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## Background

The ILO *Guidelines for a Just Transition towards Environmentally Sustainable Economies and Societies for All* (hereafter the Just Transition Guidelines), adopted by representatives of governments, employers' and workers' organizations in 2015, provide a policy framework and an operational tool to address environmental change in a way that advances social justice and promotes decent work creation.<sup>1</sup> This policy brief is part of a series of briefs that seek to deepen the technical and policy understanding of the application of the Just Transition Guidelines. They are mutually reinforcing and together form a body of policy guidance on the Just Transition Guidelines.

The just transition briefs are intended for use by policymakers and practitioners at all levels to provide practical information and guidance, fostering a common understanding of what is meant by a just transition in specific topic areas and providing recommendations for implementation by countries, international institutions and other actors in academia and civil society. The briefs seek, in particular, to provide guidance on just transition to ILO constituents, including workers' organizations, employers' organizations, and governments and relevant line ministries.

The briefs cover the following thematic areas: macro-economic and growth policies; industrial and sectoral policies; active labour market policies; enterprise policies; skills development; green works; occupational safety and health; social protection; rights; social dialogue and tripartism; collective bargaining; labour migration and human mobility; indigenous peoples; gender and labour; youth employment; persons with disabilities; persons with HIV/AIDS; and financing a just transition.

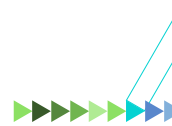
This policy brief is intended to present the linkages between just transition and skills development, providing stakeholders with information and recommendations for implementation. The broad implementation of just transition across all policy areas and cross-cutting thematic topics requires careful consideration of the guidance provided in the ILO Just Transition Guidelines, taking into account the needs, priorities and circumstances of each country.

This policy brief draws on recent findings and projects, including the report, *Skills for a Greener Future: A Global View*<sup>2</sup> and the policy brief, *Skills for a Greener Future: Challenges and Enabling Factors to Achieve a Just Transition*.<sup>3</sup>

1 ILO, *Guidelines for a Just Transition towards Environmentally Sustainable Economies and Societies for All*, 2015.

2 ILO, *Skills for a Greener Future: A Global View*, 2019.

3 ILO, *Skills for a Greener Future: Challenges and Enabling Factors to Achieve a Just Transition*, 2019.



## 1. Introduction

Skills development is one of key policy areas to address environmental, economic and social sustainability and one of pillars of the *Guidelines for a Just Transition towards Environmentally Sustainable Economies and Societies for All*. The transition to an environmentally sustainable and low-carbon economy is conditional on countries' implementation of their commitments to the Paris Agreement. The country commitments, or nationally determined contributions (NDCs) highlight adaptation and mitigation measures in targeted economic sectors. The far-reaching goals that governments have put forward in their climate change commitments in the energy, agriculture, waste, manufacturing, transport, construction and tourism sectors will require the availability of right and relevant skills in these industries to achieve objectives of the 2030 Agenda, creation of the decent work and greening economies.<sup>4</sup>

The availability of the right skills paves the way for the transition to carbon-neutral, environmentally sustainable and socially inclusive economies and decent work. Action planning on skills development will have to be integrated with key climate and environmental policies and regulations, including NDCs, to ensure that skills needs are met and climate commitments are implemented effectively. Furthermore, specific disadvantaged and vulnerable groups including young people, especially those who are not in education, employment or training, women, older workers, people with disabilities, persons with HIV/AIDS, migrant workers, refugees, unemployed people, informal workers, low-skilled workers, indigenous and tribal peoples and those living in rural areas as well as owners and workers of MSMEs need to be included in skills development programmes, enabling a green transition that is also just for all.

Skills development is an important pillar in a just and inclusive transition, but other measures are equally important. A comprehensive approach should include bipartite and tripartite social dialogue, active labour market programmes (ALMPs),

social protection, respect for international labour standards (ILS), occupational safety and health (OSH), green enterprise development, counselling and effective labour market institutions to provide job-matching and career counselling services and to create and facilitate the transition to decent green jobs.

Coordination with macroeconomic, sustainable investment, industrial, sectoral, social and enterprise policies, will be also essential in enabling businesses to develop, implement greener and resource-efficient production practices, to align the supply of skills with growing demand and to facilitate smooth and efficient reallocation of workers to newly created green jobs. The ILO's mandate for skills, training and lifelong learning is based on its Constitution and has been set out in ILS such as Paid Educational Leave Convention, 1974 (No. 140), Human Resources Development Convention, 1975 (No. 142) and Human Resources Development Recommendation, 2004 (No. 195). The ILO Human Resources Development Recommendation, 2004 (No. 195) particularly emphasizes the importance of identifying human resources development, education, training and lifelong learning policies which facilitate lifelong learning and employability as part of a range of policy measures designed to create decent jobs, as well as to achieve sustainable economic and social development.

A just transition requires that education and training are considered essential for all individuals at all stages of their lives, contribute to reap the job creation benefits and minimize the burdens of transition to carbon neutrality. Although skills approaches may vary depending on the national context and priorities in their pursuit of a just transition, this brief presents some key principles and concrete steps that countries can take jointly with social partners to advance a just transition towards environmentally sustainable economies and societies for all.

<sup>4</sup> The term "skills" is used throughout this policy brief to refer to the knowledge, competence and experience needed to perform a specific task or job. A "skill" is an ability to carry out a manual or mental activity, acquired through learning and practice (Olga Strietska-Ilina et al., *Skills for Green Jobs: A Global View* (ILO, 2011)).





