Executive Summary
Starting in 2001, the European Union adopted and continuously reviewed its Strategy for Sustainable Development, highlighting the crucial role of education as a prerequisite for promoting sustainable development. It embraced its EU 2020 strategy in 2010, aiming not only at smart and inclusive growth but also at sustainable growth. Building on this EU wide commitment to a sustainable future, ETF promotes sustainable development as a fundamental principle in its activities in partner countries. ETF responds to the need for transnational dialogue and exchange of expertise in the development of the necessary skills for benefiting from the opportunities and for meeting the challenges of climate change.

The paper describes in detail why and how human capital development policies need to make a fundamental contribution for arriving at a more sustainable future. Education policies need to promote critical reflection, interdisciplinary learning and innovation in order to support students to become active citizens. Access of individuals to valid training or retraining is crucial in order to realise the potential of the green transformation for economic growth, employment creation and poverty reduction. Learning opportunities and knowledge sharing are necessary stepping stones for businesses to transform environmental regulation and customer demands into sustainable services and products. The promotion and dissemination of relevant skills and experiences is essential for strategies to mitigate the effects of climate change.

Due to the diversity of situations between and within partner countries, the paper focuses on two conceptually separate objectives for ETF activities: On the one hand, the transition to a low-carbon economy and the development of a green(er) economy. On the other hand, the resilience of countries and communities against the consequences and effects of climate change, regularly caused in other parts of the world.

For addressing these two objectives, the paper discusses five focus areas and their implications for ETF activities.
- The promotion of education geared to developing the values and competences for sustainable development,
- methods of identification, forecasting and provision of skills for green jobs,
- support to VET schools as agents for local sustainable development and stakeholders in coping strategies for climate change,
- sustainable development as element of entrepreneurial learning and business education, and
- the inclusion of sustainable development in the analysis of partner countries’ human resource development policies through adequate indicators.

By focusing on these areas, ETF will be able to provide targeted support, gradually build up expertise and establish an inventory of suitable approaches for partner countries.
A. The European Training Foundation and Sustainable Development

The mission of the European Training Foundation (ETF) is to help transition and developing countries to harness the potential of their human capital through the reform of education and training systems and their labour markets in the context of the EU’s external relations policy. Its work is based on the conviction that human capital development in a lifelong learning perspective can make a fundamental contribution to increasing prosperity, creating sustainable growth and encouraging social inclusion in its partner countries.

According to its formulated vision, the aim of ETF is to assist its partner countries in making vocational education and training (VET) a driver not only for lifelong learning but also for sustainable development. ETF’s activities in education and training aim at helping partner countries to highlight the important role of education and training for sustainable development and to support activities towards the systemic integration of sustainable development issues in education policies and practices.

The European Union’s EU 2020 strategy aims at putting the EU on the path not only for smart and inclusive growth but also for sustainable growth. ETF will use this EU wide consensus and clear commitment to a sustainable future as an occasion to integrate sustainability issues better in its work with partner countries outside the EU, highlighting the transnational nature of sustainability issues.

Structure of the Paper

The purpose of this paper is twofold: It will discuss how VET driven human capital development is interlinked with and can make a contribution to the sustainable development agenda. For doing this, a first part will focus on the core agenda of sustainable development, with a specific reference to education and to initiatives of the EU and the UN Decade for Education for Sustainable Development (section B.). It will then discuss the opportunities and challenges of sustainability and a low-carbon road to economic development in ETF partner countries (section C.). The paper will introduce those areas of the sustainable development agenda that can make the most meaningful contribution to ETF’s activities in its partner countries (section D.). It will spell out in sufficient detail the implications of including these areas in ETF projects, so as to offer practical guidance for ETF staff on how to incorporate sustainable development issues in their projects and programmes.

B. What is the meaning of Sustainable Development?

Sustainable development was first coined as a term by the United Nation’s World Commission on Environment and Development, the so-called Brundtland Commission, which was created in order to address the growing concern about the accelerating deterioration of the human environment and natural resources and the consequences of that deterioration for economic and social development. Its report was published in 1987 and called for “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. Up until today, this inter-temporal or inter-generational characterisation is the most fundamental definition of what is meant by sustainable development.

Apart from this inter-generational dimension emphasized by the Brundtland Commission, sustainable development also has an inter-dimensional meaning and calls for the reconciliation of economic development with environmental and social needs. Sustainable development highlights the need to establish a balance between, and possibly an integration of economic, environmental, and social concerns. It calls
for holistic and integrated policies and decision-making strategies that avoid giving prominence only to one of the mentioned areas at the expense of the others.

Opposed 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 dimension requires the ability to mediate and balance between the potentially conflicting logics of the economy, the environment and the social. This requires openness and tolerance vis-à-vis different worldviews and asks for good governance and legitimate procedures in order to negotiate between interests.

Laissez-faire economic growth policies on the one hand and radical environmental protection ideas on the other hand, for example, will produce drastically different visions for a country’s development. In order to meet the requirements of sustainable development as an inter-dimensional concept, an assessment of and arbitration between these policy ideas is needed. As a result of a public and transparent policy discourse, there will be the recognition that neither one of these concepts can meet the needs of a modern and responsible society. Instead, a policy alternative needs to be identified that avoids the extremes of these concepts and serves not only a small group of wealthy investors or the uncompromising walling-off of natural areas but promotes economic development in the most resource efficient way while at the same time supporting social cohesion through employment creation and poverty reduction.

Example

Country X identifies tourism as a potential sector to attract visitors and promote economic growth. As its geography allows for winter sports, it focuses on developing alpine ski resorts. In order to attract large quantities of winter tourists and lure them away from established resorts in other countries, investors suggest to put heavy emphasis on availability of budget accommodation, (artificial) snow guarantees and an abundance of ski slope kilometres.

For the area in which the development would have to take place, however, this would mean the destruction of a large part of the habitat of a rare bird, the golden eagle, and the redirection of a river to use its water for artificial snow, leaving an entire region with lower groundwater levels and a likely end to small-scale agriculture there. Strong local opposition against the investors’ plans leads to demonstrations and to violent clashes with the police.

