhaps are not being met by existing vocational training programmes.

A key point raised in relation to **the development of new qualifications and training courses is that they should be developed on the basis of on-going reviews and forecasts of the skills in demand on the labour market**. Furthermore, **the provision of green skills must not be generic but respond to the emerging needs in specific sectors and the needs of the locality**. However, only a small number of examples of skills anticipation or forecasting were identified among the 33 countries contributing to the *Review*, for example in Ireland and France. The OECD has also recommended that responding to

⁽¹²³⁾ European Commission (2012), *Towards a job-rich recovery*, COM (2012) 173 Final.

⁽¹²⁴⁾ This paragraph draws heavily on the OECD (2012a); As part of this report, an OECD questionnaire was sent to employment and labour ministries assessing the extent to which countries have implemented green-specific measures and which types of targeted initiatives are most widely used.

employers' skills needs as they materialise may help to avoid green training programmes which exceed or do not reflect the demand for green products and services and hence result in difficulties placing trainees into appropriate jobs⁽¹²⁵⁾.

5.6.2. Shifts in taxation

Another type of measure to promote green employment mentioned in some of the national articles is **shifts in taxation**. A number of countries have **introduced fiscal instruments to encourage firms and individuals to divert their consumption or production towards more environmentally friendly products and services**, for example Denmark and Estonia, while tax exemptions have been used to encourage the development of new green initiatives, for example in Lithuania. Fiscal instruments to achieve environmental objectives have been used in countries like Ireland, Lithuania and Slovakia to raise funds to support other green initiatives, for example a carbon tax in Ireland to help businesses respond to demand for greener products/services or to adopt greener approaches to their business.

5.6.3. Policies promoting the development, dissemination and use of green technologies in industry

Policies promoting **the development, dissemination and use of green technologies in industry** were described by some Member States in their articles. This included **support for innovation and/or research and development in the form of grants, subsidies and investments**, for example Denmark's green development fund. **The establishment of networks** is another measure that Member States have described to promote innovation and knowledge transfer to exploit synergies between the organisations involved. The rationale is to reduce the risks associated with making investments in new green technologies by sharing the risks between partners, for example Network Contracts in Italy. Finally, **the introduction of green public**

procurement processes are seen as another vehicle to promote the development of the green economy, an example of which can be seen in Malta's Green Public Procurement National Plan.

5.6.4. Measures to assist the take-up of green technologies for energy efficiency in households

Measures to assist the take-up of green technologies for energy efficiency in households and buildings in general have been described in the *Review* articles. Programmes facilitating the renovation of buildings to make them more energy efficient can be found in a number of countries, covering private households and in some cases financing the renovation of public and industrial buildings, for example in Belgium, the Czech Republic, Poland and many more. While not necessarily the primary objective of these initiatives, positive employment effects have been experienced in this sector (construction) as a result of these initiatives. Social benefits may be described as another possible outcome due to the improved living/working conditions of the inhabitants of the renovated buildings.

Investment in green infrastructure for the development of the renewable energy sector is key in some countries to the pursuance of economic and environmental objectives, as the sector is seen as a potential source of green jobs and has been seen, for example in Germany, as an important way to compensate for job losses in the traditional sectors. Other benefits described in the report from Serbia include **the contribution of this sector to rural development, reduced dependence on imported energy, mitigation of greenhouse gas effects as well as long-term development of the energy sector**. Other countries like Belgium are encouraging the development of the renewable energy sector by putting in place a system of certification whereby electricity suppliers are required to purchase at a minimum price renewable energy produced by private individuals or companies that have renewable energy-producing infrastructure (solar, wind/water, biomass energy or cogeneration).

⁽¹²⁵⁾ OECD (2012a).

The impact of competition on some of these schemes, however, can produce the opposite of the outcomes intended. For example in Serbia low electricity prices are affecting a slow-down in investment in the renewable energy sector, whereas electricity suppliers in Belgium are passing on the higher cost to consumers, possibly resulting in job destruction.

