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Learning for life

ETF POSITION PAPER

Sustainable Development and Education and Training

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List of Acronyms

Cedefop	European Centre for the Development of Vocational Training
DESD	Decade of Education for Sustainable Development
ESD	Education for Sustainable Development
ETF	European Training Foundation
EU	European Union
ILO	International Labour Organization
OECD	Organisation for Economic Cooperation and Development
SMEs	Small and Medium-sized Enterprises
TVET	Technical Vocational Education and Training
UN	United Nations
UNECE	United Nations Economic Commission for Europe
VET	Vocational Education and Training
WBGU	German Advisory Council on Global Change

Executive Summary

The European Union (EU) adopted the Strategy for Sustainable Development in 2001, with a special emphasis on the crucial role of education as a prerequisite for the promotion of sustainable development. The EU embraced the new Europe 2020 strategy in 2010 (EC, 2010) in an effort to encourage not only smart and inclusive growth across its member states, but also sustainable growth. Building on this EU-wide commitment to a sustainable future, the European Training Foundation (ETF) promotes sustainable development as a fundamental principle in its activities in partner countries. The ETF responds to the need for transnational dialogue and exchange of expertise in the development of the skills needed to benefit from the economic opportunities that come with the transformation to a green economy and to meet the challenges of climate change.

This paper examines why and how education policies can make a fundamental contribution toward a more sustainable future. Education policies must promote critical reflection, interdisciplinary learning and innovation in order to support students in their transition to active citizenship. Access to valid training or retraining for individuals is crucial if we are to exploit the full potential of the green transformation for economic growth, employment creation and poverty reduction. Learning opportunities and knowledge sharing are essential stepping stones for businesses wishing to transform environmental regulations and customer demands into sustainable services and products. Relevant skills and experiences must be promoted and disseminated in order for appropriate climate change mitigation strategies to be put into place.

Within education systems, Vocational Education and Training (VET) have a particularly close link with the world of work. VET systems need to support their students not only in becoming active citizens but also in acting responsibly and sustainably in their future workplaces. The world of work will change significantly as a result of the need to reduce the ecological footprint of economies. VET systems need to anticipate and respond to changes in the labour market and in the skills profiles needed for successful careers in low-carbon economies.

Given the diverse range of situations between and within partner countries, this paper focuses on two separate objectives of ETF activities: supporting the transition to low-carbon economies and the development of green (or greener) economies, and: strengthening the resilience of countries and communities to the consequences and effects of climate change.

The paper addresses these two objectives through discussion of the following five focus areas and examines their implications for ETF activities in partner countries:

- Promotion of education geared to the development of values and competences for sustainable development;
- Promotion of appropriate methods for the identification, forecasting and supply of skills for green jobs;
- Provision of support to VET schools as agents for local sustainable development and stakeholders in local strategies for coping with climate change;
- Fostering of sustainable development as an element of entrepreneurial learning and business education, and
- Inclusion of sustainable development in ETF analyses of human resource development policies through the implementation of appropriate indicators.

By focusing on these areas, the ETF will be able to: (i) contribute to policy debate on VET and sustainable development at partner country and international level; (ii) gradually generate and build up new expertise suited to the challenges facing partner countries; (iii) establish an inventory of suitable approaches for partner countries; and (iv) provide targeted support to partner countries.

1. The European Training Foundation and Sustainable Development

The ETF mission is to help transition and developing countries harness the potential of their human capital through reforms to their education and training systems and labour markets within the context of EU external relations policy. This mission builds on the basic conviction that human capital development delivered from a lifelong learning perspective can make a fundamental contribution to increased prosperity, sustainable growth and social inclusion in partner countries.

The ETF's stated aim is to support partner countries in their efforts to make VET a driver for lifelong learning and sustainable development. ETF activities in education and training aim to help partner countries highlight the importance of education and training for sustainable development and to support them in the systemic integration of sustainable development issues into education policies and practices.

The European Union (EU) Europe 2020 strategy (EC, 2010) was designed to put the EU on course for smart, inclusive and sustainable growth in the longer term. The ETF aims to use this EU-wide consensus and clear commitment to a sustainable future as an opportunity to better integrate sustainability issues into its work with partner countries outside the EU, highlighting the transnational nature of sustainability issues.

Structure of the Paper

This paper will be presented in two discrete parts. The first will discuss how VET-driven human capital development is linked to the sustainable development agenda and exactly how VET can contribute to this process. This will focus on the core agenda of sustainable development, with specific reference to education, EU initiatives and the United Nations (UN) Decade of Education for Sustainable Development (DESD) (Section B).

The second part will move on to discuss how this core agenda is reflected in the work of the ETF. It will explore the opportunities and challenges presented by sustainability and the low-carbon route to economic development in ETF partner countries (Section C). The paper will then examine those areas of the sustainable development agenda that can be used in ETF activities in partner countries in a meaningful manner (Section D), before spelling out the full implications of such actions for ETF projects and offering practical guidance for ETF staff on how to incorporate these sustainable development issues into projects and programmes.

2. What does Sustainable Development mean?

The term 'sustainable development' was first published in a report by the United Nations World Commission on Environment and Development, the Brundtland Commission (UN, 1987); an entity created to address growing concern about the accelerating deterioration of the human environment and natural resources and the consequences of this on economic and social development. The 1987 Brundtland Report called for "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". The defining inter-temporal and inter-generational nature of the issue remains at the heart of the sustainable development process today.

This inter-generational dimension is accompanied by an inter-dimensional element that calls for the reconciliation of economic development with environmental and social needs. Sustainable development highlights the need for a balance between, and possibly the integration of, economic, environmental and social concerns. It calls for holistic and integrated policies and decision-making strategies that avoid giving prominence to only one of the mentioned areas at the expense of the others (see also: EC, 2001).[1]

In contrast to what is now considered a simplistic view of an ideal win-win-win situation (a world in which all three areas can be realised to the full), sustainable development requires the ability to mediate and balance between the potentially conflicting logics of the economy, the environment and the social. Such an approach requires openness and tolerance vis-à-vis different worldviews and requires good governance and legitimate procedures in order to negotiate between interests.

[1]European Union Strategy for Sustainable Development, COM (2001) 264 final

Laissez-faire economic growth policies and radical environmental protection ideas, for example, will each produce drastically different visions for a country's development. In order to avoid the extremes of these two concepts - one of which serves only a small group of wealthy investors while the other uncompromisingly walls-off natural resources in nature reserves - a country would need to identify an alternative policy that is capable of promoting economic development in the most resource efficient way while supporting social cohesion through employment creation and poverty reduction.

Example

Country X identifies tourism as a sector with the potential to attract visitors and promote economic growth. As it is geographically suited to winter sports, it focuses on developing alpine ski resorts. In order to attract large numbers of winter tourists and lure them away from established resorts in other countries, investors suggest a heavy emphasis on the availability of budget accommodation, guaranteed artificial snow and a many kilometres of available ski slopes.

For the area where the development would take place, however, this would mean destruction of most of the habitat of a rare bird - the golden eagle - and diversion of a river to provide water for artificial snow, leaving an entire region with groundwater levels so low that small-scale agriculture will probably no longer be possible. Strong local opposition to the investors' plans leads to demonstrations and violent clashes with the police.

Sustainable development as an inter-dimensional concept requires conciliation between the goals of economic development and environmental protection, i.e. a solution that allows economic development without jeopardising the environment and vice versa. The model also calls for a mode of economic development that will increase social cohesion and distribute the returns widely throughout society.

Sustainable development as an inter-generational concept requires abstaining from any development that alters the environment in such a way that will terminate the existence of species (robbing the golden eagle of its habitat), is based on wasteful use of resources (water and energy for artificial snow) or will irretrievably damage a region and the livelihood of its people (by depriving them of its water resources).

A solution in line with sustainable development could be the development of a sustainable skiing resort that offers an alternative to mass winter tourism and is based on local services and local expertise, improved natural protection, reliance on natural snow only, guided wild-life and ski tours and controlled off-piste skiing. Such an approach would avoid wide-ranging changes to nature and negative knock-on effects in the wider area. Instead, it would focus on the conservation of the local habitat and put it at the centre of its concept for developing tourism. By relying primarily on the knowledge and experience of the local population and by designing a local skills development strategy for the sector, it will strengthen social cohesion and provide employment and career opportunities for the area's inhabitants.

Incorporation of the sustainable development principle into ETF activities will require a focus on tools and policies promoting the right set of skills to:

i. generate sustainable economic progress in partner countries;
ii. facilitate a reduction in the environmental impact of production and consumption and;
iii. increase social cohesion and reduce poverty within the society of each country.