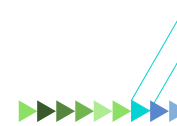
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## 2. Implications of skills policies to advance a just transition: two global scenarios

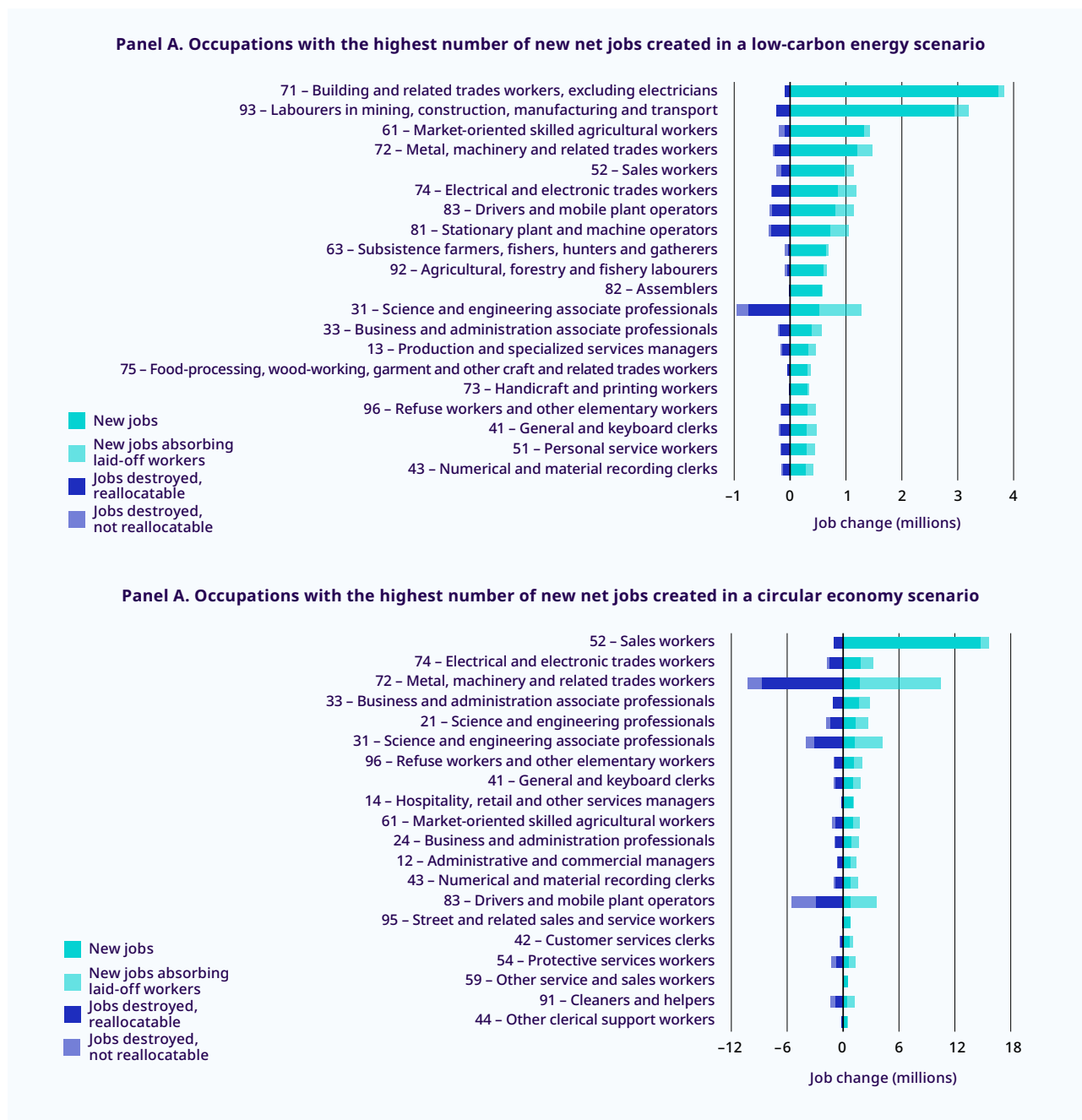
Climate change and environmental degradation reduce productivity and destroy jobs, and their effects fall disproportionately on the most vulnerable. Action to combat these processes can potentially create millions of jobs – but this requires a bold effort in investing in people’s capabilities to realize their full potential and contribute to the productivity of enterprises. In 2019, the ILO estimated that in both an energy sustainability scenario and a circular economy scenario, job

creation outpaces job destruction.<sup>5</sup> A net total of more than 25 million jobs could be created in the energy sustainability and circular economy scenarios cumulatively by 2030. Figure 1 shows the 20 occupations most in demand across industries in each of the global scenarios. The transitions to these jobs, however, will not happen by default: people will need new skills in order to tap into these new job opportunities.

5 According to *Skills for a Greener Future*: “The transition to **energy sustainability** implies change in the amount of energy produced and in the way it is produced, altering employment in the energy sector” (p. 128); “The **circular economy** is an alternative to a linear model of extraction–manufacture–use–disposal, relying instead on the re-use, repair, recycling and retention of material goods” (p. 139).



► **Figure 1. Occupations with the highest number of new net jobs created in a low-carbon energy scenario and a circular economy scenario**



Source: ILO, *Skills for a Greener Future: A Global View*, 2019: 132, 143.

While overall job creation potential in the two scenarios is close to 103 million jobs, the estimates show that nearly 78 million jobs could be lost. Of those workers whose jobs are eliminated due to contraction in specific industries, the majority

will be able to find jobs in the same occupation in another industry within the same country through reallocation. Still, nearly 24 million workers in two global scenarios cumulatively are likely to be in occupations where jobs will be lost without

equivalent vacancies arising in other industries. These workers will require substantial reskilling into other occupations.