Sustainable development as an inter-dimensional concept requires conciliation between the goal of economic development and the goal of environment protection, i.e. finding a way to realise economic development without jeopardising the environment (and vice versa, i.e. protecting the environment without neglecting economic development). It also calls for selecting a mode of economic development that increases social cohesion and distributes its 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 it 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.

For ETF, incorporating sustainable development into its activities will require to focus on tools and policies that promote the right set of skills for

i. generating sustainable economic progress in its partner countries,
ii. facilitating the reduction of the environmental impact of production and consumption and for
iii. increasing the social cohesion and reducing poverty within the countries’ societies.

In addition, good governance (in VET, but also beyond), a strong civil society and pluralistic decision making play a vital role for balancing the potentially conflicting logics of the economy, the environment and the social dimension in the framework of sustainable development.

Sustainable Development and Education
Arriving at a more sustainable future is perhaps the most important task of our time. With the world at the brink of an enormous, mankind-induced climate change that would result in far reaching transformations of our natural habitat, our conventional ways of living, of working and of producing need to change fundamentally. Only if we manage to reduce our ecological footprint significantly and manage to reorganise our economic activities quickly, there is a realistic chance to reverse the trend and avoid permanent impairment of our ecosystem.

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 andconcerting 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 shirking 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 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 too 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.

Being informed and educated about the long-term effects of our actions is a crucial prerequisite for individuals, and societies as a whole, to take over responsibility and to arrive at sustainable decisions and actions. Education and 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 response to the global interdependency and the
ETF and Sustainable Development

transnational character of climate change, and is fundamental to create the required broad, worldwide push towards more sustainable lifestyles and economies.

There is wide consensus in the scientific community that climate warming is caused by human economic activity, the use of fossil fuels and the resulting emissions. In order to avoid an irretrievable change in climate, it is considered essential to avoid the current temperatures to increase more than 2 degrees Celsius on average compared to pre-industrial times (cf. Third Assessment Report of the Intergovernmental Panel on Climate Change 2001, IPCC 2001; updated in the IPCC Fourth Assessment Report 2009). The 2 Degree Goal was adopted by governments as a common objective in the climate negotiations in Cancun, Mexico, in November 2010.

The independent and non-partisan German Government’s Scientific Council for Global Environmental Changes (Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen, WBGU) broke down in its climate accounting the tolerable overall carbon dioxide (CO2) concentrations in the atmosphere into tolerable per capita amounts of yearly CO2 emissions up until 2050. Following these calculations and in order to stay within the 2 Degree Goal, the average yearly CO2 emissions per capita in the world should not exceed 2.7 tons (WBGU Factsheet 3/2009). The actual figures given here for some EU member states illustrate that such an ambitious target is not yet within the western industrialised world’s grasp, although there is a clear trend of decreasing CO2 emissions over time.1

<table>
<thead>
<tr>
<th>EU Member States</th>
<th>Metric tons of CO2 per capita (2007) (CDIAC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finland</td>
<td>12.1</td>
</tr>
<tr>
<td>Netherlands</td>
<td>10.5</td>
</tr>
<tr>
<td>Germany</td>
<td>9.6</td>
</tr>
<tr>
<td>Denmark</td>
<td>9.1</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>8.9</td>
</tr>
<tr>
<td>Poland</td>
<td>8.3</td>
</tr>
<tr>
<td>Italy</td>
<td>7.7</td>
</tr>
<tr>
<td>France</td>
<td>6.0</td>
</tr>
<tr>
<td>Romania</td>
<td>4.4</td>
</tr>
</tbody>
</table>


For illustration: 2.7 tons of CO2 correspond to 6 return flights Torino-Brussels for one passenger (one return trip produces the equivalent of 0.44t CO2 per passenger), or to 19,000km of driving a small-sized car of medium age with emissions of 140g CO2/km (which equals about one and a half years of driving 35km a day).

Two strategies are considered paramount for arriving at the necessary reduction of emissions on a global scale while at the same time further reducing poverty through economic growth in developing and emerging economies: On the one hand, western industrialised countries need to reduce their CO2 emissions significantly in order to allow emerging economies and developing countries to take over some of these climate resources to expand their economic activities further and to distribute the gains widely in their societies. On the other hand, the western industrial world will

---

1 In comparison to 1990 levels, CO2 emissions of the EU-27 have been significantly reduced, with 2007 CO2 emission levels amounting to just 91% of 1990 levels, and falling further (2008: 89%, 2009: 83%); cf. http://epp.eurostat.ec.europa.eu/portal/page/portal/sdi/indicators.
ETF and Sustainable Development

have to make significant investments in technological progress and innovation in order to (increasingly) decouple economic growth from the use of resources. Based on co-operation rather than transfer, these technologies and advances will progressively need to be applied in developing countries and emerging economies as well.

Education for Sustainable Development in the EU and the UN

In 2001, the EU adopted its Strategy for Sustainable Development, subsequently reviewed in 2006 and 2009, which highlights the crucial role of education as a prerequisite for promoting the behavioural changes and the competences needed in order to achieve sustainable development. The Austrian EU Presidency hosted in 2006 a conference on education for sustainable development, "Education for Sustainable Development towards Responsible Global Citizenship". In doing this, the Austrian Presidency connected to the focus of the Dutch EU Presidency on "Education for Democratic Citizenship" from two years earlier.

In its Council Conclusions on Education for Sustainable Development (ESD) of November 2010, the EU Education Council stressed the need to integrate education for sustainable development in the process of lifelong learning and to mainstream it into all levels and aspects of education and training. ESD should be built on value-based and 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 they invite member states to include education for sustainable development in their pursuit of the EU 2020 strategy (see also below).

