

► Green jobs and green futures for youth

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►► The transition to green economies has far-reaching implications for the world of work and can generate, if well managed, ample decent job opportunities, including for young people.

Decent work deficits are widespread. A majority of the 3.3 billion people employed globally in 2018 experienced a lack of material well-being, economic security and access to equal opportunities; an estimated 172 million people were unemployed and, although the global unemployment rate should remain at roughly the same level (at 5 per cent) in 2019 and 2020, the number of people unemployed is projected to increase as a result of the expanding labour force. Among other vulnerable groups, young people aged 15–24 continued to be much less likely employed than other segments of the population. By 2030, 77 per cent of the youth labour force aged 15–24 will be in the developing countries of Africa and the Asia and Pacific region (ILO 2019).

Where will jobs be created? With many countries turning to green-growth scenarios to achieve reductions in greenhouse gas emissions that are consistent with the goals of the 2015 Paris Agreement on climate,¹⁷⁷ the expanding green economy will engender new employment opportunities. The transition to green economies¹⁷⁸ has far-reaching implications for the world of work and can generate – if well managed – ample decent job opportunities, including for young people. A relevant finding of the International Labour Organization’s (ILO) *World Economic and Social Outlook 2018* report on “greening with jobs” is that some countries have suc-

ceeded in improving labour market outcomes while decoupling growth from carbon emissions. Yet, the full potential remains to be met. The report also projects a net employment gain of approximately 18 million jobs globally by 2030 from measures taken in the production and use of energy, including changes in the energy mix, the anticipated growth of electric vehicles and improved energy efficiency in buildings.

To have a larger, positive impact on employment levels and youth labour market outcomes, governments will need to embrace a comprehensive policy approach¹⁷⁹ that stimulates investment in green sectors while updating the skill levels and employability of workers.

A decent work for youth perspective should be guided by several questions: What are the economic sectors and activities with high employment-creation potential? What can national governments and social partners do to enable green investments in such sectors and to the benefit of young jobseekers in particular? What skills development strategies can be devised so that young women and men are better prepared to take up green jobs? What kind of entrepreneurship programmes for green businesses can be undertaken on a sufficiently large scale to make a significant contribution to youth employment?

177 At COP 21 in Paris in 2015, Parties to the 1992 United Nations Framework Convention on Climate Change reached a landmark agreement to combat climate change and to accelerate and intensify the actions and investments needed for a sustainable low carbon future. The Paris Agreement builds upon the Convention and – for the first time – brings all nations into a common cause to undertake ambitious efforts to combat climate change and adapt to its effects, with enhanced support to assist developing countries to do so.

178 The United Nations Environment Programme (2011) defines a green economy as “one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. In its simplest expression, a green economy can be thought of as one which is low carbon, resource efficient and socially inclusive. In a green economy, growth in income and employment should be driven by public and private investments that reduce carbon emissions and pollution, enhance energy and resource efficiency, and prevent the loss of biodiversity and ecosystem services”.

179 The 2015 ILO Guidelines for a Just Transition to Environmentally Sustainable Economies and Societies for All offer policy recommendations that can help governments and social partners promote opportunities for decent work when designing national low-carbon strategies.

The concept of green jobs and its relevance to youth

The transition to greener economies will continue to have important effects on labour markets. There will be job losses in certain sectors while new job opportunities will arise. Many workers will need to reskill and engage in work practices entailing a larger use of new technologies introduced to improve resource efficiency and reduce wastage (WESO 2018). Expected changes can be categorized as follows:

- **job creation** (in both existing and new occupations, such as solar panel technicians, organic farmers, recycling managers, staff in ecotourism resorts, workers in natural resource conservation and restoration, environmental advisers, workers in bicycle shops);
- **job reduction** (such as coal miners and workers in the packaging industry adopting resource-saving technologies);
- **job substitution** (such as transport systems moving to rail, electric cars and shared vehicles, waste management jobs in landfill or dump sites moving to incineration and recycling, jobs in quarries for construction using new building materials and the reuse of leftovers and waste); and
- **job transformation** (changes in occupational profiles, such as operators and managers adopting practices and technologies that reduce environmental impacts or improve environmental quality across a range of sectors; workers in sectors in which energy and resource efficiency are introduced, such as bottling companies changing to new materials and products; staff in financial institutions adopting sustainable investment strategies).

Green jobs can be understood in two ways: (i) employment that contributes towards producing environmentally sustainable *output* and (ii) employment that contributes to making a production pro-

cess more environment-friendly. Jobs in organic agriculture, waste recycling or green buildings are examples of the first category. Workers involved in cleaner production processes in industry or contributing to lowering water and electricity consumption in hotels are examples of the second category of green jobs.