Good governance (in VET and beyond), strong civil societies and pluralistic decision-making will also be needed, as they are vital for balancing the potentially conflicting logics of the economy, the environment and the social in the framework of sustainable development.

Sustainable Development and Education

Achievement of a more sustainable future is perhaps the most important task of our time. The world is on the brink of enormous, human-induced climate change that could result in far-reaching transformations of our natural habitat. Our conventional modes of living, working and producing are in need of fundamental change. We will only be able to reverse the trend and avoid permanent impairment of our ecosystem if we are able to significantly reduce our ecological footprint through the rapid reorganisation of our economic activities.

Coming to a more sustainable way of life is not only urgent, but its eventual success is also uncertain. The failed negotiations on a succession agreement to Kyoto for setting climate targets and concerting emissions reductions in Copenhagen in 2009 illustrate the difficulties that lie ahead. The underlying problem of coming to low-carbon economies and sustainable lifestyles is a collective action problem: Success is highly dependent on all countries and literally everybody engaging in the effort.

Each country and every individual, however, has only a very limited incentive to participate. Either individuals (or countries for that matter) mistakenly assume to be too marginal or too minor to make a meaningful contribution. Or they intentionally attempt to free-ride on the efforts of others by avoiding any significant contributions of themselves, potentially even benefiting from individual non-action while everybody else is investing and bearing the costs of reducing emissions.

In addition, the environmental impacts of our activities are often not well understood or are only indirectly visible or perceptible, occurring in geographically diverse areas or with a time lag. As a result, the detrimental consequences of specific activities are all too often hidden or easy to ignore and mitigating action is delayed or does not take place at all. Alongside regulation and stringent incentives, more and better education in sustainability issues is crucial in order to overcome these problems, and must not be considered a luxury.

Being informed and educated about the long-term effects of human actions is a crucial prerequisite for individuals, and societies as a whole, to take over responsibility and to arrive at sustainable decisions and actions. Awareness about the environmental consequences of our lifestyles, and about the truly global impact of environmentally detrimental activities provide an unequivocal answer to the question why we should engage in the effort of altering our habit and why it makes sense to act more sustainable, even for the lone individual. Education for more environmental awareness is thus a crucial part of the response to the global interdependency and the transnational character of climate change. Education forms a fundamental building block in the broad worldwide push towards more sustainable lifestyles and economies.

There is wide consensus in the scientific community that global warming is caused by human economic activity, the burning of fossil fuels and the resulting emissions. Current temperatures must be prevented from increasing by more than 2 degrees Celsius on average in comparison with pre-industrial times if we are to avoid irretrievable climate change, (IPCC, 2001 and 2007). The 2 Degree Goal was adopted by governments as a common objective in the November 2010 climate negotiations in Cancun, Mexico.

The independent and non-partisan German Advisory Council on Global Change (WBGU) provided climate accounts that give a breakdown of tolerable overall carbon dioxide (CO2) concentrations in the atmosphere, expressed as tolerable per capita yearly CO2 emissions to 2050. These calculations state that average yearly CO2 emissions should not exceed 2.7 tons per capita2 if we are to stay within the 2-degree goal. The figures listed below give the actual emissions for some EU member states and illustrate that this ambitious target is not yet within the grasp of the Western industrialised world, despite a clear trend of decreasing CO2 emissions over time.3

[2] WBGU factsheet No 3/2009 available at: http://www.wbgu.de/fileadmin/templates/dateien/veroeffentlichungen/factsheets/fs2009-fs3/wbgu_factsheet_3_en.pdf

[3] CO2 emissions in the EU-27 have been significantly reduced from 1990 levels, with CO2 emissions for 2007 at just 91% of 1990 levels and falling further in the years since (2008: 89%, 2009: 83%); http://epp.eurostat.ec.europa.eu/portal/page/portal/sdi/indicators.

EU Member States	Metric tons of CO2 per capita (2007) (CDIAC*)[4]
Finland	12.1
The Netherlands	10.5
Germany	9.6
Denmark	9.1
United Kingdom	8.9
Poland	8.3
Italy	7.7
France	6.0
Romania	4.4

Source: UN Millennium Development Goals Indicators (http://mdgs.un.org/unsd/mdg/Data.aspx)
**Carbon Dioxide Information Analysis Center*

As an illustration: 2.7 tons of CO2 = 6 return flights from Turin-Brussels for one passenger (one return trip produces the equivalent of 0.44 tons of CO2 per passenger), or 19,000 km in a small car of medium age with emissions of 140g CO2/km (about 18 months of driving 35km a day).

If we want to achieve the desired level of reduction in global emissions while reducing poverty through economic growth in developing and emerging economies, two strategies must be considered key. Western industrialised countries need to reduce CO2 emissions significantly to allow emerging economies and developing countries some leeway in terms of the climate resources they need to further expand economic activities and to distribute the gains throughout their societies. Meanwhile, the Western industrial world will also have to make significant investments in technological progress and innovation in order to ensure that economic growth is becoming increasingly decoupled from resource use. These technologies and advances will require progressive application in developing countries and emerging economies as well on the basis of cooperation rather than transfer.

Education for Sustainable Development in the EU and the UN

In 2001, the EU adopted the Strategy for Sustainable Development (EC, 2001); a document that was subsequently reviewed in 2006 and 2009. This Strategy promotes stricter environmental policies and increased use of clean energy, and the effectiveness of these policies is continuously monitored by Eurostat and the European Environment Agency (EEA). The EU Strategy for Sustainable Development also highlights the crucial role of education as a prerequisite for promoting the behavioural changes and competences needed to achieve sustainable development.

In its Council Conclusions on Education for Sustainable Development (ESD) of November 2010[5], the EU Education Council stressed the need to integrate education for sustainable development into the lifelong learning process and to mainstream it into all levels and aspects of education and training. The document stated that ESD should be built on values-based interdisciplinary learning, promoting 'systems thinking' and underlying principles such as justice, equity, tolerance and sufficiency. The Council Conclusions call on EU member states to ensure that teachers and trainers are adequately equipped to teach the complex issues linked to sustainable development, and member states are invited to include education for sustainable development in their pursuit of the Europe 2020 strategy.

[4] There are alternative ways of conceptualising the climate change challenge, in particular the ecological footprint accounting (Ewing et al (2010)). This approach considers greenhouse gases and land use as liabilities to the biosphere that is balanced against the asset of the country's biocapacity. For Finland, for example, consideration of biocapacity leads to a much more favourable assessment as the nation can more than offset its high CO2 emissions with its large forest resources.
[5] OJ C 327, 4.12.2010

The UN declared 2005-2014 the Decade of Education for Sustainable Development (DESD) as part of efforts to address the need for education in sustainability and the social, economic, cultural and environmental problems facing the 21st century world. UNESCO, as the lead agency for DESD, developed a broad agenda to integrate the principles, values, and practices of sustainable development into all aspects of education and learning.

The UN Economic Commission for Europe (UNECE) has launched a broad initiative to develop teachers' competences for education for sustainable development (ESD). The shortfall in these competences was identified as a major bottleneck for advancing ESD in Europe. Following the recommendations of an expert group, UNECE has identified a number of competences that are crucial in bringing life to the concept of sustainable development. UNECE has also developed indicators to measure the extent of implementation of the ESD strategy as part of the monitoring process.

Sustainable Development in Vocational Education and Training

VET is the section of the education system that has particularly close links to the world of work. Reduction of the ecological footprint of economies and the development of green sectors will change the world of work significantly. VET systems need to support students in becoming active citizens and enable them to act responsibly and sustainably in their future workplaces. VET systems also need to anticipate and respond to changes in the labour market and in the skills profiles needed for a successful career in low-carbon economies.

In the Bruges Communiqué of December 2010,[6] EU ministers for VET and the European Commission directed enhanced cooperation in VET toward achievement of the Europe 2020 strategy with explicit mention of sustainable growth and the promotion of equity, social cohesion and active citizenship through VET.

In 2004, the United Nations Educational, Scientific and Cultural Organization International Centre for Technical and Vocational Education and Training (UNESCO-UNEVOC) Bonn Declaration[7] emphasised the need to adopt a broader perspective on technical vocational education and training (TVET) focussed on the competencies and skills related to increased productivity and those that allow citizens to contribute to sustainable societies. The Declaration also called for increased scope for TVET related to green industries and sustainability in areas such as environmental conservation and renewable energy production.

Many countries have given specific attention to the integration of sustainable development into VET curricula and programmes.