In both scenarios, most job creation and reallocation are concentrated among mid-skill occupations. These results suggest that the growth in mid-skill jobs in the green transition can partly offset the global trend in which skill-based technological change is hollowing out mid-skill occupations. The greatest job creation and destruction impact is expected for male-dominated occupations, suggesting that men in mid-skill occupations will have the greatest need of reskilling and upskilling to enable them to tap into new job opportunities. This also suggests that current occupational gender stereotypes are likely to persist: women will get only a fraction of the jobs created, unless measures are taken to train women in relevant skills, so that they can benefit from potentially created jobs.

It is estimated that only around 2 per cent of the global labour force will be affected in the global scenarios. Within this disruption, jobs will not disappear, but will require reallocation, upskilling and reskilling. Even workers in the jobs that are

expected to disappear with no equivalent vacancies in other industries – possibly over 1 per cent of the global workforce – may well be able to use their skills in growing industries with the varying degree of additional training. There is a set of core and technical skills that are potentially transferable, within occupations, from declining to growing industries; but retraining will be needed to enable workers to acquire new skills for use in the latter. Apart from technical occupation specific skills, core work (or soft) skills can confer a comparative advantage as they can be transferred across occupations.

The transition to environmentally sustainable and inclusive economies and societies cannot take place if the skills demanded by new jobs are not available in the labour market. The transition is therefore conditional on investment in training to develop skills to meet new requirements and avoid skills mismatches. Forward-looking skills strategies are necessary to train young people and reskill the current workforce to meet the skills needs of the new jobs generated in the transition process in expanding sectors.

### 3. Key skills challenges for a just transition

Although some progress has been made in the past decade, there are crucial skills challenges facing a just transition towards environmentally sustainable economies and societies for all. To name a few, national commitments and sectoral priorities to implement the Paris Agreement have not included sufficient skills development component to support their implementation. Comprehensive and systematic approaches to skills for a green transition and active involvement of stakeholders in discussions related to the greening agenda tend to be lacking in many countries. While increase in skills gaps and shortages are posing a challenge to the green transition, effective mechanisms to anticipate and monitor those skills needs are not commonly found. The specific needs of vulnerable and disadvantaged groups in adjusting to change in the green transition are not effectively addressed (see below for more elaboration).

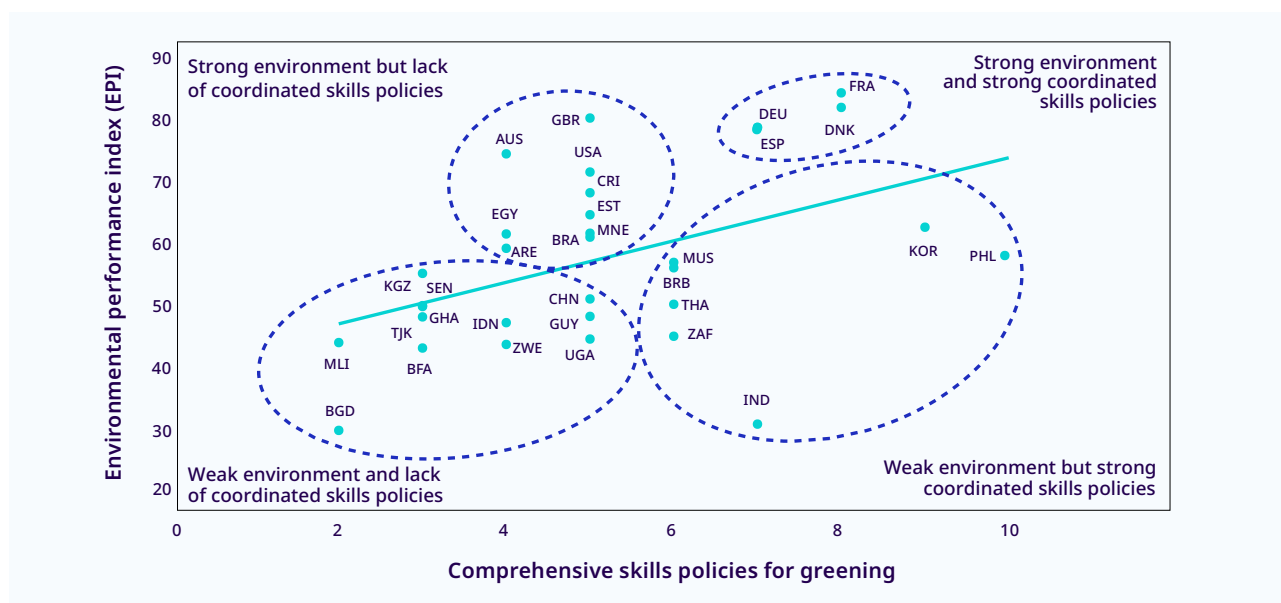
#### Coherence between skills and environmental policies remains weak and fragmented in many countries

The ILO in-depth study of the situation in 32 countries mapped sets of policies on environmental sustainability and climate change that form overarching frameworks for consideration of capacity development, occupations and skills. Yet, how these environmental policies are put into practice, and how effectively they are linked to employment and skills policies, varies widely. Analysis conducted using data from the Environmental Performance Index (EPI) and country reports along with an expert survey suggests that four groups of countries can be identified (see figure 2). Only a small group of European high-income countries (France, Denmark, Germany and Spain) demonstrates both strong environmental performance and strong comprehensive and coordinated skills policies. Another group, comprising mostly high-income countries (HICs) and upper-middle-income countries (UMICs), is strong in

environmental policies but weak on the skills side. A third group demonstrate strong skills policies but weaker performance on the environmental side.

Finally, a large group of mostly low-income countries (LICs) are still in the early phases of addressing both environmental and skills issues.