More specifically, green jobs can be defined as jobs that reduce the consumption of energy and raw materials, limit greenhouse gas emissions, minimize waste and pollution, protect and restore ecosystems and enable enterprises and communities to adapt to climate change. They can be found in any economic sector and any enterprise, including the environmental goods and service sector. In addition, green jobs must be decent (UNEP 2008). The decent work¹⁸⁰ dimension is necessary to define environmentally sound occupations as green jobs. The resolution concerning statistics of work, employment and labour underutilization adopted by the nineteenth International Conference of Labour statisticians in 2013 is a useful reference.¹⁸¹

Anticipating and managing these changes and what relates to new occupations and profiles is particularly relevant for students, young jobseekers and young workers. Young people generally tend to have stronger aspirations for work that benefits society, in this case by contributing to environmental sustainability.¹⁸² With better standards of education, they can more easily acquire the new skills and competencies required by employers in the green economy and adapt to changing labour market requirements. Young workers have already proved themselves able to perform better than older adults in technology-rich environments (ILO 2017c), which is where green jobs tend to associate.¹⁸³

Tapping into these comparative advantages will require an enabling policy environment and institutional capacity to deal with all the changes and to leave no one behind – because some youth will remain at risk of exclusion.

180 In ILO terms: “Decent work sums up the aspirations of people in their working lives. It involves opportunities for work that is productive and delivers a fair income, security in the workplace and social protection for families, better prospects for personal development and social integration, freedom for people to express their concerns, organize and participate in the decisions that affect their lives and equality of opportunity and treatment for all women and men.”

181 See www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/normativeinstrument/wcms_230304.pdf.

182 See two recent articles, at www.euronews.com/2019/02/01/youth-climate-change-protests-spread-through-belgium-in-fourth-week; and www.theguardian.com/environment/2019/mar/01/youth-climate-strikers-we-are-going-to-change-the-fate-of-humanity.

183 Relevant examples relate to the use of sensors, survey drones and smart tractors in agriculture, electric automobile manufacturing, intelligent housing and mobile payment systems applied to clean energy and other services, among many others.

National employment policies that promote green jobs for youth

To optimize the employment gains from the transition to a greener economy and to create green job opportunities for youth, supporting measures are fundamental. These encompass macroeconomic, sector, investment, trade and enterprise development policies to promote job-rich green growth as well as education, training and labour market policies that ensure that youth can acquire the right skills and competencies and are appropriately prepared to take up the green jobs on offer. Spanning all these dimensions, a national employment policy¹⁸⁴ can be instrumental.

Since 2012,¹⁸⁵ governments have increasingly considered climate change and/or environmental sustainability in the formation and implementation of their national employment policies (van der Ree 2017). Several countries have adopted a holistic approach to policymaking, such as in the context of the Partnership for Action on Green Economy (PAGE).¹⁸⁶ In Senegal, for instance, PAGE helped to formulate a National Strategy on Green Jobs, which has been integrated into the national employment policy towards ensuring policy coherence and synergy among actors in the environmental sphere and the world of work. In Peru, an ongoing PAGE review of the national employment policy includes a focus on green jobs as well as on youth. A National Plan for Green Jobs reinforces the policy with concrete measures proposed in distinct areas. And a series of capacity-building workshops for staff of the Ministry of Labour and Employment Promotion has significantly enhanced their understanding of ways to promote green jobs, including through regional youth employment initiatives.

As with any other policy, the national employment policy process is a series of phases, from a situation analysis to ex-post evaluation (ILO 2012a). The cre-

ation of green jobs for youth can be pursued during the different phases of the policy cycle and through the national dialogue underpinning it.

At the preparation stage, it is important to take stock of policy instruments in the social and environmental fields and to map all relevant national actors, including youth-led organizations that should be invited to actively participate in the policy dialogue. The policy vision emerging from a broad-based consultation would ideally refer to young people's views and aspirations.

In reviewing the socio-economic and labour market situations, the identification stage should then describe priority needs pertaining, for example, to insufficient financial incentives to environmental activities or the unavailability of the skills required by green industries. Youth-specific labour market challenges should be assessed at this stage. Climate change and/or environmental sustainability may be included in the problem statement. This stage would also benefit from age-disaggregated studies on current and potential employment effects of climate change and responsive policies across economic sectors.

An employment projection model is a useful tool (ILO 2017b) to anticipate the likely losses and gains in employment if a given increase in sector demand occurs, for instance, when stimulated through targeted investments. A range of analytical instruments is available to assess the green jobs potential of national investment choices.¹⁸⁷ The ILO has applied dynamic social accounting modelling based on the input-output tables of national economies.¹⁸⁸ The approach involves close interaction with national stakeholders, especially to differentiate the most environment-friendly economic activities from others and to determine what jobs link to climate change adaptation. It also involves intensive capacity-building. In undertaking national green jobs assessments over the years, the ILO has also supported the emergence of the Green Jobs Assessment Institutions Network (GAIN),¹⁸⁹ which is

184 The ILO defines a national employment policy as a concerted and coherent policy framework with interventions on the demand and the supply sides and at the macro and micro levels, and that aim to improve the quantity and quality of employment.

185 Participants at the Rio+20 Conference on Sustainable Development in 2012 adopted the Future We Want document, which includes a call for the promotion of a green economy and knowledge sharing on green jobs.

186 PAGE is a global initiative by five United Nations agencies to accelerate the transition to a green economy through national policy reform, sector strategies and capacity-building. Supported by a multi-donor trust fund, it provides technical assistance to a growing number of countries. See www.UN-PAGE.org.