Denmark incorporated sustainable development as part of its revision of goal descriptors, curricula and guidelines for VET programmes, and the German Federal Institute for VET (BIBB) ran a large-scale programme to introduce elements of education for sustainable development into VET curricula across all occupational fields as a national follow-up to the EU Strategy for Sustainable Development and as part of DESD.

Austria has done something similar, but started early on to develop specific occupational profiles to address changes resulting from the move to a more sustainable, environmentally-friendly economy. Their 'solarteur' specialisation, for example, covers the installation and maintenance of solar panels as part of a thread that can be studied either in VET at further education level or a special module in initial VET. Comparable activities and initiatives have been seen in all EU member states and in many other countries in recent years.

Green Growth and Green Jobs

The need for greater sustainability and the attempt to decouple consumption and production from the use of non-renewable resources have led many countries to investigate the potential for transformation from high-carbon to low-carbon economies. There is widespread agreement that the green transformation of economies is at least a necessary - if not entirely sufficient - requirement for sustainable development. Increasing energy efficiency

[6] Communiqué of the European Ministers for Vocational Education and Training, the European Social Partners and the European Commission, meeting in Bruges on 7 December 2010 to review the strategic approach and priorities of the Copenhagen process for 2011-2020, available at: http://ec.europa.eu/education/lifelong-learning-policy/doc/vocational/bruges_en.pdf

[7] Point 3 of the Bonn Declaration, available at: http://www.unevoc.unesco.org/fileadmin/user_upload/pubs/SD_BonnDeclaration_e.pdf

and significantly reducing the consumption of non-renewable fuels and natural resources is fundamental (if – at the moment – still elusive on a global scale[8]) for being able to pursue economic growth while at the same time not damaging the global climate.

Especially in the wake of the financial crisis of 2008 and with crumbling economies across the globe, many countries used the need for an economic stimulus as an opportunity to channel public investment in areas of potential green growth. With varying emphasis, countries focused parts of their stimulus packages on, for example, promoting alternative energies (wind parks), alternative transportation concepts (public transportation, e-cars) and the reduction of energy consumption of private homes and public buildings (thermal insulation).

In order to benefit from the potential of green technology and the growth in green sectors in the future, it is not sufficient to invest in physical capital alone. Without people who own the right set of skills to make decisions for sustainability, engage in innovation, operate new technology and offer meaningful services, investments will be useless and economic opportunities will be missed.

The shift to a low-carbon economy, the rise of green technology and the exploitation of renewable energy are likened by many to the epochal changes that the advent of the steam engine or the computer have caused in the course of economic history. As with the diffusion of these inventions across the economy in the past, the shift to a low-carbon economy will create many new employment opportunities in the course of its devolution, but it will also render traditional sectors oblivious and make familiar jobs disappear.

Structural change on this scale tends to favour those on the labour market who enter with fresh skills and a relevant and recently acquired education, as businesses try to cope with change and innovation by employing fresh talent. Individuals with outdated education or in the later stages of their career tend to be disfavoured, especially where they are employed in industries that are likely to vanish as a result of structural change. Labour market policy can make a meaningful contribution to moderate periods of structural change with job creation and job destruction, and will have to do so in the case of the transformation to a low-carbon economy as well.

Large-scale devaluation of educational achievements and the emergence of a structural mismatch between the skills profile of the labour force and the demands of a dynamic economy can be avoided by early analysis of change in the demand for labour, identification of macro-trends in the economy and the forecasting of future skill needs. Better identification of future skill needs, good communication of the resulting information and its translation into upskilling or retraining activities and changes of curricula in vocational and higher education will mean fewer people are affected by the negative impact of structural change. Resulting active labour market policies and reforms within the lifelong learning system will allow the workforce to switch more easily from old brown jobs to new green jobs.

Policy Initiatives for Green Growth and Green Jobs

In June 2010, the EU adopted its Europe 2020 strategy. This policy is designed to generate the smart, sustainable and inclusive growth needed for achievement of high levels of employment, productivity and social cohesion in Europe by the year 2020. With five headline targets and seven flagship initiatives, the policy addresses key areas where the EU economies need to become greener and more innovative, and where its education systems and labour markets need to modernise and become more inclusive. The headline targets are given in the table:

[8] In May 2011 the International Energy Agency (IEA) reported a historical peak in global CO2 emissions for 2010: “After a dip in 2009 caused by the global financial crisis, emissions are estimated to have climbed to a record 30.6 Gigatons, a 5% jump from the previous record year in 2008” (http://www.iea.org/LatestInformation.asp?offset=5); for the opposite trend in the EU-27, see footnote 3.

		EUROPE 2020 Headline Target	Status Quo (EU 27)
1	**Population in Employment**	75%	2009: 64.6%
2	**Investment in Research & Development**	3% of GDP	2008: 1.9% of GDP
3	**Climate and Energy**	20% from renewable resources	Share of renewable energy 2008: 10.3%*
		20% less consumption of primary energy	1990 - 2008: + 9.0%**
		Greenhouse gas emissions 20% below 1990 levels	1990 - 2008: -11.3%**
4	**Education**	Share of early school leavers < 10%	Early school leavers 2008: 14.9%
		Share of tertiary graduates > 40%	Tertiary graduates 2005 (EU-25): 36.9%
5	**Poverty**	20 million people less	2008: 85 million people in poverty

Source for Status Quo: Eurostat (for EU-27 if not indicated otherwise);
**http://www.energy.eu, **EEA*

Of the seven flagship initiatives, the ones relating most directly to ETF or the dimensions of sustainable development are the following four:

- *Agenda for new skills and jobs* - to increase labour market participation and modernise labour markets, aiming at security for the individual while encouraging flexibility on the labour market at large (flexicurity);
- *Youth on the move* - to enhance the performance of education systems and help young people to enter the labour market more easily;
- *European platform against poverty* – to promote wide distribution of the benefits of growth and jobs throughout societies and ensure social and regional cohesion;
- *Resource efficient Europe* - to decouple economic growth from resource use by increasing the use of renewable energy sources and supporting the shift to a low carbon economy.

In its June 2011 Communication Rio+20: Towards the Green Economy and Better Governance (EC, 2011), the European Commission underlines its commitment to transformation of the EU into a knowledge-based, resource efficient and low-carbon economy. The report identifies some key areas in supporting sustainable development, including the acquisition of the skills and know-how essential for the transition to a green economy and labour policies that will equip employees with new skills and help create job opportunities in priority areas such as energy, agriculture, construction, natural resource management, waste and recycling.

In its Green Growth Strategy, presented in May 2011 (OECD, 2011), the Organisation for Economic Cooperation and Development (OECD) also makes a commitment to the principles of sustainable development. However, the report is clear about the fact that green growth cannot be considered a replacement for sustainable development. OECD describes green growth as narrower in scope and more operational in approach than sustainable development, establishing the conditions needed for innovation, investment and competition for new economic growth that must be consistent with resilient ecosystems.

Other regions of the world also engage in strategic planning on greening the economy, to various extents. The UN Economic and Social Commission for Asia and the Pacific

(ESCAP) held a Ministerial Conference on Environment and Development in Asia and the Pacific in Astana, Kazakhstan, at the end of September 2010, in order to advance initiatives on green growth and a clean environment.

In 2010, The European Centre for the Development of Vocational Training (Cedefop) worked with the International Labour Organization (ILO) on the large-scale global research project Skills for Green Jobs. This project analysed the changing skills needs for green innovation and growth through case studies from 21 countries around the globe including Egypt - which is also an ETF partner country. A European Synthesis Report produced by Cedefop (Cedefop, 2010) details findings from the six European countries in the study (Denmark, Estonia, France, Spain, United Kingdom and Germany) and provides examples of best practices and policy tools for EU member states. In other parts of the world, policy makers have also taken action in order to make education and training an integral part of strategies to reduce emissions and help the transition to a low-carbon economy. Australia, for example, has adopted the National VET Sector Sustainability Policy and Action Plan 2009 - 2012 that details a comprehensive set of actions to supply individuals and businesses with the knowledge and skills needed for a more sustainable economy.

3. Sustainable Development in ETF Partner Countries

The ETF's partner countries cover a wide range of regions, socio-economic backgrounds and human development challenges. While single countries like Kazakhstan and Ukraine have to deal with large-scale environmental disasters (desertification, former nuclear test sites, Chernobyl), most partner countries suffer from less visible but similarly challenging environmental burdens like overpopulated urban centres, air pollution and a general obsolescence of infrastructure and technology (outdated water treatment infrastructure, inadequate waste management, inefficient energy systems, insufficient heat insulation in buildings, insufficient public transport etc.).