The UN have declared the years 2005 to 2014 the Decade of Education for Sustainable Development (DESD) in order to support the need for education in sustainability and to address the social, economic, cultural and environmental problems the world faces in the 21st century. UNESCO, as the lead agency for the DESD, developed a wide 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 that focuses on developing teachers’ competences for engaging in education for sustainable development (ESD). They were 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 must be considered crucial for being able to fill the concept of sustainable development with life. In order to monitor the implementation of UNECE’s ESD strategy, it also developed indicators that measure the extent of the implementation of the ESD strategy.

Sustainable Development in Vocational Education and Training

In the Bruges Communique of December 2010, the EU ministers for Vocational Education and Training and the European Commission, under the Belgian Presidency, directed the enhanced cooperation in vocational education and training at helping to achieve the EU 2020 strategy, including sustainable growth, and promoting equity, social cohesion and active citizenship through VET.

In 2004, the Bonn Declaration of UNESCO-UNEVOC emphasised the need to adopt a broader perspective on technical vocational education and training (TVET) that
ETF and Sustainable Development

focuses not only on competencies and skills to become productive but also on those that allow citizens to contribute to sustainable societies. The Declaration also called for an increased scope for TVET in green and sustainability industries such as environmental conservation and renewable energy production.

Many countries have given specific attention to integrating sustainable development into curricula and programmes of vocational education and training. In Denmark, sustainable development has been incorporated in connection with the revision of goal descriptions, curricula and guidelines for vocational education and training programmes since 2005. The German Bundesinstitut fuer Berufsbildung (BIBB), as a national follow-up strategy to the EU Strategy for Sustainable Development and to DESD, ran a large-scale programme to introduce elements of education for sustainable development into VET curricula across occupational fields. Austria has done the same, but also started to develop early on specific occupational profiles to address the changes resulting from a turn to a more sustainable, environmentally friendly economy. The so-called solarteur, for example, is a specialisation focusing on installing and maintaining solar panels, available in further VET or a special module in initial VET in Austria. Comparable activities and initiatives took place in recent years in all EU member states and in many other countries.

Green Growth and Green Jobs

The need for attaining more sustainability and the attempt to decouple consumption and production from the use of non-renewable resources has led many countries to investigate the potential of transforming their economies from high-carbon to low-carbon profiles. 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 and significantly reducing the consumption of non-renewable fuels and natural resources is fundamental (if – at the moment – still elusive on a global scale\(^2\)) 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

---

\(^{2}\) The International Energy Agency (IEA) reported in May 2011 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” (cf. http://www.iea.org/LatestInformation.asp?offset=5); for the opposite trend in the EU-27, cf. footnote 1.
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 recent education, as businesses try to cope with change and innovation by employing fresh talent. It tends to disfavour those whose education is dated and who are in later stages of their career, especially if employed in industries that are likely to vanish as a result of structural changes. 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 labour force’s skills profile and the demands of a dynamic economy can be avoided by early analysis of changes in the demand of labour, identification of macro-trends in the economy and the forecasting of future skill needs. The better the identification of future skill needs works, and the better the resulting information is communicated and translated into upskilling or retraining activities and into changes of curricula in vocational and higher education, the fewer people will be affected by the negative impact of structural change, i.e. losing their old brown jobs without finding new green jobs.

**Policy Initiatives for Green Growth and Green Jobs**

In June 2010, the EU adopted its Europe 2020 strategy. It is designed to generate smart, sustainable and inclusive growth for achieving high levels of employment, productivity and social cohesion in Europe until the year 2020. With five headline targets and seven flagship initiatives, it addresses the key areas for helping the EU’s economies to become greener and more innovative, and its education systems and labour markets to modernise and be more inclusive. The five headline targets are:

<table>
<thead>
<tr>
<th>EU 2020 Target</th>
<th>Status Quo (EU 27)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Population in Employment</td>
<td>75%</td>
</tr>
<tr>
<td>2 Investment in Research &amp; Development</td>
<td>3% of GDP</td>
</tr>
<tr>
<td>3 Climate and Energy</td>
<td>20% from renewable resources; 20% less consumption of primary energy; Greenhouse gas emissions 20% below 1990 levels</td>
</tr>
<tr>
<td>4 Education</td>
<td>Share of early school leavers &lt; 10%; Share of tertiary graduates &gt; 40%</td>
</tr>
<tr>
<td>5 Poverty</td>
<td>20 million people less</td>
</tr>
</tbody>
</table>

Source for Status Quo: Eurostat (for EU-27 if not indicated otherwise); *Energy.eu, **European Energy Agency (EEA)

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

- **Agenda for new skills and jobs**, which aims at increasing labour market participation and modernising labour markets, aiming at security for the
ETF and Sustainable Development

individual while at the same time encouraging flexibility on the labour market at large (flexicurity);

- **Youth on the move**, which aims at enhancing the performance of education systems and allowing young people to enter the labour market more easily;
- **European platform against poverty**, which promotes the wide distribution of the benefits of growth and jobs throughout societies and aims at ensuring social and regional cohesion;
- **Resource efficient Europe**, which aims at the decoupling of economic growth from the use of resources, increasing the use of renewable energy sources and supporting the shift to a low carbon economy.

In its Communication on “Rio+20: Towards the Green Economy and Better Governance” from June 2011, the Commission underlines the EU’s commitment to transforming the EU into a knowledge-based, resource efficient and low-carbon economy. In order to support sustainable development, the Communication identifies some key areas, among them the necessary skills and know-how, without which the transition to as green economy will not be possible, and labour policies that equip employees with new skills and help create new 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, the OECD also commits itself to the principles of sustainable development. However, it also makes clear that green growth is not a replacement for sustainable development. According to the OECD, green growth is narrower in scope and more operational in its approach, setting out necessary conditions for innovation, investment and competition for new economic growth, which in turn must be consistent with resilient ecosystems.

Other regions of the world also engage in strategic planning on greening the economy, in various intensities. 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 its initiatives on green growth and clean environment.