187 A useful overview is presented in ILO and GAIN, *How to Measure and Model Social and Employment Outcomes of Climate and Sustainable Development Policies: A Training Guidebook* (2017). The handbook also contains a full chapter on explaining the rationale for undertaking a green jobs assessment and how to use its results for policymaking.

188 See the series of green jobs assessment reports at www.ilo.org/global/topics/green-jobs/publications/assessments/lang-en/index.htm.

189 See www.ilo.org/global/topics/green-jobs/areas-of-work/WCMS_565193/lang-en/index.htm.

Market systems research for youth employment

Reasons for a lack of green employment opportunities for youth are not always obvious. For instance, green business innovation might be stifled by capital constraints, which could be the result of banks lacking knowledge about the viability of green products and services; or it may be disadvantaged by tight regulatory standards. Market systems frameworks map out all relevant functions and relationships and can facilitate changes to remove the most critical constraints to inclusive green growth and the creation of green jobs for youth. When these dynamics are understood, appropriate interventions can be designed to facilitate changes in the way the system works rather than provide support to a specific function or actor.

For example, market systems research in the United Republic of Tanzania's tourism sector, including ecotourism, found that young women and men working in the industry lacked sufficient skills for inclusive growth of the sector. As it turned out, there was a large mismatch between the skills that service providers offered and those demanded by the market. This was due to several factors, including information asymmetry between the private sector and training systems, the business management capacity of training providers and the limited enforcement of training standards. The research proposed various entry points to confront the problem, including working with associations and government agencies to develop more effective coordination and information-sharing mechanisms, developing a business case to increasing incentives for more effective training service provision and facilitating stronger dialogue to increase industry partnership promotion, invest in better capacity development and enforce higher industry standards. The research uncovered opportunities to improve access to finance, human resource services and working conditions.

Source: ILO, 2017a. See also www.ilo.org/thelab on a global initiative funded by the Swiss State Secretariat for Economic Affairs that generates knowledge on how a market systems approach can lead to sustainable decent work outcomes.

a growing body of professionals engaged in green jobs analysis.

Having assessed the job absorption (green jobs) potential of a given economic sector, it would then be necessary to understand what hampers or what can facilitate the development of that sector and the creation of green jobs for youth therein. That will depend on the interplay of a number of factors, including policies, values, norms, services and the influence of actors in government, social partners, the private sector and civil society. Market system frameworks are instrumental in assessing these factors and interactions.

At the formulation stage, an appropriate mix of policy measures will be proposed that are relevant, for example, financing options for green investment, the provision of skills for green jobs or to support youth entrepreneurship and youth-led enterprises in selected branches of the green economy. The measures with the highest predicted benefits for youth should be prioritized. Planning and budgeting require considerations on possible operational synergies and cost-sharing arrangements across ministries (economy, labour, environment, industry and others), national funds and development partners who should be sensitized towards youth-tar-

geted measures. Policy implementation may entail the execution of pilot projects benefiting young people, including through links with national educational and training institutions, climate change and green economy networks and other youth-development interventions. It should be accompanied with a communication campaign on green jobs for youth (activities and results) that can enhance visibility and attracts further support for policy implementation. Monitoring and evaluation are critical functions, and appropriate indicators will need to be selected and applied to prove the achievement of the desired policy outcomes.

National employment policies vary in scope and objectives from one country to another. Years ago, the ILO developed a guide (2012) for national employment policymaking, which has been adapted for green job relevance (table 1). To help improve national employment outcomes, the guide covers (i) measures to stimulate labour demand; (ii) supply-side measures; and (iii) institutional strengthening. Under each of these pillars, suggested actions are included that can be designated for promoting green jobs for youth.

At the regional level, useful guidance comes from the European Union. European countries increas-

► **Table 1. Employment policy instruments and their relevance for green jobs for youth**