The table below ranks ETF partner countries according to their CO2 emissions per capita in 2007 (latest available data from the UN at the time of writing). The figures illustrate a wide variation across ETF partner countries in terms of energy consumption, overall resource efficiency, volume of industrial production, reliance on fossil fuels for domestic energy production or export purposes, and overall impact of production and consumption patterns.

ETF Partner Country	***Metric tons of CO2 per capita (2007) (CDIAC)***
Kazakhstan	*14.8*
Russian Federation	*10.8*
Israel	*9.6*
Libya	*9.3*
Turkmenistan	*9.2*
Bosnia and Herzegovina	*7.7*
Iceland	*7.5*
Ukraine	*6.9*
Belarus	*6.9*
Croatia	*5.6*
Former Yugoslav Republic of Macedonia	*5.5*
Serbia	*5.1*
Uzbekistan	*4.3*
Algeria	*4.1*
Turkey	*4.0*
Azerbaijan	*3.7*
Jordan	*3.6*
Syria	*3.4*
Lebanon	*3.2*

WBGU Emission Target for 2 Degree Goal	***2.7***
Tunisia	*2.4*
Egypt	*2.3*
Armenia	*1.6*
Morocco	*1.5*
Albania	*1.4*
Georgia	*1.4*
Moldova	*1.3*
Kyrgyzstan	*1.1*
Tajikistan	*1.0*
Occupied Palestinian Territory	*0.6*

Kosovo	*n/a*
Montenegro	*n/a*

Source: UN Millennium Development Goals Indicators (http://mdgs.un.org/unsd/mdg/Data.aspx)

On the whole, ETF partner countries produce emissions levels on a par with or below those of EU member states. A significant number of countries fall even below the target of 2.7 tons per capita per year given by the WBGU as the upper emissions limit for keeping global warming within two degrees Celsius, i.e. the tolerable, non-critical zone.

ETF partner countries will be affected differently and to a different extent from global climate change, independently of the extent to which they are producing greenhouse gas emissions themselves. The Intergovernmental Panel on Climate Change (IPCC) has predicted that the north of Africa could experience serious water shortages at the end of this decade while countries in Central Asia may experience a decrease in agricultural yields of up to 30 per cent due to a combination of droughts and flooding.

In all countries, it is the poor who will be affected most by climate change and who are the most vulnerable to its consequences. They are the least well-equipped for pre-emptive or reactive adaptation and they lack the resources to compensate for any loss of land or livelihood as a result of climate shocks. Increased poverty, hunger and migration are likely consequences.

The diversity of situations between and within partner countries suggests the need to focus at least on two conceptually separate objectives in supporting education for sustainable development: to provide support in the transition to a low-carbon economy and the development of a green or greener economy, and: to increase the resilience of countries and communities against the consequences of climate change.

The development of skills, competences and capacities for the former can be seen as part of larger industrial policies within the respective countries (whether explicitly defined as such or not), including support for micro-businesses and small and medium sized enterprises in order to green their services and live up to the demands of responsible consumers and communities in their countries. The second can be approached through the promotion of skills and competences that increase the resilience of communities to climate events and strengthen their capabilities to adapt to a changing climate.

Inclusion and Access to Education

On a more fundamental level, however, support for sustainable development in ETF partner countries must continue to address the issues of inclusion and access to education of good quality for both youth and adults. Large numbers of young people in many partner countries still do not make the transition to secondary education or do not complete it. Against this background, the fundamental objective must be to ensure that education and training are inclusive and virtually everyone is equipped with the necessary competences to participate in all aspects of society, including the economy and the labour market. A better understanding of current patterns of access and retention in ETF partner countries, of

exclusion from education at various stages and the reasons for this (gender, ethnic background etc.), and of suitable measures to address these issues will be crucial contributions to sustainable development.

The ability of adult learning infrastructures in partner countries to offer access to education, training and further training to all age groups is essential in arriving at a more integrated system of lifelong learning and for promoting sustainable development in all its dimensions. However, adult learning in most ETF partner countries is not well developed and has not been established as a platform for supporting change in society at large and the economy in particular. Efforts to support sustainable development must include a strategic focus on improved access to adult learning in line with recent attempts to prioritise this sector of education. Issues such as the causes of climate change and its effects on natural habitats must be introduced and green skills must form an intrinsic part of the policies, frameworks and course offers in adult education.

Supporting the Transition to a Low-Carbon Economy

There are numerous examples of initiatives that started to reduce the industrial carbon footprint, use resources more efficiently and promote the green sector in many countries with and without donor support. Egypt, for example, has a rapidly growing organic agricultural sector with approximately 500 organic farms that produce and promote a wide range of organic products with the support of donors, NGOs and the Sekem Group (see also: ILO, 2010).

Belarus, Croatia, Serbia, Turkey and Ukraine have strong industrial bases that need adaptation and modernisation to reduce emissions and become competitive in a low-carbon world. Some of these industries may be forced to change their product range altogether. They may use the move to a low-carbon economy to reinvigorate competitiveness and to create new employment opportunities through products such as wind turbines, smart energy systems or alternative transportation concepts. These nascent lines offer new opportunities to large-scale industry and small and medium sized enterprises (SMEs) in the role of manufacturer, supplier or partner in joint-ventures. Developments of this type require a workforce that is comfortable with constant product innovation, combining a solid skills base with the potential to acquire new knowledge within a lifelong learning perspective.

At the same time, and in spite of joint action on environmental protection and climate change foreseen in co-operation agreements between the EU and partner countries, there is the real danger that the opposite scenario will take place and these economies will end up with those carbon-intensive, high emission industries that will flee the EU as a result of higher emissions standards and tighter regulation within the EU. This process of carbon leakage, which occurs when economic activity migrates from one region with strict environmental regulation to another with more flexible or lower environmental standards, would very likely result in the growth of dirty industries with low quality and hazardous jobs in some or all of the industrialised partner countries of ETF.

The introduction of respective regulation and the adaptation of high occupational health and safety standards may help avoid such developments, but the implementation of a skills and entrepreneurial learning strategy is also necessary, with a heavy emphasis on the environmental awareness and accountability of both public and private sectors. Countries must invest in efforts to update and improve the skills of workers and entrepreneurs alike in order to fully participate in the global competition for sustainable, green industries. Greener production and standards could thus promote business expansion and new jobs, and open doors to new markets.

In most partner countries, the crafts and service sectors play a key role in increasing the sustainability of daily life in both the formal and informal economy, as the plumbers, car mechanics, carpenters and maintenance workers are the ones who can make the small changes, calibrations and adaptations that add up to tangible reductions in water consumption, increases in energy efficiency and improvements in fuel consumption. The introduction of training that conveys the skills for making existing craft occupations greener, like plumbers, pipe fitters, car mechanics and builders, does not only help to protect natural resources and the environment but it also gives a boost to small-scale businesses and the self- employed.

Many ETF partner countries have as yet untapped renewable natural resources that could potentially allow them to reduce the carbon footprint of their national power supplies. Reliance on coal is still common in most partner countries despite the accessibility of other options such as yearlong sunshine in the countries around the Mediterranean and large expanses of land appropriate to wind farming in Central Asia, Turkey and the Mediterranean again. Although changes to the national grid can require major investment, advances in wind and solar technology and the increasing availability of easy-to-use solar energy and windmill kits now permit small-scale, incremental and relatively low-cost partial greening of the national power systems. Regulatory incentives have proven successful elsewhere as part of a grassroots-driven switch to alternative energy. These have operated in the form of fixed premiums for power provided back to the national grid from private, small-scale renewable energy sources such as windmills.

Increasing Resilience against Climate Change

Efforts for sustainable development in many ETF partner countries have to focus on the need to cope with and mitigate the local effects of climate change caused in other, more industrialised parts of the world. Sudden weather events such as storms, floods and droughts coupled with slow onset changes such as temperature or sea level rise heavily affect rural and coastal areas in these countries. Changing climate conditions constitute a significant threat to traditional income sources and livelihoods, in particular for rural populations.

Poverty increased dramatically in many ETF partner countries in the 1990s and the levels remain high despite positive economic developments prior to the recent crisis. In Armenia, for example, 24 per cent of the population was living below the national poverty line in 2008, down from 55 per cent in 1999. After 2008, however, the trend turned and the share of Armenians under the national poverty line had risen to 27 per cent by 2009. In Tajikistan, the share of the population living below the national poverty line in 2009 was still very high, at 47 per cent, down from 92 per cent in 1999. In Egypt, the share of the population living below the national poverty line has steadily increased over the last decade, from 17 per cent in 2000 to 22 per cent in 2008.[9]

The 2008 financial crisis and its aftermath have rendered promises improbable for the foreseeable future to reduce poverty levels solely by relying on pay-offs from a dynamic global economic environment. The effects of climate change threaten to compound existing poverty further, exposing agricultural and subsistence activities to considerable hazards. Where small-scale and subsistence farmers are unable to reliably resort to cultivation of their own land, the safety net of agriculture will disappear and pressures to relocate and migrate abroad will increase further.