CEDEFOP together with the International Labour Organisation (ILO) have engaged in a large scale global research project called “Skills for Green Jobs” which analyses changing skills needs for green innovation and growth and involves case studies from 21 countries around the globe, among them Egypt, which is also an ETF partner country. A European Synthesis Report done by CEDEFOP details the findings in the six European countries that were part of the study (Denmark, Estonia, France, Spain, UK, Germany) and provides 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 a National VET Sector Sustainability Policy and Action Plan for 2009 to 2012 that details a comprehensive set of actions in order to supply individuals and businesses with the knowledge and skills for a more sustainable economy.

**C. Sustainable Development in ETF Partner Countries**
The ETF’s partner countries represent a wide range of regions, socio-economic backgrounds and human development issues. 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 insulation of buildings, lacking 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). It illustrates the wide variation among ETF partner countries in terms of energy consumption, overall resource efficiency, volume of industrial production, the reliance on fossil fuels for domestic energy production or export purposes, and the overall impact of the countries’ production and consumption patterns.

On the whole, ETF partner countries produce emissions at a scale that is at or below those of EU member states. A significant number of countries are even below the target of 2.7t per capita and year which, according to the German Government’s Scientific Council for Global Environmental Changes (Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen, WBGU), is the upper emissions limit in order to keep the warming of the climate within two degrees Celsius, i.e. the still tolerable, non-critical zone.

<table>
<thead>
<tr>
<th>ETF Partner Country</th>
<th>Metric tons of CO2 per capita (2007) (CDIAC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kazakhstan</td>
<td>14.8</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>10.8</td>
</tr>
<tr>
<td>Israel</td>
<td>9.6</td>
</tr>
<tr>
<td>Libya</td>
<td>9.3</td>
</tr>
<tr>
<td>Turkmenistan</td>
<td>9.2</td>
</tr>
<tr>
<td>Bosnia and Herzegovina</td>
<td>7.7</td>
</tr>
<tr>
<td>Ukraine</td>
<td>6.9</td>
</tr>
<tr>
<td>Belarus</td>
<td>6.9</td>
</tr>
<tr>
<td>Croatia</td>
<td>5.6</td>
</tr>
<tr>
<td>Former Yugoslav Republic of Macedonia</td>
<td>5.5</td>
</tr>
<tr>
<td>Serbia</td>
<td>5.1</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>4.3</td>
</tr>
<tr>
<td>Algeria</td>
<td>4.1</td>
</tr>
<tr>
<td>Turkey</td>
<td>4.0</td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>3.7</td>
</tr>
<tr>
<td>Jordan</td>
<td>3.6</td>
</tr>
<tr>
<td>Syria</td>
<td>3.4</td>
</tr>
<tr>
<td>Lebanon</td>
<td>3.2</td>
</tr>
<tr>
<td>WBGU Emission Target for 2 Degree Goal</td>
<td>2.7</td>
</tr>
<tr>
<td>Tunisia</td>
<td>2.4</td>
</tr>
<tr>
<td>Egypt</td>
<td>2.3</td>
</tr>
<tr>
<td>Armenia</td>
<td>1.6</td>
</tr>
<tr>
<td>Morocco</td>
<td>1.5</td>
</tr>
<tr>
<td>Albania</td>
<td>1.4</td>
</tr>
<tr>
<td>Georgia</td>
<td>1.4</td>
</tr>
<tr>
<td>Moldova</td>
<td>1.3</td>
</tr>
<tr>
<td>Kyrgyzstan</td>
<td>1.1</td>
</tr>
<tr>
<td>Tajikistan</td>
<td>1.0</td>
</tr>
<tr>
<td>Occupied Palestinian Territory</td>
<td>0.6</td>
</tr>
</tbody>
</table>
ETF partner countries are and will be affected differently and to a different extent from climate change. While, according to the Intergovernmental Panel on Climate Change, the north of Africa could experience serious water shortages at the end of this decade, countries in Central Asia may experience a decrease in agricultural yields of up to 30 per cent due to both droughts and flooding. In all countries, the poor will be affected most by climate change and are the most vulnerable to its consequences. They are the least equipped for realising pre-emptive or reactive adaptation and 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. One is the support in the transition to a low-carbon economy and the development of a green(er) economy, the other is increasing 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 support for larger industrial policies within the respective countries (whether explicitly defined as such or not), but also as very tangible support for micro-businesses and small and medium sized enterprises in their attempt to green their services and live up to the demands of responsible consumers and communities in their countries. Strategies for the latter focus on the promotion of skills and competences that help to increase the resilience of communities against 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 will have to continue to address issues of inclusion and access to education of adequate quality. 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 who is excluded from education at different stages and why (gender, ethnic background etc.), and of suitable measures to address these issues will be crucial contributions to sustainable development.

Likewise, the ability of adult learning infrastructures in partner countries to offer access to education, training and further training to all age groups is essential for promoting sustainable development in all its dimensions. However, rather than developing as a platform for supporting change in society at large and the economy in particular, adult learning in most ETF partner countries is not well developed. In line with recent attempts to give a higher priority to adult learning, efforts to support sustainable development will thus have to include a strategic focus on improving access to adult learning and incorporating not only issues of climate change, its causes and its effects on natural habitats but also green skills into policies, frameworks and course offers in adult education.
**Supporting the Transition to a Low-Carbon Economy**

There are numerous examples where countries have started initiatives (with or without the help of donors) in order to reduce the carbon footprint of industries, use resources more efficiently and promote the rise of green sectors. Egypt, for example, has a rapidly growing organic agricultural sector with about 500 organic farms, supported by donors, NGOs and the domestic SEKEM Group that produces and promotes a wide range of organic products (cf. also Skills for Green Jobs in Egypt, Background Country Study; International Labour Office, Skills and Employability Department, Geneva, 2010).

Serbia, Croatia and Turkey, but also countries like Ukraine and Belarus have a strong industrial base that is in need of adaptation and modernisation in order to reduce emissions and be competitive in a low-carbon world. Some of these industries may change their product range altogether and use the move to a low-carbon economy in order to reinvigorate their competitiveness and create new employment opportunities by engaging in areas like wind turbines, smart energy systems or alternate transportation concepts, all of which offer new opportunities to large-scale industry and SMEs in the manufacturing industry (as manufacturers, as suppliers, as partners in joint-ventures). This requires a workforce that feels comfortable with constant product innovation and that combines a solid skills base with the potential to acquire new knowledge within a life long 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.