► **Figure 2. Countries grouped according to performance in environmental and skills policies**



**Note:** Y axis: the EPI uses the distance-to-target technique for indicator construction, which situates each country relative to targets for worst and best performance corresponding to scores of 0 and 100 respectively. X axis: the presence of comprehensive skills policies for greening was calculated on a 0–10 scale. Country codes: Australia (AUS), Bangladesh (BGD), Barbados (BRB), Brazil (BRA), Burkina Faso (BFA), China (CHN), Costa Rica (CRI), Denmark (DNK), Egypt (EGY), Estonia (EST), France (FRA), Germany (DEU), Ghana (GHA), Guyana (GUY), India (IND), Indonesia (IDN), Republic of Korea (KOR), Kyrgyzstan (KGZ), Mali (MLI), Mauritius (MUS), Montenegro (MNE), the Philippines (PHL), Senegal (SEN), South Africa (ZAF), Spain (ESP), Tajikistan (TJK), Thailand (THA), Uganda (UGA), the United Arab Emirates (ARE), the United Kingdom (GBR), the United States (USA) and Zimbabwe (ZWE).

Source: ILO, *Skills for a Greener Future: Key Findings*, 2019.

More generally, skills development for green jobs can be characterized as somewhat unsystematic, sometimes taking place as part of overall government policy but often carried out by other actors, including civil society groups as well as regional and local government authorities and social partners, working to fill gaps from the bottom upwards. Thus, the overall picture of training in skills for greener jobs is fragmented and led by individual regions, sectors and projects. Such interventions may be effective to a certain extent: they are usually driven by well-understood and pressing needs of communities and businesses. However, such approaches cannot give sufficient attention to broader policy coordination, important equity considerations and longer-term strategic objectives

of the 2015 Paris Agreement, 2030 Agenda and the ILO Just Transition Guidelines.

Furthermore, weak policy coordination between government, ministries, social partners, training providers and other stakeholders remains a key obstacle to an effective and successful transition to greener production and consumption. At governmental level, responsibility for the areas of policy relevant to skills for green jobs still tends to be distributed across more than one ministry. While ministries responsible for environmental policy are in charge of policies on topics such as climate change, disaster risk management and biodiversity, use of renewable energy sources and technologies, the transition to inclusive and greener



economies can involve ministries for the economy, employment/labour, education, agriculture, energy, industry and trade. Ministries responsible for labour, education and training tend to be least involved in policymaking and consultations on climate change and environment. In general, coordination tends to occur for specific purposes, with weak monitoring and unsystematic follow-up. Poor inter-ministerial coordination hampers the effective design, planning, implementation and evaluation of policies on skills development for green jobs and climate action.

### Skills gaps and shortages persist, despite recent and positive trends

The green transition requires massive investments in reskilling and upskilling to equip workers with the technical (specific to each occupation) and core (soft) skills required. Skills gaps and shortages are almost inevitable whenever any new product or service appears, and the green economy is no exception. Identification and anticipation of skills needs have been gaining ground since 2011 but remain weak and insufficiently systematic to provide comprehensive information on demand and supply related to skills for green jobs.

Developing countries are especially challenged by a lack of professionals and a paucity of university graduates in general, especially those trained in STEM skills. Even in HICs, including those with well-developed skills anticipation systems, a lack of both technical and transferable core skills remains a significant cause of recruitment problems for employers. Poorly developed skills anticipation systems limit countries' ability to identify skills gaps and to analyse future training needs and shortages in a systematic and comprehensive way.

One emerging driver of change is the increased mobility of workers. On the one hand, labour migration opens up income generation opportunities for many people, including the low-skilled. On the other hand, it may contribute to a "brain drain" and skills shortages in sending countries. In addition, the negative consequences of environmental degradation and climate change may cause the internal or external displacement of workers, leading to increased numbers of migrants. Climate-spurred migration among poorer populations, including indigenous peoples, creates the need for new sets of skills (including core skills) for workers in new labour markets or in search of alternative employment.

Digitalization is another important global trend that highlights the need to promote information and communications technologies (ICT) for the green economy and to develop skills for green transitions to promote sustainable development.

### Green structural change will be profound in certain sectors

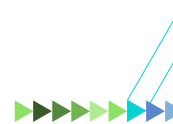
The ways we live, work and earn are affected by environmental degradation, global warming, loss of biodiversity, desertification, rising sea levels and changing climate patterns that know no borders. However, green structural change has been shaped by specific national contexts and differing levels of development across sectors. Fossil fuel-based industries and high carbon-emitting sectors are most likely to be affected by green structural change. Although green jobs growth is widely forecast, countries have made variable progress since 2011. The green transition continues to both affect existing occupations and create new green occupations, in cases where new technologies or processes are applied.

In HICs, the green transition in economic and employment policies is driven by two factors. First is a drive to achieve greater energy efficiency and renewable energy use while reducing negative environmental impacts. Second is the rising trend in markets for green goods. The environmental goods and services sector is now a well-developed feature in HICs. In general, green markets have been important sources of employment growth in recent years in developed economies; they are also emerging, though slowly, in developing economies.

In low-income countries (LICs), the environment has a more direct bearing on people's lives. These countries are most likely to be affected by climate change and environmental degradation, which in turn affects their growth prospects. There is also a greater reliance in LICs on agriculture and extractive industries. The most important changes in skills and occupations for the green economy are taking place at a relatively higher skill levels, requiring vocational training or university education. This represents a critical challenge for many LICs, where access to education and training is insufficient, dropout rates are often an issue of concern and relevant skills are in short supply.