Many countries, particularly in Central Asia, worked on national plans to reduce poverty and Poverty Reduction Strategy Papers at the start of this millennium in response to widespread poverty and in line with the UN Millennium Development Goals. These papers and strategies addressed the potential role of skills development in the reduction of poverty and local economic development only in a very limited manner. The ETF has led a widely-shared reassessment of the potential of VET in the provision of skills for exiting poverty that has helped to reintroduce skills development to the poverty reduction agendas of many countries and donor organisations (ETF, 2006).

VET can reinforce its role in poverty reduction by supporting and developing capabilities for the mitigation of climate change. Especially in rural areas and in the informal sector, improving vocational education and training in response to local needs and opportunities can become the centrepiece of a strategy for the protection of livelihoods for communities and in reducing the considerable poverty risks attached to the negative effects of climate change. Topics such as efficient water management, infrastructure maintenance and sustainable agriculture techniques will help local farmers reduce exposure to drought and overall crop failure. Diversifying livestock, crops and soil use will help control disease and soil erosion. As a result, resilience to climate shocks will increase and the risk to income and livelihoods can be significantly reduced.

[9] All data from World Bank 2011: World Development Indicators 2011 accessed on 19/09/2011; available at: http://databank.worldbank.org/ddp/home.do;

Various initiatives have addressed issues related to climate change and the response strategies needed, with or without a specific skills and training aspect. Jordan, for example, with support from the German Agency for International Cooperation (GIZ), has started work on integrated, sustainable water management in order to achieve more efficient use of the scarce water resources in the region and to improve the quality and quantity of water supplies.

Tajikistan has used assistance from the World Bank, the European Development Bank and others to increase resilience to climate change through improved early warning capabilities, protected hydropower and improved water management.

As part of a longstanding effort, with initial support from the Swiss Helvetas cooperation agency, Kyrgyzstan established sustainable community-based tourism that uses local expertise and provides income and livelihood to communities that would be otherwise be threatened by severe poverty.

The Regional Rural Development Standing Working Group in South Eastern Europe - a cross-country, regional initiative of EU members, candidate countries and potential candidate countries - promotes innovative, inclusive and sustainable agriculture and rural development in the region. Its projects range from promoting non-formal learning for sustainable rural development, to introducing sustainable water management.

4. Supporting Sustainable Development in ETF Partner Countries through Education and Training

All ETF partner countries are working to modernise or reform their education and training system as part of efforts to increase responsiveness to emerging economic and social demands. It is important that policy makers and practitioners in the ETF partner countries be made aware that meeting the demands of sustainable development must be embedded in these efforts. This does not necessarily imply that new ad hoc actions or initiatives are needed, but that existing ones need to pay attention to sustainable development considerations. The ETF's role, as expressed in its vision statement, is to contribute to policy debate with partner countries on how to support sustainable development through VET policies and practices.

There are five areas in VET and human capital development policies that must be considered crucial for assisting partner countries in meeting the demands of sustainable development, responding to the challenges of climate change and in using the opportunities contained in the transformation to low-carbon economies. These five areas address different objectives within the sustainable development agenda, but they all relate to the ETF core mandate.

1. Promote education geared to developing the values, skills and competences for sustainable development. This includes the promotion of adequate learning environments and the teacher education necessary to make people aware of sustainable development and develop the required competences.

Gaining competency in sustainability requires a focus on developing problem solving ability, creating awareness of environmental issues and their interconnectedness and fostering attitudes that support sustainable actions. Participatory, student-centred education techniques must replace traditional approaches. The ETF can support curricula reform and teacher training to this end.

2. Promote methods for the identification, forecasting and provision of skills to support the greening of products and services, the growth of green sectors and to improve overall competitiveness in a low-carbon future.

In order to support the wide range of imaginable bottom-up and top-down approaches for identifying and introducing skills for green jobs, the ETF can provide a communication platform to stakeholders in its partner countries and build up a library of practices (failed and successful ones) from which partner countries can draw lessons and inspiration for their own policies. Support can also be provided in establishing qualitative forecasting methods and organising policy learning for effective labour market interventions in the shift to a low-carbon economy.

3. Make VET schools agents for local sustainable development and stakeholders in coping strategies for climate change.

VET schools are ideally positioned to function as a local and regional expertise resource on issues such as adaptation to climate change, environmental protection and sustainability. Environmental considerations, such as energy use and efficiency, the availability of resources and sustainable agriculture techniques, could be included in projects for students and the community as a whole. The ETF has proven ability and effectiveness in helping VET schools to redefine their role in the local community.

4. Integrate sustainable development into entrepreneurial learning and business education.

There is a need for new knowledge and management systems for cleaner and sustainable production to be developed in line with evolving regulation (a prerequisite for access to EU markets). Management and workplace must be covered, with the entire production environment and all those contributing to it having a certain level of green knowledge and skills investment. Peer learning opportunities on the role of sector support institutions, in particular for SMEs, will be particularly important in providing partner countries with knowledge about successful training and consultancy services.

5. Include the dimension of sustainable development in the analysis of partner countries' human resource development policies, with a focus on identifying and applying adequate indicators.

Indicators help facilitate policy debate and policy learning over time and allow for the exchange of good practices between countries. The ETF can help introduce indicators to document how far sustainable development issues are included in VET policy and practice. The assessment processes will bring policy makers and stakeholders together and provide a communication platform that will be as important as the indicators themselves.

These five areas are discussed in detail in Annex I as background information to be considered in the design of activities for the respective country. There is an explanation of the particular importance of each of them to the sustainable development agenda. A review of existing practices, policy examples and concrete approaches to help translate the area into specific country activities are included where possible. Rather than prescribe any specific activities, the given information is intended to be a source of inspiration that leaves room for a wide range of activities, depending on the individual context and needs of specific partner countries.

5. Sustainable Development in the ETF Work Programme 2012-2013

The aim of the ETF work on sustainable development with partner countries for 2012-2013 is to: (i) contribute to policy debate on VET and sustainable development at country and international level; (ii) gradually build up and generate new expertise taking into account any challenges in the partner countries; (iii) establish an inventory of suitable approaches; and (iv) provide targeted support.

The ETF already addresses aspects of sustainable development in its portfolio of activities, particularly in terms of access to and the inclusiveness of good quality education. Further themes will need to be added in response to the individual needs of partner countries, allowing for a gradual build up of expertise and an inventory of suitable approaches.

The ETF work programme for 2012 contains plans for a number of concrete activities that include an aspect of sustainable development in an otherwise regular ETF country or regional project. Others contain activities explicitly designed to promote sustainable development, with projects specifically focussed on two of the five areas mentioned in Section D.

One such project will promote indicators as a tool for the documentation and promotion of policies on learning for sustainable development in VET. A pilot scheme run in three countries of the Eastern Europe and Central Asia (EECA) area in 2011, focussed on developments at governmental level and at the level of individual VET schools with respect to learning for sustainable development. The ETF worked with national stakeholders and experts to design baseline indicators to use in the identification of objectives and feasible

steps toward the whole-school approach to learning for sustainable development in VET. The indicators produced will be tested, adjusted and presented to stakeholders outside the pilot project at a conference in 2012, with a view to making them available as a policy tool in all partner countries.

A second project will focus on strategies for the early identification of skills for green jobs. One sector or region in a country will be approached in a pilot project to develop a policy approach that can eventually be used and reproduced in similar sectors and regions of other partner countries. Potential sectors for consideration in the project include plumbing, farming, tourism or machine maintenance. These are sectors that exist in all economies and that can make significant contributions to reduced resource consumption in all ETF partner countries. Qualitative early skills identification strategies aim to produce a picture of how each specific sector or region may develop over a five-year period, identifying the skills needed in the workforce for the sector or region to flourish. The ETF will review existing approaches and identify and apply those most suited to promoting the skills for green transformation.

Annex II provides an overview of those activities planned for 2012 that include an aspect of sustainable development but otherwise appear simply as country or regional projects. At the time of writing, the listed activities merely present the potential for an added component on sustainable development as pending decisions in partner countries and within the ETF have yet to determine whether this potential will be exploited.