Other countries have **set up funds to support projects to reduce greenhouse gas emissions**, for example Italy's Kyoto Revolving Fund. Finally, steps towards the creation of greener public transportation systems have been funded in Denmark and Germany.

5.6.5. Creating awareness of and social pressure for the transition to a greener economy

Creating awareness of and social pressure for the transition to a greener economy has been another theme identified in this area. Policies have been instituted by various agents including national ministries, social partners, and special bodies or councils set up to take responsibility for raising awareness of the issues amongst the general public, the private sector, government and policy makers, employers and employees. Finland's 'Promise on Promoting Green Growth' 2012 is a campaign over the internet to canvass support from various actors to outline their role and goals for promoting green growth. Social partners play a role in raising awareness and providing training, for example in Belgium and

Germany, where unions are involved in organising training on green issues. Special councils in Italy, Finland and the United Kingdom have also been formed to bring together key stakeholders to encourage dialogue on economy greening, for example the Green Economy Council (GEC) in the United Kingdom.

Summary: The *Review* has evidenced the continuing effort by Member States to mainstream environmentally-focused activity in support of wider economic and employment objectives. A wide range of initiatives and measures continue to be pursued, which incrementally facilitate the adjustment of particular sectors to the demand for environmental goods and services and greater resource efficiency. However, these activities still tend to be somewhat piecemeal, with limited strategic planning or direction guiding these activities.

5.7. Overview of the strengths and weaknesses of Member State strategies and policies for the green economy

Section 4 of the current Review identified factors contributing to the success of strategies and policies for the green economy and barriers to success. Table 5.1 outlines the successes and provides a series of recommendations on how to address identified barriers.

Table 5.1: Success factors and recommendations

| Key steps | Proven success factors (policy pointers) | Recommendations for action gaps (policy pointers) |
|-----------------------------|---|--|
| <p>Access to EU funding</p> | <p>The availability of EU Funding for infrastructure development, partnership building, training and job creation have been used to:</p> <ul style="list-style-type: none"> - Improve the capacity of public administrations in managing funds for innovative purposes - Establish partnerships and enhance cooperation between social partners - Fund green projects and research - Provide training | <p>Make better use of available resources;</p> <ul style="list-style-type: none"> - Improve capacity amongst companies and public entities to access EU funding - Improve the efficiency of public procurement procedures to avoid delays in the commencement of projects - Ensure the effective use of public funds - Increase the availability of low-cost funding opportunities for businesses to improve energy efficiency - Explore a more flexible range of funding sources where available. Reliance on EU Structural Funds has limited the potential to adopt innovative solutions (in a context where the sources limit the uses for which the funds can be used). - Explore a more integrated approach to funding green economy initiatives as separate EU funding sources for employment projects and environmental projects may limit the scope for pursuing integrated approaches - Explore how additional lending from the European Investment Bank, (EUR 10 – 15 billion) for activities concerning resource efficiency, can be used to support the shift to a low carbon economy (*) - Work closely with governments with identified successful practices and use established mechanisms such as the Mutual Learning Programme to share and transfer experiences and lessons learned |

(*) Further information can be found at http://www.eib.org/attachments/strategies/cop_2013_en.pdf

| Key steps | Proven success factors (policy pointers) | Recommendations for action gaps (policy pointers) |
|-----------------------------------|---|---|
| <p>Integrated policy approach</p> | <p>Integrated policy approaches benefit from:</p> <ul style="list-style-type: none"> - Creating links between environmental and employment policy-making - Green projects having an employment dimension and employment projects having a greening dimension - EU funding - Engaging with key local and regional actors, including representatives from the social partners and education and training providers - Using ALMPs to promote green employment | <p>Improve administrative coordination:</p> <ul style="list-style-type: none"> - Ensure integration between environmental policies and labour market policies. There is a key role for DG EMPL in acting as ‘information broker’ for governments and other stakeholders on what works, i.e. identifying the characteristics of a supportive legislative framework, how to build complementarity between environmental and employment policy-making, how to capture different needs (sectors, regions and local differences) and the relevant use of EU funding. - Avoid fiscal consolidation (adjustment) measures that move away from environmental concerns - Invest in efforts to build capacities and plan, for example; <ul style="list-style-type: none"> - provide training/support for managers and officers in relevant ministries on the importance of including employment and social objectives in strategies - monitor the relationship between environmental expenditure and job creation - improve clarity of concepts, for example green economy and green jobs, in order to contribute to increased coherence of policy debate and research - improve data-collection processes and data on the scale and scope of the green economy - build capacity of national statistics office to participate in national data collection exercises for Eurostat |