The sector that has seen the greatest growth in employment potential is renewable energy. The environmental goods and services sector, which





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includes waste, energy and water management, has been developing significantly where it is supported by government policies and measures. In construction, employment effects vary, depending on the degree to which the existing built environment is “greened” through retrofitting (mostly in HICs) and the rise of the green building sector and “smart cities”. The employment effects of the green transition in other sectors tend to be complex. Manufacturing, notably the automotive sector, is gradually changing its output to produce more energy-efficient products, with limited net employment gains but significant changes in skills demand. However, it is also producing green products and creating jobs in supply chains with significant indirect employment effects, including the production of parts for the use in renewable energies such as the production of wind turbines. Agriculture, though subject to significant green challenges and a very important source of employment in most developing countries, does not appear to date to have undergone significant changes in skills. The potential for green jobs in transportation and tourism is yet to be fully realized but is attracting considerable attention in some countries in pursuit of sustainable development.

The economic crisis induced by the COVID-19 pandemic and related jobs crisis reduced job opportunities, including green jobs. Developing countries are particularly affected due to a smaller

fiscal space for counter-crisis measures but reskilling and upskilling measures will be essential for the recovery in all countries. During the global pandemic, employers, workers and job seekers alike became more aware of the need to invest in training for the green transition in order to either keep current jobs or to take advantage of new job opportunities arising with the economy recovery. To this end, the Global Call to action adopted at the 2021 International Labour Conference outlined the promotion of skills development opportunities that are responsive to labour market needs and support for effective transitions as required policy measures to ensure human-centred, inclusive, resilient and sustainable recovery from the current global crisis.

### Skills development programmes lack a strong focus on gender and the needs of vulnerable groups

There are still not many skills development programmes particularly focused on the needs of vulnerable groups. Active labour market programmes (ALMPs) related to skills for green jobs generally target the unemployed and those in precarious labour market situations. The few examples of national strategies or targeted public employment services (PES) initiatives that focus on skills for green jobs include ALMPs to pre-empt potential skills shortages and to support groups

rendered vulnerable by the transition. These groups often include low-skilled workers and people who are either already unemployed or at risk of unemployment as a result of certain activities being phased out in the greening process. PES initiatives are often aimed at tackling unemployment among youth, indigenous peoples, people with disabilities or migrant workers.

Despite good examples of attracting more female students to science- and technology-related programmes, enrolments in universities and technical and vocational education and training institutions (TVET) still reflect traditional gender stereotypes, with more male students in STEM areas. Developing countries face greater challenges in this area owing to the lack of trained teachers and trainers and graduates with STEM skills.

### Effective skills anticipation and monitoring mechanisms are still not in place

Efforts to identify and anticipate skills needs have gained ground in recent years, but mechanisms to

provide comprehensive information on demand and supply related to skills for green jobs are still not systematic enough. Some countries have set up a specific institutional body or monitoring mechanism dedicated to identifying the skills needed for green jobs. In countries that have no system at all for monitoring skills needs (for green jobs or generally), which is the case for most LICs, such needs are usually identified on an ad hoc basis.

Only a few countries have systematic, innovative and institutionalized mechanisms for skills anticipation in which the private sector is directly and actively involved. This makes it difficult to develop specific skills policies, adapt skills training and ALMPs to current and future demand and to shape TVET appropriately (often by adding green components to existing curriculum, qualifications or education programmes). Only a few countries have systems or measures in place that are fully dedicated to developing skills for green jobs.

## 4. Key principles and steps to seize a just transition opportunity

If equipped with the right technical and core skills for a just transition, the current and future workforce have the potential to become responsible producers and consumers. They can act competently and creatively as active change agents for advancing a just transition in their workplaces and in society at large. Achieving this requires the joint effort and shared responsibility of governments (by creating the conditions and investing in education and training), employers (by training their employees), and individual workers (by developing their competencies and careers through active engagement in lifelong learning opportunities), with education and training institutions delivering demand-led trainings and social partners playing a critical role. Institutionalized social dialogue mechanisms and procedures at national and sectoral levels are an important engine for driving policy coherence and achieving a just transition.

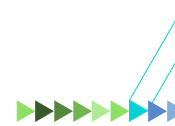
The ILO Human Resources Development Convention (No. 142) prescribes that “each Member shall gradually extend, adapt and harmonise its vocational training systems to meet the needs for vocational training throughout life of both young persons and adults in all sectors of the economy and branches

of economic activity and at all levels of skill and responsibility” (Article 4). The ILO Recommendation No. 195 recommends that Member States “recognize that education and training are a right for all and, in cooperation with the social partners, work towards ensuring access for all to lifelong learning” (Paragraph 4).

Convention No. 142 and Recommendation No. 195 call for consultations with social partners in developing policies and programmes on vocational and career guidance and vocational training. Institutional capacity building and awareness raising on the roles of various stakeholders in the just transition will therefore be important.

Furthermore, Paid Educational Leave Convention (No. 140) specified that “Each Member shall formulate and apply a policy designed to promote, by methods appropriate to national conditions and practice and by stages as necessary, the granting of paid educational leave for the purpose of (a) training at any level; (b) general, social and civic education; (c) trade union education.”

It further specifies that “Paid educational leave shall not be denied to workers on the ground



of race, colour, sex, religion, political opinion, national extraction or social origin.” It is essential to ensure that all workers have the time and financial support they need to acquire and upgrade skills throughout their careers. Such an approach should be supported by removing barriers to participation, widening access to learning, ensuring gender equality in learning and providing social protection and proactive employment services to make a just transition possible.