Annex I: Supporting Sustainable Development in ETF Partner Countries

1. Promote Education for Developing the Values, Skills and Competences for Sustainable Development

Competences for sustainable development differ from practical workplace or occupational skills because of their emphasis on the underlying responsibility and ability to make decisions that will not be harmful either in the present or in the future. Competences for sustainable development can be found in a confident student who is motivated to learn, capable of playing an active role in society, creative and constructive in identifying solutions, has the capacity for reflection and gives consideration to the needs of others, the environment and future generations in his decisions.

The European Reference Framework for Key Competences in Lifelong Learning defines eight essential, transversal skills[10] that are crucial in adapting to rapidly changing circumstances, seizing new opportunities, innovating and shaping the future, independent of specific occupational roles or actual career choices. Although sustainable development is covered as one of the many goals to be facilitated by the eight key competences, the Framework does not explicitly explore the link between many of these key competences and sustainable development. Social and civic competences, learning to learn and competences in science and technology, for example, are some of the underpinning abilities that are also fundamental in the promotion of sustainable development. However, the connection between these key competences and sustainable development remains undeveloped. As a result, the framework provides only loose guidance on how to promote the inclusion and mainstreaming of sustainability issues in occupational training and VET across all trades and occupations.

UNECE has worked specifically on the identification of the competences considered essential for sustainable development in teachers and educators (UNECE, 2011) from pre-school education upwards through all stages of lifelong learning. UNECE has produced a set of competences for sustainable development on the basis of solidarity, equality and mutual respect among people, countries, cultures and generations recommended for initial training and continuing professional development for teachers and educators and for curriculum review processes. Teacher training and curriculum design are closely interlinked as teachers and educators will only be able to practice the competences for sustainable development if the curricula reflect the respective educational approaches.

UNECE considers the competences as a reference point to which teachers and those responsible for curriculum design should aspire, rather than as a minimum standard. The competences consist of three essential principles in teaching and being a teacher, namely:

1. Following a holistic approach - embodied in integrated thinking, inclusivity and the ability to deal with complexities.
2. The ability to envision change - comprises the ability to learn from the past, to be engaged in the present and to explore alternative routes into the future.
3. The ability to achieve transformation - calls for a transformation in what it means to be an educator, for a transformed pedagogy that emphasises creativity, participation and innovation, and an approach that gives sustainability the required prominent place in education.

These three essential principles are linked with specific areas in which educators must perform in order to stimulate students and direct them towards sustainable development. These areas are known as “learning to know”, “learning to do”, “learning to live together” and “learning to be”.

[10] The eight key competences are communication in the mother tongue, communication in foreign languages, mathematical competence and basic competences in science and technology, digital competence, learning to learn, social and civic competences, sense of initiative and entrepreneurship and cultural awareness and expression (EC, 2007).

"Learning to know" refers to the teachers' understanding of the challenges in terms of the economy, the environment and society (climate change, environmental degradation, poverty, social cohesion etc.) and their understanding of the potential positive role of teachers and students in answering these challenges.

"Learning to do" refers to having a command of teaching techniques that promote and support integrated thinking, active citizenship and sustainable action.

"Learning to live together" refers to outreach and the development of partnerships on issues related to sustainable development outside the school.

"Learning to be" refers to acting as a role-model in daily life and providing a display of autonomous judgement and personal responsibility.

The table below shows some examples of how these three essential principles in teaching and the four areas of performance may combine to produce specific recommendations for teacher training and curriculum design:

	Holistic approach	**Envision Change**	**Achieving Transformation**
Required Knowledge: "Learning to know"	Systems thinking	Critical reflection Creative thinking	Connections between educational approaches, individual development and active citizenship
Educational techniques: "Learning to do"	Active learning projects	Immediate environment as a context and source of learning	Participatory, learner-centred education
Outreach: "Learning to live together"	Initiatives across generations, cultures, disciplines and places	Creating awareness of alternative futures	Challenging unsustainable practices, also in school and the educational system
Role-model: "Learning to be"	Be inclusive	Motivate	Be a practitioner

Source: Adapted from UNECE (2011: 7-8); form of presentation and slight changes in phrasing by ETF author.

By emphasising the importance of the ability to make conscious choices and respond confidently to current and new challenges in a complex world, the EU Education Council essentially confirms the considerations laid out in detail by UNECE. The EU Education Council emphasises the importance of interdisciplinary learning, systems thinking, innovation and creative thinking. Referring specifically to VET (and higher education), the Council recommends a focus on "developing more specific skills and the competences needed within various occupations, as well as on addressing issues such as responsible decision-making by individuals and communities" (EU Education Council, 2010: 4).

The ETF role in supporting the competences for sustainable development in its partner countries will thus focus on promoting education policies, teacher training and curriculum design anchored in inclusive, reflective, multidisciplinary and team-based approaches. The ETF will advocate a school and teaching culture that provides students with an active role, embraces participatory forms of teaching and learning, connects with actual sustainability issues in school and community life and organises active learning at 'real-world' sites. Strengthening independent judgement and cooperating with actors and institutions outside the school will prepare students for their future work environment and help them to become active citizens.

2. Promote Methods of Identification, Forecasting and Provision of Skills for Green Jobs

In its Resolution of September 7, 2010,[11] the European Parliament defines green sustainable jobs as those jobs that: (i) directly reduce consumption of energy and resources, protect ecosystems and biodiversity and minimise waste production and air pollution and (ii), more generically, all jobs which reduce the environmental footprint. While the first type of green jobs focus on the green nature of the occupational profiles themselves, the latter focus more on the green business segment in which companies are active and in which jobs are located. This dual perspective illustrates that there is a wide spectrum of what can be considered green jobs and that they differ dramatically in their need for specific green training or retraining. At the one extreme, there might be a completely new set of green skills necessary for performance, while at the other, the skills required for a green job may be no different to the skills required for a comparable job in a traditional sector.

A welder in a green business - producing windmills for example - will essentially need the same skills as a welder in a conventional business producing agricultural equipment. Although the job is classed as 'green' under the above definition, the necessary skills are basically the same as for the conventional business. Truly green job profiles involve specific knowledge and specific skills. Usually, such jobs focus on researching, developing, maintaining or using technologies and practices to lessen the environmental impact of processes, products and services. Energy consultants who advise homeowners, tenants and businesses on how to save on heating and improve their energy efficiency are a case in point; so are engineers, technicians and car mechanics that design, build and service vehicles with electric or other non-carbon fuelled drives.

In between the two extremes, there is a wide area in which green jobs combine old skills with a varying amount of new ones. Organic farmers, for example, will continue to need traditional agricultural skills, but will have to acquire additional expertise on organic standards and their implementation, understanding of certification procedures and notions of potential sales and distribution channels. Similarly, maintenance technicians for windmills need to supplement the traditional skills of the mechanical technician with additional knowledge on the idiosyncrasies of windmill technology. Plumbers, fitters and carpenters who install and maintain water, heating and heat insulation in private homes need to expand their expertise in order to be able to identify and implement technical solutions for improving water and energy consumption.

It is widely agreed that the majority of green jobs actually make up this middle ground where existing skills need to be supplemented with additional, new skills relating to green technologies, applications or processes. Accordingly, despite the need for invention, innovation and moulding of some radically new professional expertise in the field, the main challenge is to up-skill across the entire range of jobs and occupations. Green skills need to be added to existing occupations and hybrid occupations will come into existence where old skills combine with new ones. Necessary new skills comprise competences that span across occupations (for example, on increasing energy efficiency in routine operations, but also in the form of true competences for sustainable development as discussed above), but also comprise those that are specific to respective sectors and occupations.

While sector specific approaches to the greening of skills profiles have the advantage of being able to provide immediate and focused answers to emerging skill needs among businesses, a more comprehensive approach spanning sectors and incorporating long-term economic development strategies may lead to broader and more in-depth skills development. However, neither approach can function without the required policy dialogue between stakeholders.

ILO-Cedefop identified a wide variety of approaches and practices to green VET systems across the national case studies included in their reports. A common theme in the European cases was the bottom-up nature of many attempts to include green skills in and across

[11] On developing the job potential of a new sustainable economy (2010/2010(INI)) available at: http://www.europarl.europa.eu/sides/getDoc.do?type=TA&reference=P7-TA-2010-0299&language=EN

occupations (Cedefop, 2010). In most European countries, except for France and the United Kingdom, there is no overall strategy focused on green skills as part of a green growth plan or as part of a coherent response to climate change or the need for environmental protection. In fact, in Germany, many initiatives for introducing green skills emerged at the sector level, or even the micro-level of individual businesses, while, in Spain, these sometimes occurred in cooperation with municipalities and regional governments that attempted to moderate structural change and promote green regional economic development policies for their respective regions. In Denmark, the impetus came from trade unions concerned about the career perspectives of their membership with skills profiles in need of updating in line with the new emerging and greener technologies, and in Spain, the employment services and training institutions focused retraining courses for the unemployed specifically on the development of green skills profiles.