Selected component	Relevance to green jobs for youth (illustrative examples)
I. Demand-side measures	
1. Pro-employment macroeconomic policies	
Monetary policy – quantitative easing, credit expansion.	Initiatives that enhance access to credit for micro, small and medium-sized enterprises in the green economy, including by promoting microfinance.
Fiscal policy – stimulus packages; strategies to create fiscal space.	Support to green start-ups.
Investment policies and improving the investment climate, including investment in infrastructure, in public services, in green production and research and development.	Targeting green investments in sectors and regions and localities with a large share of youth unemployment. Linking green research and development with tertiary educational institutions (including for green start-ups and incubators).
2. Sector-based policies: agriculture, services, environmental industries and services, industrial policies that enhance economic diversification.	Sustainable agriculture, green construction, sustainable tourism, waste management, ecosystem services in climate change adaptation (nature conservation, restoration, reforestation, irrigation, flood protection, etc.).
3. Financial policies: national supervisory and regulatory framework for the financial sector, development of the financial sector and financial institutions (including microcredit, funds); credit facilities, access to credit, guarantees and payment facilities.	Green funds for green entrepreneurship among youth. Support to greening business practices in youth enterprises.
4. Trade and regional integration: Policies that promote efficient and well-regulated trade and markets that benefit all workers.	Measures to support the export of sustainable agriculture products. Facilitate the import of renewable energy equipment. Attract foreign visitors for sustainable tourism destinations.
5. Private sector development: Support to public and private enterprises (including cooperatives) and micro-entrepreneurs.	Support to enterprises in green sectors and value chains with high potential for youth employment. Support to incubators and technology hubs.
6. Active labour market measures:	
Incentives and subsidies to hire.	Green enterprises employing youth.
Social stabilizers, including public employment guarantee schemes, emergency public works, other direct job creation schemes.	Green works, such as public employment schemes targeting youth that create or maintain climate-proofing infrastructure (such as flood protection) or improve environmental quality (land restoration and rehabilitation, afforestation, etc.). Payment for ecosystem services that provide an income for anyone who protects and supports ecosystems through certain land management or agricultural practices, etc.
II. Supply-side measures	
1. Human resources development and vocational and technical skills:	
Training policies and systems, with vocational training policy review and development; management of training institutions and systems; investment in training; core work skills and work-based learning, including apprenticeships.	Anticipating skills for green jobs among youth; Developing training modules and curricula relevant to green occupations. Training within green enterprises
Technology for improving capacity to innovate and invest; improving training delivery through ICT; improving access to ICT to reduce the skills gaps.	Green technology and innovation centres. Facilitating access for youth
2. Active labour market measures:	
Job-orientation measures.	Publicizing and promoting green job prospects and vacancies in green enterprises.
Skills development, skills upgrading and reskilling to improve employability, especially for people who lost or are at risk of losing their job and/or other vulnerable groups.	Sector-specific green skills promotion. Reskilling programmes targeting youth in precarious or recently acquired jobs in sectors and enterprises under pressure from environmental regulations or market changes (such as plastic packaging material production, cement industry).
Entrepreneurial skills development programmes.	Green entrepreneurship promotion for youth.

Selected component	Relevance to green jobs for youth (illustrative examples)
III. Institutional strengthening	
1. Employment services: Support the reform and modernization of public employment services and promote cooperation between payment for ecosystem services and private employment agencies.	Services targeting youth in green sectors and enterprises.
2. Passive labour market programmes: Support for unemployment benefits, pre-retirement and pension schemes (especially in the context of external shocks and structural change to green economy).	Enhanced capacity to target youth in unstable employment in sectors under pressure, for example, due to stricter environmental regulations and taxation.
3. Social dialogue and collective bargaining: Measures and mechanisms to address environmental concerns in dialogue and negotiations with national, sector and enterprise levels.	Social partners advocating and promoting green jobs for youth. Mobilizing social partners to engage in designing just-transition low-carbon strategies. Work-based learning on green practices with incentives for operators and workers.

ingly link green growth strategies explicitly to employment, in particular in the context of the design of national strategies to reduce CO₂ emissions consistent with the commitments in the 2015 Paris Agreement. In some countries, the job absorption potential is high. In France, for instance, the

national employment agency reported that in 2015 the demand for green jobs had risen as much as 75 per cent in one year, representing 14 per cent of all vacancies offered by employers.¹⁹⁰ The shortage of qualified workers remains a recurrent challenge. In 2014, the European Commission (2014) recom-

European Union Green Employment Initiative (selected elements)

Supporting job creation

- Improving access to and use of existing funding opportunities.
- Shifting taxes away from labour and towards polluting economic activities.
- Promoting green public procurement, assisted by regulations on certification and life-cycle costing approaches and supported by capacity-building for public sector managers and private sector enterprises.
- Promoting entrepreneurship and social enterprises in expanding green sectors, accompanied by a dedicated Green Action Plan for Small and Medium-Sized Enterprises with green skills upgrading of the workforce.

Bridging skills gaps

- Fostering skills development, meeting skills demands in growing eco-industries, upskilling across all sectors and reskilling in vulnerable sectors.
- Aligning sector-based training standards in vocational education and training with labour market needs.
- Improving forecasting of skill needs across sectors and industries.

Promoting social dialogue

- Encouraging social partners to develop joint activities at cross-industry and sector levels.
- Ensuring workers' participation in environmental management, more efficient use of energy and resources and the identification of new risks in the workplace.
- Enhancing workers' rights to information and consultation, including for the development of sector-wide resource-efficiency road maps.

Source: European Commission, 2014.

¹⁹⁰ See www.pole-emploi.org/accueil/actualites/transition-energetique--quelles.html?type=article.

mended that its Member States take up measures that would realize the potential of the green economy. Most of these measures can be tailored to take on the specific challenges that young people face.

Promoting green jobs for youth also implies protecting and supporting young workers at risk of losing their jobs. Employment policies should also include measures to protect youth employed in sectors and enterprises in shock or under pressure due to tighter environmental regulations (such as high-emission industries).¹⁹¹ The European Union Green Employment Initiative suggests the following measures to ensure a positive employment impact from the transition:

- Anticipating change and managing restructuring, building on sector initiatives.
- Promoting occupational mobility as well as mobility of jobseekers, including through competence-based job matching.
- Adapting labour market institutions through public employment services focusing on green employment strategies and programmes.

Similar measures can be considered for possible adaptation and application in different regional contexts.

A sector approach to creating green jobs

The 2015 Paris Agreement catalysed countries to design and implement development strategies that will enable them to achieve the agreed targets for emissions reduction. In most cases, this includes specific sector policies to promote investment in green processes and products. An important issue here is to what extent sectoral shifts weigh in on employment and in particular for young unemployed persons and youth entering the labour market.