| Key steps | Proven success factors (policy pointers) | Recommendations for action gaps (policy pointers) |
|---|--|---|
| <p>Identifying training to meet future skills needs</p> | <p>Interventions contributing to successful practices include:</p> <ul style="list-style-type: none"> - Setting up national observatories to identify skills needs - Undertaking studies at sector and company level to anticipate future skills needs - Establishing national training centres devoted to green skills - Working with successful, highly responsive education and training institutions ready to take on new projects in the area of the green economy | <p>Anticipate Skill Shortages:</p> <ul style="list-style-type: none"> - Identify and address green skills shortages in specific green sectors - Improve education sectors' response to skills shortages— a need for education and training roadmaps for addressing skill shortages based on market needs |
| <p>Cooperation between social partners and other actors</p> | <p>Success between social actors has involved:</p> <ul style="list-style-type: none"> - Political commitment and cohesive multi-departmental governmental approaches to green issues - Setting up national coordinating bodies or commissions for sustainable development - Involving business sector networks in promoting environmental business - Involving trade unions on green issues - Setting up associations/partnerships which bring together local stakeholders and actors with a focus on developing green jobs, for example public-private partnerships for human resource development in green jobs - Establishing transnational partnerships for increasing experience or knowledge of best practices in the field. | <p>Ensure the continuity of political engagements:</p> <ul style="list-style-type: none"> - Coordinate policy at national level to avoid fragmentation of efforts across various governmental departments - Identify and address the disjuncture between local and national government - Identify and address weaknesses in capacity at various levels of government in environmental protection - Develop and maintain linkages between employment and environmental and climate change policy actors - Governments need to ensure engagement with all key actors who contribute to identifying skill needs, developing appropriate education and training responses. - Improve awareness of green economy issues - Address the misperception that eco-industries are not strategic industries - Seek ways to address the perception that green issues are not priority issues in the context of economic crisis |
| <p>Focusing on specific sectors with green growth potential</p> | <p>Success here has arisen from:</p> <ul style="list-style-type: none"> - Government support for sectors with potential - Tailor-made training schemes - Public-private partnership initiatives | <p>Anticipate green growth potential:</p> <ul style="list-style-type: none"> - Identify and anticipate green sectors with growth potential - Identify and anticipate the skills gaps in green growth sectors and how the gaps might be filled |

5.7.1. Overall summary

The *Review* indicates a wide range of activity that seeks to improve the planning and coordination of measures to green the economy and realise a double dividend of improved environmental sustainability with economic and environmental objectives. Increased efforts to address energy efficiency and related sectoral and occupational measures can be observed.

However, the economic crisis has led to a downgrade in the importance attached to

the green economy and appears not to be a primary focus of attention of Member State policy. This is reflected in the relative lack of funding (with continuing reliance on the Structural Funds), the lack of stronger integrated approaches and continuing resistance to the increased integration and stronger role of environmental policy-making in the wider policy portfolio, even with evidence that such a role has if anything a positive economic and employment impact and despite a wide and well accepted recognition of the long-term goal of a low-carbon economy.

European Commission

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Investing in the green economy will be key to overcoming the employment crisis in the EU and driving economic growth. In order for the Commission's integrated policy approach to work an environmental focus needs to be prioritised at Member State level as well. This review looks at whether and to what extent national and regional governments have refocused their policy efforts towards green sectors, and the nature of the policy efforts pursued. The European policy context for promoting transition to green growth is examined and the types of national/regional policies and measures identified, before the findings and lessons are summarised.

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