### **Enhanced policy coherence, social dialogue and partnership can help to propel the green transition**

The Conclusions of the 109th session of the International Labour Conference recognized that education and training is a right for all, and indicated that, taking into account national circumstances, governments should work in cooperation with the social partners towards ensuring access for all to lifelong learning, and agreed that Governments, with the support of the ILO should, among other things, coordinate education and training policies with other public policies and strategies, including fiscal, industrial, trade, investment, environment and climate change policies; and involve the social partners and cooperate with other relevant stakeholders, where appropriate, in the design, implementation (including consultation on resource allocation), monitoring and evaluation of skills development and lifelong learning policies, systems and programmes.

The policy coordination “gap” that is such a common feature at national level of the skills for green jobs landscape is sometimes offset, at least in part, by policies and plans at sectoral or subnational governmental levels. Where social partner engagement is weak, this can have negative consequences for the coordination and relevance of policies on skills for green jobs. Thus, a combination of top-down coordinated policymaking and bottom-up initiatives could provide effective and more sustainable support to the green transition.

Equipping workers with the right skills is an essential prerequisite of a just transition. Bringing trade unions and employers’ associations through active social dialogue and partnership into the planning, design, implementation and evaluation of skills development can strongly boost the responsiveness of education and training and trigger green transformation on a larger scale.

This will also require reviewing and (re)formulating skills development policies, including means for validation and recognition of skills and all forms of prior learning jointly by all key stakeholders including governments, social partners and training institutions at all levels. Collaborative approaches allow information on greening developments from the front line in industry, agriculture and services to inform skills development in formal TVET. Public-private partnerships (PPPs) can bring together public and private resources and tap businesses’ practical knowledge of skills relevance and quality.

### **Well-developed, sound national and sectoral policies enable the just transition**

Government policy plays a key role in the quest for a green transition. Policies related to skills for green jobs take two main forms: they either arise as part of broader environmental and economic policies or they are created specifically. Box 1 describes how the Philippines created policy and legal frameworks for green jobs while engaging in active social dialogue and related human resource development planning.

Economic and employment policies frequently have a sectoral or regional dimension which provides a convenient vehicle for the inclusion of a green aspect. Incorporating skills for green jobs at sectoral, regional and project levels can be part of national policy or undertaken autonomously in response to sectoral, regional or local needs, or a combination of the two. Sometimes action at this level in effect fills policy gaps at the national level.

Sectoral plans for skills for green jobs, supported by government taxes and incentives, are most common in those sectors directly affected by climate change and environmental depletion, such as energy, transport, construction and waste management. The private and public employers and trade unions play essential roles in the transition to sustainable economies.

### **Core and transferable skills are vital to an inclusive green transition**

A wide range of both technical and core skills, including STEM skills, is needed to support the green transition. Some core skills are needed by all workers, regardless of the general skill level of their occupation. Medium- to high-skilled occupations may require additional skills of this kind, as shown in

**Box 1. A legal framework for skills and training for green jobs in the Philippines**

Enacted in 2016, the Philippines Green Jobs Act is the first piece of legislation in the country’s history specifically designed to generate, sustain and incentivize green jobs in order to develop an environmentally friendly economy. Prior to the Act, there was no legal concept relating to green jobs. The Act explicitly defines what is meant by green jobs and consolidates various policy ideas. It promotes training by mandating the Department of Education and the Commission on Higher Education to develop and implement curricula that would support the skills and knowledge requirements of a green economy.

It tasks the Technical Education and Skills Development Authority (TESDA) and the Professional Regulation Commission with developing training regulations and qualifications frameworks, respectively, to facilitate the certification of skilled and professional green personnel. It mandates various government offices, including the Department of Labour and Employment, the Department of Trade and Industry and the Department of Tourism, to promote green jobs in their respective sectors. The Green Jobs Act also introduces a range of new financial incentives to encourage enterprises to create further green jobs and training.

Furthermore, under the Act, the Department of Labour and Employment has been tasked with formulating a National Green Jobs Human Resource Development (HRD) Plan in coordination with other government agencies. Currently under development, the plan will integrate the international Just Transition framework and include measures on education and skills development, labour market interventions, social protection, enterprise development, social dialogue, policy coherence and financing.

Source: ILO, *Skills for Green Jobs in Philippines*, 2018.

table 1. In addition, it should be noted that enabling a green transition that is also socially just necessitates raising awareness, improving sensitization and

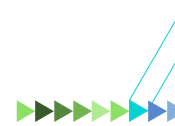
developing the capabilities of all workers related to occupational safety and health (OSH), rights at work and decent jobs.

► **Table 1. Main core (soft) skills required for green jobs, by skill level of occupation**

| Required across the labour force  | Required in medium- to high-skilled occupations  |
|---|--|
| <ul style="list-style-type: none"> <li>► Environmental awareness and respect; willingness to learn about sustainable development</li> <li>► Adaptability and transferability skills, to enable workers to learn and apply the new technologies and processes required to green their jobs</li> <li>► Teamwork skills, reflecting the need for organizations to work collectively on tackling their environmental footprint</li> <li>► Resilience, to see through the changes required</li> <li>► Communication and negotiation skills, to promote required change to colleagues and customers</li> <li>► Entrepreneurial skills, to seize the opportunities of low-carbon technologies and environmental mitigation and adaptation</li> <li>► Occupational safety and health (OSH)</li> </ul> | <ul style="list-style-type: none"> <li>► Analytical thinking (including risk and systems analysis) to interpret and understand the need for change and the measures required</li> <li>► Coordination, management and business skills that can encompass holistic and interdisciplinary approaches incorporating economic, social and ecological objectives</li> <li>► Innovation skills, to identify opportunities and create new strategies to respond to green challenges</li> <li>► Marketing skills, to promote greener products and services</li> <li>► Consulting skills, to advise consumers about green solutions and to spread the use of green technologies</li> <li>► Networking, IT and language skills, to perform in global markets</li> <li>► Strategic and leadership skills, to enable policymakers and business executives to set the right incentives and create conditions conducive to cleaner production and cleaner transportation</li> </ul> |

Source: ILO, *Skills for a Greener Future: A Global View*, 2019: page 30.