Sector-specific approaches have been adopted by many governments because interventions can be bundled and better targeted. Such actors as national ministries, business organizations and technical education and training institutions are often well

connected, providing good entry points for projection and support. Value chain development brings in a particular focus on how resources are obtained, processed, produced and traded. Enterprise development with decent jobs for youth along sustainable value chains can be purposely promoted, as many development agencies have done.¹⁹²

The potential of generating green jobs is particularly high in certain sectors where there is scope to invest further in green technologies and to build green value chains.

Despite a decreasing trend globally, *agriculture* continues to be the leading sector in employment generation, notably in Africa. More than 23 million young people were employed in agriculture in sub-Saharan Africa in 2015, with young women making up 42 per cent of the agricultural labour force.¹⁹³ As sustainable and inclusive agro-based value chains expand and consumer markets grow in rural areas, more opportunities for off-farm employment are created. To facilitate change, appropriate business development services should be provided, including management advice and extension services, to adopt climate-smart farming techniques and cultivate more resistant crops.

Young people are well placed to embrace and apply innovations, thus becoming actors in advancing green transformation in agriculture. ILO research (2020) shows that innovations in information and communication technology (ICT) can boost agriculture and youth employment by facilitating information dissemination, access to skills development, use of mobile financial services and obtaining up-to-date market information. For example, Mkulima Young¹⁹⁴ in Kenya created a virtual farmers market that is also accessible using social networks. Buyers and sellers can finalize transactions on the MYSoko online platform after interacting on Facebook and Twitter. The social network pages are also a powerful channel to exchange experience and knowledge between “agripreneurs” and customers.

ICT can also help change any negative perception of agriculture among young people, including through social media, networking and participation in policy dialogue. As a possible downside, the adoption of modern technologies and production methods may

191 A recent example is the German Coal Commission report, 2019. See the abstract in English www.euractiv.com/section/energy/news/whats-in-the-german-coal-commissions-final-report/.

192 For a compendium related to food value chains, see <https://knowledge4food.net/knowledge-portal/youth-and-rural-employment/>.

193 The ILO calculation for young people aged 15–24 years old is based on the Labour Force Micro v1.5 database. The number increases to slightly more than 33 million for young people aged up to 29 years.

194 See www.mkulimayoung.com/.

affect labour intensity, thus reduce possibilities for young jobseekers, at least in the short term.

The rapid growth of investments and jobs in *renewable energy* holds potential for youth employment too. Job opportunities relate to the installation of photovoltaic panels, solar-heated home systems, wind-powered devices as well as large hydropower projects. Producing solar photovoltaic panels creates, on average, twice the number of jobs per unit of electricity generation than coal or natural gas (IRENA 2018). Given that these are often temporary jobs, it is more important to consider the employment multiplier through the renewable energy value chain and the jobs created as a result of access to improved energy access. In some countries, up to five indirect jobs could be generated for each installed megawatt of power.¹⁹⁵

The expansion of renewable energy can provide opportunities for unemployed youth in rural areas. Sierra Leone,¹⁹⁶ for example, aims at providing access to electricity to all citizens by 2025 through a Power for All initiative. As a result of a more enabling business environment, many energy companies have been formed since 2016. An example is Ignite Power, intending to link youth with employment in the distribution of renewable energy. The company trains youth free of charge on solar panel installation and maintenance, while other youth are coached to set up a small business in mobile money transfers and decentralized charging stations. Solar equipment and the related services are rapidly expanding into remote rural areas, which would also benefit from induced effects on other services. Energy would allow the use of new technology and raise productivity of rural enterprises, including farms, stimulating local economic development and youth employment.

The transition to a greener economy is expected to have a positive employment impact on the construction industry, including *green housing*. In countries with a rapidly growing middle class and a shortage of housing stock, there is considerable potential for jobs in the construction of energy-efficient real estate using sustainable building methods and materials. Yet, there are several constraints for exploiting the full potential of jobs for youth in green building: Many countries have not yet crafted enabling policies with building codes and

certification systems on green building standards. They are also short on providing incentives for the private sector to adopt and compete with greener business practices. Finally, young workers are not adequately trained on handling new technologies and the use of sustainable materials in the construction industry.

The ILO has developed a systemic approach to transforming the building sector towards sustainable practices all along the value chain. Piloted in Zambia, the approach is now being introduced in other countries through capacity-building and advocacy. The Zambia Green Jobs programme¹⁹⁷ helped to create jobs among youth by promoting sustainable enterprises in an expanding market for green housing. Supportive actors along the entire construction value chain were included, from forest growers and processors to manufacturers and retailers of local building materials as well as buyers of green houses. Overall, some 4,300 jobs were created, nearly 75 per cent of which went to young people. The model of intervention consisted of three components: (i) shaping attitudes, practices and behaviours towards the advantages of green buildings and their related job creation potential; (ii) policy-level engagement that supports government and parastatal institutions to undertake a regulatory reform process to promote green-building practices among private and public housing developers and to support a green building association; and (iii) capacity-building of private sector associations and service providers, aimed at improving micro, small and medium-sized enterprises' access to industry-specific financial services as well as functional and technical and vocational skills training. A well-established theory of change, the strong engagement of the national government, good working relations among actors, an effective communication strategy and the development of a replicable model for future interventions in the construction and other sectors were identified as success factors.