Apart from the introduction of respective regulation and the adaptation of high occupational health and safety standards, the implementation of a skills and entrepreneurial learning strategy, where environmental awareness and accountability of both the public and private sectors are crucial, are necessary in order to avoid such developments. Countries should invest in updating and improving the skills of workers and entrepreneurs alike in order to be able to participate in the global competition in sustainable, green industries. Greener production and standards could thus promote business expansion and new jobs, and open doors to new markets.

Many ETF partner countries are bestowed with yet untapped renewable natural resources that would allow them to reduce the carbon footprint of their national power supply. Reliance on coal is still the rule in most partner countries, despite the yearlong availability of sunlight in the countries surrounding the Mediterranean, for example, or large land expanses available for wind farms in countries in Central Asia, Turkey or, again, around the Mediterranean. Although changes to the national grid usually require major investments, advances in wind and solar technology and the availability of easy-to-use solar energy and windmill sets now allow for small-scale, incremental and relatively low-cost green (partial) transformations of national power systems. Regulatory incentives in the form of fixed premiums for feeding power from private, small-scale renewable energy sources like windmills into the national grid
have proven to be successful elsewhere as a grassroots-driven switch to alternative energy.

In all partner countries, the crafts and service sector – whether as part of the formal or of the informal economy – play a key role in increasing the sustainability of daily life. As plumbers, car mechanics, carpenters or maintenance workers they are the ones who can bring about the many small changes, calibrations and adaptations that in sum add up to tangible reductions in, for example, water consumption, increases in energy efficiency and improvements in fuel consumption. The introduction of training that helps to convey 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.

**Increasing Resilience against Climate Change**

In many ETF partner countries, sustainable development primarily has to deal with the challenge of coping with and mitigating the effects of climate change, itself caused in other parts of the world. Sudden weather events like storms, floods and droughts as well as slow onset changes like temperature or sea level rise will most heavily affect rural (and coastal) areas in these countries. They constitute a significant threat to traditional income sources and livelihoods, in particular of rural populations.

Poverty has increased dramatically in many ETF partner countries in the 1990s, and it remains high despite recent, pre-crisis positive economic developments. 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. Without being able to reliably resort to cultivation of one’s own land, the safety net of small-scale and subsistence agriculture will disappear and pressures to relocate and migrate abroad will increase further.

As a result of the widespread poverty, and in line with the UN Millennium Development Goals for reducing poverty, many countries, particularly in Central Asia, engaged in preparing national plans to reduce poverty and Poverty Reduction Strategy Papers at the start of this millennium. These papers and strategies addressed only to a very limited extent the potential role that skills development may have in the reduction of poverty and of local economic development. In particular, the potential for vocational education and training and the provision of skills as a way to exit poverty remained unexplored.

Vocational education and training is not only of strategic importance to reduce poverty in ETF’s partner countries, it is also essential in supporting and developing capabilities for mitigating the effects 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 local and regional economic development, the reduction of poverty and the protection of livelihoods for communities. In the same vein, VET is an important channel to empower communities in their struggle to cope with changing climate conditions. Efficient water management and infrastructure maintenance as well as sustainable agriculture techniques, for example, allow local farmers to reduce exposure to droughts and overall crop failure. Diversifying livestock as well as crops and soil use will help to control diseases and soil erosion. As a result, resilience to climate shocks will increase and the risks from climate change can be mitigated.
Various initiatives have started to address issues related to climate change and necessary response strategies, with or without a specific skills and training aspect. Jordan, supported by German GIZ, has started to build up an integrated, sustainable water management in order to use the very scarce water resources in the region more efficiently and improve the quality and quantity of water supplies. Tajikistan, with the assistance of the World Bank, the European Development Bank and others, invests in increasing its resilience to climate change by improving its early warning capabilities and the protection of hydropower and water management. It also promotes sustainable agriculture and intends to improve the protection of its vulnerable ecosystems. In a longstanding effort, Kyrgyzstan, supported mainly by Helvetas, established sustainable and community-based tourism, using local expertise and providing income and livelihood to communities that would be threatened by severe poverty otherwise. It is now running independent of donor support. These are but a few examples.

D. Supporting Sustainable Development in ETF Partner Countries
ETF addresses aspects of sustainable development already in its portfolio of activities, in particular access to and inclusiveness of education of adequate quality. Further themes will need to be added in response to the needs of partner countries (see section C. above), allowing to gradually build up expertise and an inventory of suitable approaches. In order to provide targeted support and to avoid duplication of efforts (provided by partner countries themselves, donors, other organisations), ETF will attempt to connect work on sustainable development as far as possible to existing initiatives in partner countries. In order to avoid overburdening our partners and the reform agendas, ETF will attempt to include issues of sustainable development into the existing ETF portfolio rather than promoting it as a separate activity.

There are five areas that are of importance for assisting partner countries in meeting the demands of sustainable development, responding to the challenges of climate change and use the opportunities of the transformation to low-carbon economies. A more detailed discussion for each area follows the summary.

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

   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, non-hierarchical educational techniques with group learning need to replace traditional settings of learning. ETF will focus on support for respective curricula reform and teacher training.

2. Promote methods of identification, forecasting and provision of skills that support the greening of products and services, the growth of green sectors and 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 green skills, 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 our partner countries can draw lessons and inspiration on how to approach the topic. Providing support in the establishment of qualitative forecasting methods and organising policy learning around effective labour market interventions in the shift to a low-carbon economy will also become part of the assistance.
3. Make VET schools as agents for local sustainable development and stakeholders in coping strategies for climate change.

ETF will identify regional and/or sectoral projects to start out its activities and incrementally go forward from there.