## Improving skills anticipation systems through better data and institutionalized social dialogue is crucial

There is an urgent need for a more rigorous approach to the analysis and anticipation of demand for green job skills, with better information and data on skills and occupational needs to address the skills challenge and enable the green transition. Without good quality, systematic and reliable data on supply and demand related to green jobs and labour market information, effective and focused planning of skills development for just transition and skills matching is difficult to achieve. Countries therefore need to equip themselves with the anticipation, forecasting and monitoring tools they need to respond to the demand for skills for green jobs. It is essential to allocate adequate funding and to build technical expertise and capacity for gathering and analysing quantitative and qualitative data on green jobs and labour market information. Box 2 provides a good example of how a French institution is anticipating skills needs for the green transition.

### Box 2. Institutional arrangements for anticipating skills needs for green transition in France

The National Observatory for Jobs and Occupations of the Green Economy (Onemev) was created in 2010 by the French Ministry of Environment to analyse employment shifts in the green economy and produce relevant methodologies and statistics. The observatory aims to provide a shared diagnosis on jobs, occupations and training in the green economy. It brings together a broad range of institutions including relevant national ministries and agencies, key public employment service organizations, the main TVET association, the national statistical institute, research bodies (including the Centre for Studies and Research on Employment and Skills), and regional employment and training observatories, where social partners are represented..

Source: Cedefop, *Skills for Green Jobs: 2018 Update*, 2019.

Where systems for anticipating skills needs already exist, they can be adjusted to incorporate new

requirements and components. In less developed countries where such frameworks do not yet exist, there is an opportunity to create structures such as a national human resources development council (NHRC), involving government, employers, workers and providers of training and education in order to facilitate the exchange of information and to establish industry groupings that could later be formalized as sectoral skills bodies. Systematic anticipation of skills needs, career guidance and counselling initiatives through sectoral skills bodies all facilitate and boost an inclusive human-centred approach to the green transition.

## Targeted and inclusive training by well-equipped teachers is essential

Effective training depends on the availability of teachers and trainers with current knowledge on sustainable land and ecosystem management, energy efficiency and green technologies. Their role is critical in promoting environmental awareness among young people and in spreading climate education and environmental training beyond the formal education system into the adult population. The education and training of such teachers and trainers should therefore be a top priority in any skills response strategy at national, sub-national, and sectoral levels.

While many countries aim to include disadvantaged groups in their skills development programmes for green jobs, these groups still do not benefit enough from relevant and practical training opportunities. There is an urgent need to develop systematic reskilling and upskilling initiatives in skills for green jobs aimed at specific groups: youth, older workers, women, people with disabilities, indigenous people, migrant workers, unemployed people, informal workers, persons with HIV/AIDS, refugees, low-skilled workers, indigenous and tribal peoples and those living in rural areas. The inclusion of women in apprenticeship and skills training for environmentally sustainable jobs is essential to overcome disparities and gaps in the labour market as well as skills shortages in certain occupations. Incentives to increase women's participation in sectors with green growth potential, notably through technical training programmes, will achieve the double objective of solving skills shortage problems in this area while also increasing women's participation in technology-driven occupations. In addition, supportive policies for MSMEs to facilitate workforce training in

response to climate change is essential for a just transition as they often lack resources to provide training on their own.

### **Mainstreaming the green transition through the TVET systems can help to ensure a just transition**

The shift to low-carbon and resource-efficient economies and societies requires technical and vocational education and training institutions (TVET) to engage more systemically in response to the changing job opportunities and skills needs for the green transition. Through their ability to prepare the current and future workforce with the relevant knowledge and skills to transform the workplaces, communities and societies as a whole, they have the potential to ensure that the green transition is fair and just. It is therefore essential to strengthen governance and management structures required to mainstream green transition in TVET systems and to incorporate skills for green transition into the development or renewal of competency standards, curricula, training, and assessment packages in both initial and continuing TVET.

### **Skills funds and public-private partnerships could drive sustainable development beyond 2030**

Skills development and training needs can also be met through collaboration between private sector and multinational companies and the public sector through promoting and empowering a public-private partnership (PPP) for green jobs. Engaging the private sector, particularly MSMEs, including cooperatives and involvement of workers' organizations, is essential to establishing a sustainable and functional TVET system and to developing skills within sectors and enterprises. PPPs can catalyse and boost diversified, innovative and new approaches in financing lifelong learning, foster collaborative peer learning and knowledge sharing among businesses and workers as well as education and training institutions on the application of green

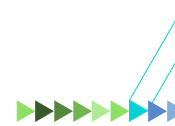
technologies and good green practices. They can also provide a platform for combined contributions to support the TVET system systematically.

Financial incentives are a key aspect of the operation of green markets and support other drivers of skills for green jobs. Some countries operate specific financial incentives to encourage training, such as levy-grant systems, tax breaks, training vouchers and individual training accounts. Strong and inclusive PPPs could be instrumental in reducing the financial constraints on the effective delivery of high-quality training as well as in generating more opportunities to formulate new, innovative and data-driven skills development policies.

### **Investing in skills for green jobs will help implement fiscal stimulus measures and recovery plans and build forward better**

In the context of recovery from the COVID-19 pandemic, many countries have been putting the fiscal stimulus measures and recovery plans in place. Having witnessed how unprepared global systems were to handle the crisis and protect the environment, health and economy, a growing chorus of voices is calling for the economic recovery from the pandemic to be greener, inclusive and resilient. Against this background, governments are including green measures in their fiscal stimulus packages, with a view to building forward better from the crisis.