While the tourism sector offers important employment opportunities, including for young people, a rapid and unregulated growth of this sector may represent a threat to natural resources, the protection of biodiversity and the preservation of unique cultural values. More countries are therefore

195 The Renewable Energy Sector and Youth Employment in Algeria, Libya, Morocco and Tunisia, AfDB.

196 *Standard Times*, Sierra Leone n.d., <http://standardtimespress.org/?p=7472>.

197 The ILO International Training Centre is offering annual courses on the subject and offers training of trainers on the Start and Improve Your Construction Business package for aspiring entrepreneurs. See www.itcilo.org/en/areas-of-expertise/green-jobs.

embracing concepts falling under the category of *sustainable tourism* (ILO 2016).

In some countries, like Costa Rica and Peru, these forms of tourism represent lead segments of the national industry. In the Lao People's Democratic Republic, ecotourism is promoted as part of the Government's Tourism Strategy 2006–2020,¹⁹⁸ which aims to foster environmental protection and socio-economic development for host communities. Its training and capacity-building component works through a mobile training unit under the auspices of the Lao National Tourism Administration to coordinate and develop standardized training programmes and manuals.¹⁹⁹ The Government also supports the development of vocational training and bachelor's degree courses for youth aspiring to work in ecotourism. In South Africa, the Social Responsibility Implementation Programme²⁰⁰ aims to stimulate employment creation in the tourism sector with a priority on youth development; skills development and other training to make young people fit for jobs in tourism are core elements of the programme.

In Indonesia, the ILO has been supporting development and implementation of a national strategy for sustainable tourism and green jobs (ILO 2012b), building on the results of a pilot project for youth employment in East Java. In 2018, a multiyear technical cooperation programme funded by the Swiss State Secretariat for Economic Affairs was launched to promote integrated sustainable tourism master plans and their implementation in five priority tourism destinations. The collaboration with polytechnic training institutions is expected to produce graduate students with relevant skills in line with the needs of the tourism industry and to contribute to the sustainable development of the sector.

Protecting and restoring ecosystems can help prevent the loss of jobs and income, considering that most of the world's populations who are poor depend on the use of natural resources, including soil, water, forest and fishing resources. *Natural resource management and related infrastructure programmes* offer job opportunities and can be designed to provide social benefits for the most

vulnerable of individuals. Payment for ecosystem services has become a much-used approach to preserving nature and rehabilitating degraded resources or preventing the situation from worsening. Workers, typically residing in the communities affected by degradation, earn an income by adopting specific natural resource management practices. Countries like Brazil, India, Mexico, Peru and South Africa are allocating vast amounts of public finance for such programmes in affected rural areas.²⁰¹

Job opportunities for the youth are also created through public employment programmes related to basic sustainable infrastructure. This includes flood protection and anti-erosion provisions but also water supply and sanitation. An approach prioritizing locally available inputs and technical capacities can yield benefits in terms of both local employment generation and environmental protection. The ILO helped promote green jobs through "green works" (ILO 2011b) in several countries (Haiti, Mauritania and Timor-Leste, among others) and different subsectors, including irrigation, soil and water conservation, flood control and rural transport. Income and other benefits were obtained by young people who represented a large share of project beneficiaries. Capacity-building constituted a core component of these programmes at the local level.

South Africa has implemented large-scale public works programmes over many years related to the environment. The Expanded Public Works Programme has generated more than 8 million work opportunities since its inception in 2004. Water, parks, wetland and waste management are among the environmental services provided by the programme. The Working for Water is an ecological restoration programme to generate jobs, especially for women and youth. It has been running some 20 years, during which time it spawned a number of other natural resource programmes (such as wetland restoration). At the end of 2018, its 300 projects across South Africa were reported to have cleared more than 3 million hectares of invasive plants, and provided training and employment to more than 300,000 people over its lifespan.²⁰²

198 See www.tourismlaos.org/files/files/Lao%20PDR%20Tourism%20Strategy%202006-2020%20in%20English.pdf.

199 See, for example, <https://sme-tools.org/about/>.

200 See www.tourism.gov.za/CurrentProjects/SRI/Pages/SRI.aspx.

201 For more guidance, see www.social-protection.org/gimi/ShowTheme.action?id=4127.

202 Green Economy Coalition, www.greeneconomycoalition.org/news-analysis/working-for-water-in-south-africa.

Skills for green jobs

It should be emphasized that developing skills for green jobs is not only reactive but can be an important driver of change as well, especially among the youth. In fact, new and better skills foster innovation and trigger investment in green activities, thus accelerating the green transformation.

Adequate skills among workers and managers are requisite for advancing the green economy and creating green jobs for youth. However, given the sometimes-rapid development in green sectors, such as renewable energy and eco-construction, market expansion has been hampered in many countries by a shortage of appropriate skills and technical expertise. It is therefore important to anticipate expected changes in skills requirements (ILO 2015) and adapt or reform technical and vocational training systems and programmes.