---

VET schools are often the sole educational institutions in rural areas that do not require moving away or extensive travelling in order to acquire relevant skills. They are, at least in theory, in a natural position to function as a local and regional expertise resource for communities in the area, also in terms of adapting 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 part of learning projects that not only involve students but the community at large. ETF’s ability and effectiveness in supporting VET schools in re-defining their role in the local community has been demonstrated already in the School Development Projects in Central Asia.

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

There is a need for developing new knowledge and management systems for cleaner and sustainable production tied to evolving regulation (also in order to access EU markets). Both management and workplace skills will need attention, the entire production environment and all those contributing to it will require a certain level of green knowledge and skills investment. Peer learning opportunities around the role of sectoral support institutions, in particular for SMEs, will be particularly important in providing partner countries with knowledge about successful training and consultancy services and will receive due attention and support from ETF.

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

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

Competences for sustainable development differ from practical workplace or occupational skills by their emphasis on the underlying aptitude to act responsibly and make decisions that will neither be harmful in the present nor in the future. They are found in a confident student who is motivated to learn, interested in playing an active role in society, has the capacity for reflection and gives consideration to the needs of others, of the environment and of future generations.

The European Reference Framework for Key Competences in Lifelong Learning defines eight essential, transversal skills\(^3\) that are crucial for adapting to rapidly changing circumstances, to seize new opportunities, to innovate and to shape the future, independent of specific occupations or actual career choices. Although sustainable development receives attention as one among the multiple goals that the

---

\(^3\) 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 (Key Competences for Lifelong Learning – A European Framework, 18 Dec 2006).
eight key competences should facilitate, the Framework does not explicitly elaborate the link between (some of) the key competences and sustainable development. Social and civic competences, learning to learn and competences in science and technology, for example, share some of the underpinning abilities that are also fundamental for promoting sustainable development. However, the connection between these key competences and sustainable development remains undeveloped. As a result, the framework constitutes only a loose way to promote the inclusion and mainstreaming of sustainability issues in occupational formation and VET across trades and occupations.

The UN Economic Commission for Europe (UNECE) has done specific work for identifying those competences in teachers and educators that must be considered essential for sustainable development (cf. ECE/CEP/AC.13/2011/6; Learning for the future: Competences in Education for Sustainable Development, from 21 January 2011), starting from pre-school education through all stages of lifelong learning. Taking an ethic of solidarity, equality and mutual respect among people, countries, cultures and generations as a starting point, UNECE has elaborated a set of competences for sustainable development that is recommended for inclusion in initial training and continuing professional development of teachers and educators and for review of curricula. Both teacher training and curricula design are closely linked 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 not as a minimum standard but as a reference point to which teachers and those responsible for curriculum design should aspire. The competences are made up of three essential principles in teaching and being a teacher, namely following a holistic approach, being able to envision change and being able to achieve transformation. The first is embodied in integrative thinking, inclusivity and the ability to deal with complexities. The second, envisioning change, comprises the ability to learn from the past, be engaged in the present and explore alternative ways into the future. The last, achieving transformation, focuses specifically on the role of teachers and education. It calls for a transformation in what it means to be an educator, for a transformed pedagogy that emphasises creativity, participation and innovation and for a transformation of the entire education system in order to give 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. The areas are “learning to know”, “learning to do”, “learning to live” and “learning to be”. “Learning to know” refers to teachers’ understanding of the challenges with respect to the economy, the environment and society (climate change, environmental degradation, poverty, social cohesion etc.) and understanding the potential role of teachers and students to positively contribute to answering these challenges. “Learning to do” refers to having a command of the teaching techniques that promote and support integrative thinking, active citizenship and sustainable action. “Learning to live” refers to reaching out and developing partnerships on issues related to sustainable development, also outside the school. “Learning to be” refers to acting as a role-model in daily life and the display of autonomous judgement and personal responsibility.

The table below shows in some examples how the three essential principles in teaching and being a teacher and the four areas of performing combine for specific recommendations for teacher training and curriculum design:
ETF and Sustainable Development

<table>
<thead>
<tr>
<th>Needed Knowledge: “Learning to know”</th>
<th>Holistic approach</th>
<th>Envision Change</th>
<th>Achieving Transformation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systems thinking</td>
<td>Critical reflection</td>
<td>Creative thinking</td>
<td>Connections between educational approaches, individual development and active citizenship</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Educational techniques: “Learning to do”</th>
<th>Holistic approach</th>
<th>Envision Change</th>
<th>Achieving Transformation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active learning projects</td>
<td>Immediate environment as a context and source of learning</td>
<td>Participatory, learner-centred education</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reaching Out: “Learning to live”</th>
<th>Holistic approach</th>
<th>Envision Change</th>
<th>Achieving Transformation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiatives across generations, cultures, disciplines and places</td>
<td>Creating awareness of alternative futures</td>
<td>Challenging unsustainable practices, also in school and the educational system</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Role-model: “Learning to be”</th>
<th>Holistic approach</th>
<th>Envision Change</th>
<th>Achieving Transformation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Be inclusive</td>
<td>Motivate</td>
<td>Be a practitioner</td>
<td></td>
</tr>
</tbody>
</table>

Source: ECE/CEP/AC.13/2011/6; Learning for the future: Competences in Education for Sustainable Development, 21 January 2011, pp. 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 to 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” (cf. EU Education Council, Council Conclusions on Education for Sustainable Development, November 2010, p. 4).

ETF’s role in supporting the competences for sustainable development in its partner countries will thus focus on promoting education policies, teacher training and curriculum design that are anchored in inclusive, reflective, multidisciplinary and team-based approaches. ETF will advocate a school and a 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.

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

In its Resolution from September 7, 2010, the European Parliament defines as green sustainable jobs those jobs that (a) directly reduce consumption of energy and resources, protect ecosystems and biodiversity and minimise waste production and air pollution and (b), more generically, all jobs which reduce the environmental footprint (P7_TA(2010)0299). While the first type of green jobs focuses on the green nature of actual occupational profiles themselves, the latter focuses 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. On one end, there might be a completely new set of
green skills necessary in order to perform. On the other end, the required skills for a green job might not differ at all from the skills that are traditionally required for a comparable job in a traditional sector.