The ILO-Cedefop study also made it clear that these bottom-up approaches need to find an echo in responsive, and often VET-specific, institutions on the macro-level in order to become effective on a wider scale. These macro-level institutions are often responsible for the formal inclusion of new skills in curricula and are the agents for mainstreaming sustainable development across occupational profiles, as is the case in Germany. In Denmark, they also regularly provide funding and expertise to extend the limited pilot projects into larger-scale sector or national schemes.

Important top-down impetus was inspired in some countries by legislation to promote renewable energy and to tighten insulation standards in private homes, providing a legal mandate for the overhaul and revision of training standards in affiliated occupations. Occupational profiles and training curricula were updated and changed in Denmark and Germany as a result. Similar, albeit not legally binding, effects resulted from stricter waste disposal regulation and tighter emission standards for cars, for example, leading to an increased focus on environmental issues and fuel efficiency respectively in the training frameworks for the occupations affected.

In Egypt, a selection of essentially top-down approaches, driven by a number of government agencies with occasional donor cooperation and support have led to advances in wind energy, organic farming and waste management. However, the ILO-Cedefop study (ILO, 2011) found training and retraining for the newly required skills remained mostly sketchy and informal. In wind energy, for example, wind farm design and construction rely entirely on foreign expertise, while skills development for the maintenance and operation of wind parks occurs as on-the-job training with no general technical training elements and no certification. This is mainly due to the lack of financial resources, but also results from a lack of coordination among agencies and educational institutions and a limited awareness of climate and environmental issues as a motor for employment growth within the formal education and training system.[12]

In order to support the wide range of imaginable bottom-up and top-down approaches for greening VET policies, only a small sample of which have been covered in the examples cited in this document, ETF will provide a communication platform to stakeholders in its partner countries and build up a library of practices (failed and successful ones) from which to draw lessons and inspiration on how to approach the topic and avoid the pitfalls. The ETF will act in response to the individual demands of the respective partner country, in line with any national strategies already in place. Careful consideration of diversity and compatibility in national institutional backgrounds will ensure that the adoption and implementation of any practices will be compatible with existing VET, lifelong learning and labour market institutions.

3. VET Schools as Agents for Local Sustainable Development and Stakeholders in Coping Strategies for Climate Change

VET can contribute to poverty reduction and to fostering capabilities for coping with the risks of environmental degradation and climate change. Increasing resilience against climate change requires the development of the environmental and elemental, but also of the social and economic skills that are needed for a community in order to adapt to changing

[12] The ETF has been addressing the atomisation of the institutional VET framework in Egypt as part of its activities, and will continue to do so as part of its efforts to support EU TVET reform project in the country.

environment conditions and to be able to continue to meet its needs. Vulnerability to climate shocks is especially high where individuals have insufficient knowledge resources and institutional support available when having to cope with the consequences of detrimental climate events.

Institutional impoverishment traditionally coincides with individual and collective poverty and the neglect of traditional skills and livelihoods. The current reality in many ETF partner countries continues to reflect the description of institutional impoverishment in the field of education given in the Grootings and Nielsen report on skills development for poverty reduction (ETF, 2006). According to the authors, the transition processes and policies have made victims of the vocational training systems, leaving them disconnected from resources and funding even though the sector continues to serve a significant share of the youth cohort. The report describes how the bias toward higher education reform and donor-recommended abandonment of vocational systems leaves VET institutions unable to fulfil their original role, forcing them into a secondary position as a basic safety net for students from families too poor to pay for better education.

VET schools in transition countries regularly lack up-to-date teaching materials, modernised curricula and functioning technical equipment. They do not develop sound teacher career development programmes, they lack the funds they need to provide motivated, well-paid and upgraded teachers, and have lost the close institutional links they previously had to production plants, establishments and factories. VET systems in many transition countries are, to some extent, reduced to a welfare function where they provide food and lodging for students without delivering any training in meaningful skills for the workplace or for meeting the challenges of daily life.

While there is a recent shift in donor focus and in policy priorities of governments to revitalize VET systems and give higher priority to VET policy on national levels in a change of perspective that is also supported by EU external policy priorities, there is also an important place for smaller-scale and regional projects that focus on supporting VET schools in rural areas. VET schools are often the only educational institutions that can provide students in rural areas with relevant work skills without either relocating or travelling long distances. They are in an ideal position to become a resource-base providing local and regional expertise to local communities.

This is not only true for work skills in the strict sense, but also for the skills necessary in order to promote local sustainable development and to be able to mitigate the local impact of climate change. Local and subsistence farming is increasingly at risk of eradication by sudden onset events such as drought, flooding, landslide and infestation by pests. Crops and livestock also are threatened by slow onset changes such as rising temperatures, scarcity of water and changes in vegetation.

Where there is a background of a general institutional impoverishment, any of these environmental shocks can act as a catalyst in the process of increasing rural poverty and migration to urban centres, both domestic and international. The negative effects of climate change thus compound existing hardships and increase long-standing migration pressures.

Sustainable methods of agriculture offer potential remedies for rural poverty and loss of livelihoods due to natural catastrophe, soil erosion or drought. In his report to the Human Rights Commission as UN Special Rapporteur on the Right to Food, Olivier de Schutter[13] cites the development of local sustainable agriculture, or “agroecology”, as the key to increasing food supplies where they are needed most. He states that this approach offers great potential for reducing rural poverty and increasing adaption to climate change, as it decreases the costs for small-scale farming while boosting resilience and sustainability. By mimicking natural processes, diversifying crops and livestock, and recycling nutrients and energy, the agroecology approach dramatically reduces the need for fertilizers, pesticides and other external inputs while protecting against soil erosion and crop failure.

According to de Schutter: “agroecology is highly knowledge-intensive, based on techniques that are not delivered top-down but developed on the basis of farmers’ knowledge and experimentation” (OHCHR, 2010: 6). Investment in research into agroecological practices is essential for such local experimentation and knowledge dissemination to be successful. This must be coupled with the development of networks and learning opportunities for

[13] Report submitted by the Special Rapporteur on the right to food, Olivier de Schutter, HRC, 16th, 20/12/2010 A/HRC/16/49

small-scale farmers, and the provision of extension services, storage facilities and the rural infrastructure needed to ensure farmers access to local and regional markets.

As a place of learning, VET schools have an important role to play in all of those areas, providing the institutional backbone for local experimentation in sustainable agricultural practices and disseminating successful practices through the community.

For this potential to be realised, VET schools must become actors and stakeholders in their local environment and deliver and develop those skills that are of relevance to the local population, the local environment and the local economy. The ETF has proven ability and effectiveness in supporting VET schools to redefine their role in the local community as was demonstrated in the Vocational Teacher and Trainer Network (2002, 2005) initiative and the Learn project 2007-09 in South Eastern Europe as well as in the recent School Development Projects in Central Asia.

As part of one School Development Project, a VET school in Kyrgyzstan has developed and launched a new training scheme for adults involved in agriculture. Adult training is delivered in a flexible, modular format using a learner-centred approach on the basis of a needs-assessment carried out by the school. The scheme includes business planning and links into a local micro-credit scheme. People further afield are able to benefit from the scheme due to the portable elements built into the course design. As a result, participants manage to go beyond subsistence farming, increase their incomes and protect their livelihoods.

4. Integrate Sustainable Development into Entrepreneurial Learning and Business Education

Integration of the sustainable development issue into all aspects of entrepreneurial learning and business education is essential if we are to achieve the transformation to a green economy on the scale necessary in the time available. Without businesses taking on the challenge of transforming environmental regulation and customer demands into a wide and growing range of sustainable services and products, the shift to a low-carbon economy will remain elusive. Businesses that refuse to change their practices, products and services and do not respond to the need for a fundamental shift to more sustainability in their operations will predictably forego enormous business opportunities. They will lose ground to start-ups and innovatory companies that consider carbon-neutral production, environmentally compatible products and sustainable workplace practices a recipe for success rather than a nuisance. This principle holds true for businesses in EU Member States as well as those in ETF partner countries.