The growing consensus on the pivotal role of skills development for inclusive green growth, however, does not always translate to high priority in policies and interventions. A recent ILO survey found that although the evolving skills needs are being monitored through platforms and other mechanisms in a majority of countries, only a few include a focus on green jobs (ILO 2018). The countries that have undertaken dedicated training programmes for green jobs have done so for specific sectors, such as waste management, construction or renewable energy, because a more holistic approach would have larger cost implications. The survey also found that the definition of skills for green jobs is not commonly agreed and data collection falls short. The lack of reliable data confounds the shaping of coherent skills development policies for the green transition.

Useful guidance in the form of a framework for policy analysis and programming for jobs and skills in the green economy is provided by the platform for Advancing Green Human Capital²⁰³ created by the United Nations Educational, Scientific and Cultural Organization's International Centre for Technical and Vocational Education and Training, the ILO and French partners (the Ministry of Ecological and Inclusive Transition and the French Development Agency) on the occasion of the United Nations Framework Convention on Climate Change meeting in Fiji, 2017 (COP 23). This guiding framework is built around three policy areas and suggests distinctive policy actions and related trigger points to progressively integrate skills development into green policies (table 2). It signals the importance of aligning skills development across government institutions and other green economy stakeholders.

From a global review of 21 countries conducted in 2010 (ILO 2011a), the ILO distilled the following general policy messages on skills for green jobs, which are also applicable to youth-targeted strategies and activities:

- **Use social dialogue.** Engaging trade unions and employers' associations within skills development strategies can make the education and training systems more responsive and hands-on for rapidly changing needs. It also can catalyse change on a larger scale.
- **Improve policy coordination at all stages of a green development strategy.** For example, create dedicated task forces or steering committees on human resource development or incorporate training and skills issues into existing bodies for sustainable development.

► **Table 2. Examples of policy actions and trigger points to advance green human capital**

Policy area	Sample policy actions	Sample trigger point
1. Market analysis and policy orientation	Promoting political willingness and strategic vision.	Senior leaders across government are aware of the links between employment, social and environmental policies and the importance of acting on greening skills.
2. Stakeholder awareness and ownership	Designing a legislative framework and financial plan to act on greening skills.	A legal basis for policy actions, including laws, decrees and other forms of regulation, structures the efforts to adapt jobs and skills and technical and vocational education and training in various sectors.
3. Integrated governance	Enhancing mutual reinforcement between policies and targets across sectors and levels of governance.	Actions across sectors and territories are compiled, analysed, evaluated and disseminated to feed and accelerate the national effort towards sustainability-related skills.

Source: UNESCO, ILO and AFD 2017.

203 See www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/publication/wcms_607491.pdf.

- ▶ **Focus on retraining and the development of portable skills to encourage occupational mobility and improve employability.** Public employment services can be helpful, offering short vocational training courses that are tailored to employers' needs.
- ▶ **Prioritize training for disadvantaged groups, such as youth.** Training should be made accessible to disadvantaged youth, people with disabilities, rural communities and other vulnerable populations. This is a requisite to ensure that green growth is also inclusive and prevents the widening of inequalities.
- ▶ **Ensure that trainers keep up to date.** Information and knowledge on green technology, production methods and new products is changing rapidly, as are markets. Persons teaching young people should be abreast of the latest development to optimize the employability of graduates.
- ▶ **Improve systems for determining and anticipating the demand for green job skills.** Initiatives, as part of national human resource development strategies, should involve government officers, employers, workers and providers of training and education, possibly evolving into sector-based skills councils.

Governments can anticipate the skill needs for greening in priority sectors, in line with national employment policies and sustainable development strategies, in particular those to achieve emission reduction targets specified in the 2015 Paris Agreement. For instance, a list of occupations in high demand, including in green sectors, is published regularly in South Africa. In France, the National Observatory for Jobs and Occupations of the Green Economy runs regular assessments. Thailand's Occupation Trends report, regularly published by the Department of Employment, includes the demand for occupations related to green sectors.

Some countries have made worthwhile efforts to reflect an environmental dimension, including climate change in the national skills policies and programmes. For example, India established the Sector Skill Council for Green Jobs²⁰⁴ to address the shortage of skilled workers in the installation and maintenance of solar panels. It is a joint initiative started in 2015 by the Ministry of New and Renewable Energy and the Confederation of Indian

Industry. Its broader mission is to determine the skilling needs of service users as well as manufacturers and service providers within the green businesses sector and then implement nationwide, now change industry-led, collaborative skills development and entrepreneur-development initiatives that will enable India to reach its potential for green businesses. The initiative underpins the country's investment in renewable energy, while intervening in other sectors, such as green construction, green transportation, solid waste management and e-waste management.