Someone working as a welder in a green business, producing windmills for example, will essentially need the same skills as someone working as a welder in a conventional business, producing agricultural equipment for example. Although the job is green according to the above definition, the necessary skills are basically the same as in 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 heating energy and improve their energy efficiency are a case in point; so are engineers, technicians and car mechanics who 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, about certification procedures and about potential sales and distribution channels. Similarly, maintenance technicians for windmills need to supplement the traditional skills of the mechanical technician with additional knowledge about 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(er) technologies, applications or processes. Accordingly, despite the need for invention, innovation and moulding of 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 greening skill profiles have the advantage of being able to provide immediate and focused answers to emerging skill needs among businesses, a more comprehensive approach that spans across sectors and incorporates long-term economic development strategies may lead to a 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 study. A common theme in the European cases is the frequent bottom-up nature of the attempts to include green skills into and across occupations. In most European countries except France and the UK, there is no overall strategy in place that focuses on green skills as part of a green growth strategy or as a coherent response to climate change or the need for environmental protection. In fact, many initiatives for introducing green skills emerged from the meso-level of sectors, or even the micro-level of individual businesses (Germany), sometimes in co-operation with municipalities and regional governments.
that try to moderate structural change and promote (green) regional economic development policies for their respective regions (Spain). At other times, impetus came from trade unions concerned about career perspectives of their membership and about skill profiles needing updating in order not to become irrelevant in light of emerging new and greener technologies (Denmark), or from employment services and training institutions that focused their retraining courses for the unemployed specifically on the development of green skills profiles (Spain).

It becomes also clear from the ILO-Cedefop study, however, that these bottom-up approaches need to find an echo in responsive (and often specific VET) institutions on the macro-level in order to become effective on a wider scale. Regularly, these macro-level institutions are responsible for formally including new skills in curricula and are the agents responsible for mainstreaming sustainable development across occupational profiles (Germany). They also regularly provide funding and expertise in order to make limited pilot projects into larger-scale sectoral or national schemes (Denmark). On the legislative level, important top-down impetus in some countries came from legislation on promoting renewable energy and legislation on tightening of insulation standards in private homes, containing legal mandates to overhaul and revise training standards in affiliated occupations. As a result, occupational profiles and training curricula were updated and changed (Denmark, Germany). Similar albeit not legally prescribed 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 of the affected occupations.

In Egypt, a number of essentially top-down approaches, driven by a number of government agencies, with occasional co-operation and support from donors, have led to advances in wind energy, organic farming and waste management. However, according to the ILO-Cedefop study, training and retraining for the newly required skills remain mostly sketchy and informal. In wind energy, for example, wind farm design and construction rely entirely on foreign expertise, while the skills development for maintenance and operation of wind parks takes place as on-the-job training without general technical training elements and without certification. This is mainly due to lacking financial resources, but also a result of a lack of coordination among agencies and educational institutions and of only limited awareness of climate and environmental issues, also as a motor of employment growth, within the formal education and training system.

In order to support the wide range of imaginable bottom-up and top-down approaches for greening VET policies, of which the given examples are nothing but a small detail, 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 our partner countries can draw lessons and inspiration on how and how not to approach the topic. Assisting its partner countries, ETF will act in response to demands of the respective country, and in line with any national strategies to do so. A careful consideration of diversity and compatibility in national institutional backgrounds ensures that any adoption and implementation of practices is compatible with existing VET, lifelong learning and labour market institutions.

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

Vocational education and training can contribute to poverty reduction and to fostering capabilities to cope with the risks emanating from environmental degradation and climate change. Increasing resilience against climate changes 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 environment conditions and be able to continue to meet its needs. For this dimension of sustainable development, (re-)building capacities in skills development and vocational education and training are of special relevance. Vulnerability to climate shocks is especially large if individuals have no sufficient knowledge resources and institutional support to tap in order to cope with the consequences of detrimental climate events.

Traditionally, institutional impoverishment coincides with individual and collective poverty, and the neglect of traditional skills and livelihoods. The reality in many of ETF’s partner countries reflects the description of institutional impoverishment in the field of education in the ETF Yearbook 2006. Vocational training systems have become victims of transition processes and policies and are now disconnected from resources and progress, yet still harbour a significant share of youth cohorts. Nielsen and Grootings describe how, as a result of a bias towards higher education reform and of donor recommended abandonment of vocational systems, they find themselves unable to fulfil their original role, instead providing a basic safety net to students who come from families too poor to pay for better education.

VET schools in many transition countries regularly lack up-to-date teaching materials, modernised curricula and functioning technical equipment. They did not develop sound teacher career development programmes and lack funds for motivated, better paid and upgraded teachers, and have long lost the once well-working institutional connections to production plants, establishments and factories. VET systems in many transition countries are partly reduced to a welfare function where they provide food and lodging to their students, but no meaningful skills, neither for the workplace, nor for coping with the challenges of their daily lives.

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 (also due to 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 sole educational institutions in rural areas that do not require moving away or extensive travelling in order to acquire relevant work skills. Given a sufficiently conducive regulatory framework, they are in a natural position to function as a local and regional expertise resource for communities in the area.

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 being eradicated by sudden on-set events like droughts, flooding, landslides, and pest invasions. Likewise, crops and livestock are increasingly imperilled by slow on-set changes like rising temperatures, an increasing scarcity of water and changes in vegetation. On the background of a general institutional impoverishment, any of these environmental shocks act as an accelerator to the already ongoing process of increasing rural poverty and of migration into urban centres (domestic and abroad). The negative effects of climate change thus compound existing hardships and increase long-standing migration pressures.

Sustainable methods of agriculture are considered an important remedy for rural poverty and loss of livelihoods due to natural catastrophes, soil erosion or drought. According to the UN Special Rapporteur on the Right to Food, the development of local sustainable agriculture – or what he terms agroecology - is the key to increasing food supplies were they are needed the most, reducing rural poverty and adapting to climate change (cf. Report submitted by the Special Rapporteur on the Right to Food,
Olivier de Schutter, to the Human Rights Council of the UN General Assembly, 20 December 2010, A/HRC/16/49). Agroecology decreases the costs for small-scale farming, and increases its resilience and sustainability. By mimicking natural processes, diversifying crops and livestock as well as recycling nutrients and energy, it dramatically reduces the need for fertilizers, pesticides and other external inputs and protects against soil erosion and crop failure.