SMEs provide the bulk of employment and perform as a vehicle for economic and social advancement in all partner countries. SMEs generate the principal dynamic for economic development in most of the Southern Mediterranean, the Middle East, Turkey and the Western Balkans. They are crucial in generating innovation and in the continuous improvement of customer services in Eastern Europe and Central Asia. An environment conducive to start-ups and business developments will play an important role in the response to the Arab Spring, where a large and aspiring generation of young people are demanding political and economic empowerment.

The EU Mediterranean partnership produced the Euro-Mediterranean Charter for Enterprise in 2004 (EC, 2004). The Charter produced an institutional dialogue and a regional dynamic in entrepreneurial learning in the Southern Mediterranean. Focusing primarily on improving skills within enterprises and promoting effective ways of institutional support for entrepreneurial learning, it has launched a process of knowledge sharing, generating awareness and creating reform momentum. Mirroring the Small Business Act for Europe (SBA), which calls on the EU and Member States to enable SMEs to turn environmental challenges into opportunities, the Euro-Mediterranean Charter for Enterprise aims at including sustainable enterprise development as a core element to its agenda. Sectoral support institutions will be important in providing the respective training and consultancy services and should receive due attention in all attempts to support the shift to greener production.

With a significant part of the economic activity taking place in the informal sector in partner countries, entrepreneurial learning and sustainable enterprise development should not discriminate between the formal and the informal sector. In order to effectively reach the realities of economic life, knowledge resources and support institutions need to be easily

accessible for entrepreneurs and businesses in the informal sector. This is true in particular for information and training on environmental hazards in the workplace and on environmental issues in everyday work life. Raising awareness and making available factual information on high risk behaviours, such as the harmful effects of improper handling of textile dyes or the use of dangerous building materials like asbestos, would contribute effectively to the reduction of health and environmental risks and to improved sustainable enterprise practices.

In order to access the single European market, businesses in ETF partner countries are increasingly expected to adopt or meet certain environmental standards for production. The tighter regulations create a need for new knowledge and management systems that will guarantee cleaner and more sustainable production. Life cycle product management will increasingly become a standard tool, where the environmental impacts throughout the entire cycle of a product will be analysed: from procurement, through the manufacturing, marketing, packaging and transport processes, to application and eventual disposal. Management and workplace skills will need attention from the level of the general manager to the technician. The entire production environment and all those contributing to it will require a certain level of green knowledge and skills investment.

5. Include Sustainable Development in the Analysis of Human Resource Development Policies

Policies and strategies for improving sustainable development through education need to be effective and efficient within and across policy fields. It is not always easy to know beforehand which policies and strategies work best. In fact, it often proves completely impossible to sufficiently assess effectiveness and efficiency without any empirical evidence, and the best choice will often simply be the policy with the most probable positive outcome. When using this probability approach, an ex-post evaluation should be conducted to provide validity in the absence of any more thorough validation. This process requires the use of indicators, defined from the outset, and the collection of comparative evidence on the situation before the introduction of the policy and after implementation. Indicators will help planners to monitor the degree to which policies, regulatory frameworks and strategies have actually supported sustainable development in the intended way and they allow policy makers to identify deficits and correct these.

When designed appropriately, indicators also generate awareness and strengthen momentum for policy development and reform. When both technical agencies and the wider policy community become involved in the assessment process to determine the actual indicator, the indicators themselves become a dynamic communication platform on policy content, design and implementation.

For this to happen, assessment processes must be considered as important in the evaluation process as the indicator itself. Assessment processes must be inclusive and focused, involving policy makers, stakeholders and civil society organisations in a structured dialogue on the status of any particular policy field. The use of assessment processes as a communication platform is especially relevant when discussing indicators on sustainable development in education policies, given that one of the central pillars of sustainable development lies in creating greater awareness, facilitating the inclusion of potentially conflicting interests and moderating between these.

The ETF will focus on indicators that document the extent to which sustainable development is specifically included in VET policies and practice. In a pilot scheme run in 2011, the ETF focused on developments at governmental level and at the level of individual VET schools with respect to learning for sustainable development. The ETF worked with national stakeholders and experts to design baseline indicators to use in the identification of objectives and feasible steps toward the whole-school approach to learning for sustainable development in VET. The indicators produced will be tested, adjusted and presented to stakeholders outside the pilot project at a conference in 2012, with a view to making them available as a policy tool in all partner countries.

The ETF and local stakeholders in the partner countries will use the assessment processes for these indicators to facilitate policy learning over time and to allow for the exchange of good practices between countries. Under the Torino process, the ETF has started a bi-yearly review exercise to provide concise, documented analysis of VET reform in each of

the partner countries. The resulting Torino Reports identify key policy trends, challenges and constraints, as well as good practice and opportunities in partner countries and across regions. These reports already contain key indicators on the education system and the labour market. The introduction of indicators for sustainable development in education policies would constitute a useful addition to the methodology and would establish a reporting system that could indentify challenges and document successes over time. This would provide a fundamental contribution to supporting sustainable development and the transformation to low-carbon economies.

Annex II: Sustainable Development in Country and Regional Activities in 2012

Region / Staff Member Name	Country / Thematic Field	Ongoing/Planned Activity for 2012	Sustainable Development Dimension	Expected type of support needed from the CoP SD	Comments (e.g. risks and opportunities involved)
South Eastern Mediterranean (SEMED)					
Elena Carrero Perez (ECP)	*Egypt*	*Support to the EU: Identification, feasibility and design of two new interventions in TVET and Education (105 million euro)*	*Introduction of Competences for Sustainable Development (SD) in TVET and education in Egypt*	• *Input to feasibility study and design of the TVET project, in particular on the specific dimension on SD* • *Help in identifying the core competences for SD in Egypt to be promoted in the TVET and education interventions* • *Assistance in the identification of potential sectors with a specific interest in SD (tourism and agriculture)*	• *Opportunities: Synergy with ongoing debate about greening tourism in Egypt* • *Opportunities: Important dimension of the EU interventions, with possibility to have a greater impact in the reform of the system* • *Risk: Novelty of the issue of SD in TVET and education, need to make the links clearly understood*
AJA	*Euro-Med industrial cooperation*	*Support to DG-ENT on the Euro-Med Charter for SMEs*	*- Possible request for development of indicators on the skills aspect of sustainable enterprises development (SED)* *- Ongoing Survey on SED in SEMED region (including skills dimension)*	*- Assistance on the development of indicators (first semester 2012)* *-Support on the review and comment of the report (December 2011)*	*- Opportunity: reinforce ETF support to DG-ENT and develop networking in a strategic new domain for ETF* *- Risk: The partner countries don't see the benefit of developing such indicators on skills*

Region / Staff Member Name	Country / Thematic Field	Ongoing/Planned Activity for 2012	Sustainable Development Dimension	Expected type of support needed from the CoP SD	Comments (e.g. risks and opportunities involved)
South Eastern Mediterranean (SEMED)					
MVG	*Morocco*	• *TVET Strategy 2020* • *Sector Support Programme for TVET by EC Delegation* • *Development of NQF*	• *Competences for Sustainable Development* • *Skills for Green Jobs*	• *Commenting on drafts of the documents* • *Support in identifying and including competences for SD* • *Support in identifying whether and how skills for green jobs can play a relevant role in Morocco* • *Identify the extent to which competences for SD are compatible with NQF*	• *Risk: Sector Support Programme depends on Character and Quality of TVET Strategy* • *Risk: NQF may be incompatible with explicit SD element*
MVG	*OPT*	*Teacher Training Project on Entrepreneurial learning (2011; with possible continuation in 2012)*	*Introduction of Competences for SD in Teacher Training Project*	*Support in identifying the right approach for including SD competences in project*	*Risk: Project will be carried over in 2012 only if enough ETF funding will be available*
Western Balkan and Turkey (WBT)					
LKI	*Kosovo*	*Support the Government in the finalisation of its National Curriculum Framework, with Sustainable Development as a cross cutting issue*	*Training of teachers and design of the teaching material, so that they support the development of competences for sustainable development*	• *Advice on how to support the process*	• *Opportunity for ETF: Feedback to CoP on what can be learned from the Kosovo experience*

Region / Staff Member Name	Country / Thematic Field	Ongoing/Planned Activity for 2012	Sustainable Development Dimension	Expected type of support needed from the CoP SD	Comments (e.g. risks and opportunities involved)
Eastern Europe and Central Asia (EECA)					
MPR	*Central Asia*	*School Development Project*	*Include indicators/develop-ment tools for sustainable development in VET education in project*	*Support project team in including indicators/develop ment tools in the school development project*	• *Opportunity: Use an ongoing project that works with VET schools to promote sustainability in VET education* • *Risk: Overburdening the agenda of the school development project and of participating schools*

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