The availability of workers with the right skills for green jobs plays a vital role in the success of green fiscal stimulus and recovery measures. It is therefore crucial to direct substantial investment towards upskilling and reskilling workers, thus enhancing countries' ability to tap into new green jobs opportunities and improving transferability across occupations and sectors. Skills development and training for green jobs should be an integral part of green fiscal stimulus and recovery measures, along with support for enterprises and workers in sectors negatively impacted by the green transition and current global crisis.



## 5. Conclusions and key recommendations

The green transition can generate millions of jobs, but these are conditional on the availability of relevant skills and training. As highlighted in the Just Transition Guidelines, labour market intelligence and skills anticipation should enhance the understanding of changing skills demand in the green transition. Countries need to mainstream systematically skills for green jobs in their systems and make these skills more recognizable. In addition, forward-looking skills strategies should be integrated in climate and environmental policies, coupled with active labour market and career guidance measures and social protection mechanisms. Furthermore, ensuring a just and inclusive transition necessitates paying priority attention to the needs of disadvantaged and vulnerable groups. It will also require joint and active engagement by governments, employers' and workers' organizations through social dialogue as well as engagement with civil society actors, education and training providers at all levels and the international community. In other words, effective skills and climate response strategies must be grounded in broad participation if they are to succeed in design, planning and implementation.

**Governments** have a key role to play in enhancing the coherence of skills policies and environmental policies and ensuring they are inclusive as well as coordinating line ministries and agencies and actively involving social partners with a stake in the green agenda.

**Employers' organizations** have a significant role to play in transferring information on changing demand

for skills for use in labour market intelligence in order to improve the relevance and quality of the training. Their role is also very important with respect to the further use of skills at the workplace and in the provision of the workplace learning.

**Trade unions** play a pivotal role in providing skills for green jobs and enhancing recognition of skills and prior learning. Their role is difficult to overstate when it comes to the inclusion of training clauses in collective agreements as part of just transition measures.

**Education and training institutions** need to enhance relevance of their training to the labour market needs and prepare learners, trainers and teachers with the relevant knowledge and skills to be active agents of change in a just transition towards environmentally sustainable economies and societies for all.

**The ILO** supports its constituents to shape skills development and lifelong learning with a view of equipping the current and future workforce with right skills for a just transition, with knowledge products, practical tools, policy advice, capacity development, research and technical assistance in close collaboration with strategic partners including other international organizations. It does so in line with the Just Transitions Guidelines and the conclusions adopted at the 2021 ILC.<sup>6</sup> Useful ILO products and tools on skills for a greener future are listed in table 2.

<sup>6</sup> ILO, *Reports of the General Discussion Working Party on skills and lifelong learning*, International Labour Conference, 109th Session, 2021: 9 (see point 14(a)v).

► **Table 2. ILO products and tools on skills for a greener future**

| Areas                                     | ILO Materials and Resources   | Summary   |
|---|---|---|
| <b>Policy research</b>                    | <a href="#">Skills for a Greener Future: A Global View (2019)</a>               | Global study with analysis on the implications of the transition to low-carbon and resource-efficient economies for skills, gender and occupations (based on 32 country studies); Global projection of the implications of energy sustainability and circular economy for skills, gender and occupations by 2030. |
| <b>Capacity development</b>               | <a href="#">E-learning course on skills for a greener future</a>                | Six-week online course on skills for green jobs, including regional and national versions in collaboration with ITCILO.   |
| <b>Policy advice &amp; practical tool</b> | <a href="#">Skills for a Greener Future: Policy Brief</a>                       | List of six main challenges, six policy messages and a policy checklist.  |
|   | <a href="#">Anticipating Skill Needs for Green Jobs: A Practical Guide</a>      | Guidance on how to embark on the identification of current and anticipation of future skill needs for the green economy and green jobs.   |
|   | <a href="#">Greening TVET and skills development: A practical guidance tool</a> | A step-by-step “how to” tool for greening TVET, competency standards, curricula, training and assessment packages, focusing on low- and middle-income countries. The tool is being piloted in various countries, including Cambodia, Ghana, Zimbabwe, Zambia, Thailand and the Philippines from 2021 to 2022.     |

## Key resources

- ILO (International Labour Organization). 1974. Paid Educational Leave Convention, 1974 (No. 140).
- . 1975. Human Resources Development Convention, 1975 (No. 142).
- . 2004. Human Resources Development Recommendation, 2004 (No. 195).
- . 2018. *World Employment and Social Outlook 2018: Greening with Jobs*.
- . 2019. *Skills for a Greener Future: Challenges and Enabling Factors to Achieve a Just Transition*.
- . 2021. Shaping Skills and Lifelong Learning for the Future of Work, International Labour Conference 109th Session, 2021 (ILC.109/VI).
- . 2021. Global Call to Action for a Human-centred Recovery from the COVID-19 Crisis that is Inclusive, Sustainable and Resilient (ILC.109).
- . 2021. Resolution Concerning Skills and Lifelong Learning (ILC.109).
- . 2022. Greening TVET and Skills Development: A Practical Guidance Tool.

## Acknowledgements

Special thanks to ILO colleagues for their contributions, technical inputs and collaboration in the development of this brief, namely to: Hae Kyeong Chun and Olga Strietska-Ilina in the Skills and Employability Branch; José Luis Viveros Añorve in the ACTEMP; Olsen Lene, Claire La Hovary, Rafael Peels, Amanda Claribel Villatoro, Maria Helena Andre, Anna Biondi in the ACTRAV; and Moustapha Kamal Gueye, Tahmina Mahmud, Monica Castillo and Yanghaoyue Xiong in the Green Jobs Programme.

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