According to de Schutter, "agroecology is knowledge-intensive, based on techniques that are not delivered top-down but developed on the basis of farmers' knowledge and experimentation" (cf. Report by the Special Rapporteur, p. 6). For such local experimentation and knowledge dissemination to be successful, the report considers it essential to invest in research in agroecological practices, to develop networks and learning opportunities for small-scale farmers and to supply public goods that allow farmers access to local and regional markets. VET schools can play an important role in all of those areas. As a place of learning, they can be the institutional backbone for local experimentation in sustainable agricultural practices and disseminate successful practices among 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 to the local economy. ETF’s ability and effectiveness in supporting VET schools in re-defining their role in the local community has been demonstrated in the past in the School Development Projects in Central Asia. ETF is currently engaged in an initiative known as Vocational School Development for Lifelong Learning, helping VET schools to open up to adult learners and design training content that is of relevance to them.

As part of the project, a VET school in Kyrgyzstan, for example, has developed and launched a new training scheme for adults involved in agriculture. Based on a needs-assessment carried out by the school, adult training is delivered in a flexible, modular format using a learner-centred approach. It takes business planning into account and links to a local micro-credit scheme. People further afield are able to benefit from the courses thanks to portable elements built into the course design. Participants manage to go beyond subsistence farming, increasing incomes and protecting their livelihoods as a result.

D.4. Integrate Sustainable Development into Entrepreneurial Learning and Business Education

The integration of sustainable development as an issue into all aspects of entrepreneurial learning and business education will be fundamental for achieving the transformation to a green economy on the needed scale and in the needed time. 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. At the same time, 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 and eventually fail entirely. They will make room for start-ups and innovative companies who consider carbon-neutral production, environmentally compatible products and sustainable workplace practices a recipe for success rather than a nuisance. This is as true for businesses in EU Member States as for those in ETF partner countries.

Small and medium sized enterprises (SMEs) provide an overwhelming share of employment and are regularly an important vehicle for economic and social advancement in all partner countries. SMEs generate the principal dynamic for
economic development in large parts of the Southern Mediterranean, in the Middle East, Turkey and the Western Balkans. They are crucial for generating innovation and the continuous improvement of services to customers in Eastern Europe and Central Asia. An environment conducive to start-ups and business developments will have to be a relevant part of the response to the Arab Spring, where a large and aspiring generation of young people demanded not only political but also economic empowerment.

With the Euro-Mediterranean Charter for Enterprise, there is an institutional dialogue in the Southern Mediterranean ongoing which aims at creating a regional dynamic in entrepreneurial learning. 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 among others 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 as well. This is true in particular for information and training on environmental hazards at the workplace and on environmental issues in everyday work life. Raising awareness and making available factual information on the harmful effects of improper handling of dyeing colours for textiles, for example, or the health risks connected to certain building materials like asbestos would contribute effectively to the reduction of health and environmental risks and to 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. There is a need for developing new knowledge and management systems for cleaner and sustainable production tied to evolving regulation. Life cycle management of products will need to increasingly become a standard management tool, analysing the environmental impacts through the entire cycle of a product, from its procurement, the manufacturing process, marketing, packaging, transport, its application and its eventual disposal. Both management and workplace skills will need attention, from 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.

D.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 policy with the most probable positive outcome will be the best choice instead. If using such a probability approach, it is crucial to at least conduct an ex-post evaluation. This requires the introduction of indicators, defined
from the outset, and the collection of evidence, first on the situation before the introduction of the policy and then on the situation after its implementation. Indicators allow monitoring the degree to which policies, regulatory frameworks and strategies indeed support sustainable development in the intended way, and they allow policy makers to identify deficits and to correct them.

If designed in an appropriate way, indicators also generate awareness and strengthen the momentum for policy development and reform. If the assessment process necessary for determining the actual value of an indicator involves not only technical agencies but the entire policy community, indicators become a dynamic communication platform on policy content, design and implementation. For this to happen, assessment processes need to be considered as important for the evaluation as the indicator as such. Assessment processes need to be inclusive and focused at the same time, involving policy makers, stakeholders and civil society organisations in a structured dialogue about the status in a policy field. Using assessment processes as a communication platform is especially relevant for indicators on sustainable development in education policies, as an integral part of sustainable development is creating awareness as well as facilitating the inclusion and the moderation between potentially conflicting interests.

In the analysis of human resource development policies in its partner countries, ETF - in a first step - will focus on indicators that document the extent to which sustainable development is included specifically in VET policies and practice. Relevant dimensions are firstly the awareness of VET policy makers and stakeholders of the general challenge constituted by climate change, of the economic opportunities offered by the transformation to a low carbon economy and of the need to respond adequately through changes in VET policy. The second dimension is the extent to which actual responses have been implemented in initial vocational education and training, through for example changed teacher training, curricula reform or the introduction of new occupational schemes. The third dimension is the extent to which responses are offered in continuing vocational education and training or equivalent areas, for example in management education, active labour market policy or employee training.

The assessment processes for these indicators will be used by ETF and stakeholders in the country to facilitate policy learning over time, and to allow the exchange of good practices between countries. With the start of the so-called Torino process, ETF has started a bi-yearly review exercise in order to provide a concise, documented analysis of vocational education and training reform in each of its partner countries. The resulting Torino Reports identify key policy trends, challenges, constraints, as well as good practice and opportunities in the partner countries and across regions. They already contain key indicators with respect to the education system and the labour market. The introduction of indicators for sustainable development in education policies would constitute a useful addition to that methodology and start a reporting system that could indentify the challenges and document the successes over time, making a fundamental contribution for supporting sustainable development and the transformation to low-carbon economies.