Other entry points can be used to develop skills for green jobs. National environmental legislation increasingly refers to skills development, although consensus has not yet been reached in many countries on the definition of skills for the green transition. Elsewhere, such as the 2014 Green Growth Framework for Fiji, job skills for sustainable development are enhanced as a way to reduce unemployment and underemployment among youth; this includes apprenticeship schemes, trade skills, incentives for micro, small and medium-sized enterprises and vocational training programmes. As for the recognition and uptake of skills for green jobs in technical and vocational education and training (TVET) institutions and curricula development, examples of good practice include:

- ▶ Fortalecimiento de sistemas integrados de Formación, Orientación e Inserción Laboral (FOIL) in Central American countries and the Dominican Republic (2010–14).²⁰⁵ In the seven countries where the project was implemented, new standards were developed, together with training modules, for a range of green occupations. In turn, the collaborating training institutions reached 8,000 workers with technical vocational training in solid waste management, water treatment and the implementation of environmental management systems.
- ▶ Training of solar panel installers targeting youth and women in Bangladesh (implemented in 2008–10 by Grameen Shakti with the ILO and Australian Aid). In this good example of mainstreaming training into the national system of vocational qualifications, young women were also targeted in other countries, including through the Working for Water programme in South Africa and at the Barefoot College in India.²⁰⁶

204 See <http://sscji.in/>.

205 See www.ilo.org/global/topics/green-jobs/projects/latin-america/WCMS_213186/lang-en/index.htm.

206 See www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/documents/publication/wcms_216960.pdf.

- The Skills Development for a Green Economy programme of the German Agency for International Cooperation (GIZ) supports the Department of Higher Education and Training to replicate dual occupational programmes in South Africa and in line with its green economy strategy. The programme (2018–22) pilots an integrated dual training programme for electricians and plumbers: It combines learning at TVET colleges (theory and simulated practice) with structured workplace-based training in companies, just like an apprenticeship scheme. Based on the lessons learned from the implementation, mechanisms and procedures are established for replication.²⁰⁷

These successful initiatives have several features in common: (i) a strategic orientation with regard to reforming the national training systems; (ii) close collaboration with local training experts to contextualize and adapt new training modules appropriately; and, in the case of Central America, (iii) the involvement of the private sector, business organizations and trade unions to build consensus through social dialogue on the type and scope of skills reform.

Entrepreneurship promotion

Entrepreneurship promotion is singled out here because it is particularly suited for the creation of green jobs for youth. Existing national employment strategies and development cooperation efforts often rely on entrepreneurship. Support programmes concentrate on the typical challenges that existing or potential young entrepreneurs struggle with, including lack of business and management skills, lack of technical knowledge and difficult access to financing and markets. The programmes tend to deploy a variety of approaches and instruments, ranging from measures to improve the overall business environment (for example, through fiscal reform, land titling, access to public procurement, trade regulations and infrastructure development) to direct service provision for enhancing market information, access to credit, technology support, innovation and start-up, entrepreneurship training and coaching.

Under a broader research line on “what works in youth employment”, the ILO coordinated a large-scale review in 2016–17 of youth entrepreneurship and other active labour market policies. Consistent

with other meta-analyses of a similar nature, the review concluded that entrepreneurship programmes have, on average, by far the biggest impact among all active labour market policies for young people. They appear to be particularly effective in low- and middle-income countries and stronger when a combination of support services are delivered rather than offering training alone. There is much heterogeneity in the impact of entrepreneurship, which seems influenced by the design of interventions as well as by the country context (Kluve et al. 2017).

Over the past decade, many generic entrepreneurship programmes have come to include green business ideas and the promotion of green business practices, while other interventions have focused solely on green sectors and enterprises.

As an example of the former, the ILO long-standing Start and Improve Your Business programme has introduced sector-specific adaptations to its training materials (for business development in green construction, waste management, organic agriculture, renewable energy, sustainable tourism and other sectors) in China, Egypt, Indonesia and the Philippines. A related tool is the ILO Green Business Option training kit, which explains how to transform environmental awareness and motivations of potential entrepreneurs into environment-friendly, economically viable and socially just business ideas. To date, more than 2,000 young green entrepreneurs have been trained on using this tool. The Youth Entrepreneurship Facility²⁰⁸ programme implemented in East Africa (Kenya, the United Republic of Tanzania and Uganda) from 2010 to 2014 offers another relevant example of how a generic training instrument can evolve into a support package for young green entrepreneurs. By operating with strategic partners, including other United Nations agencies and national banks and associations, the programme achieved large-scale outreach and sustainable institutional impact.

Some agencies have built up large-scale facilities meant to catalyse business creation solely through green entrepreneurship development. As part of a larger European Union-funded facility, the SwitchMed programme has been aiming since 2012 at promoting innovative business solutions to environmental challenges that are economically viable and socially empowering. Participants benefit from training, and the best green business ideas are

²⁰⁷ See www.giz.de/en/worldwide/35089.html.

²⁰⁸ See www.ilo.org/wcmsp5/groups/public/---dgreports/---exrel/documents/publication/wcms_409910.pdf.

selected for further technical and financial support. SwitchMed both helps business creation and builds and drives networks of green entrepreneurs and support organizations that are seen as change-makers and named “Switchers”.²⁰⁹ Green entrepreneurship promotion for youth is prominent in SwitchMed.

Another inspiring example of similar scale is the global SEED initiative, exclusively focused on green entrepreneurship. Its strength lies in combining customized support to innovative start-ups with outreach and advocacy for creating an enabling “eco-environment” for green business development. SEED’s efforts on documenting local impact and attaining global visibility are exemplary.²¹⁰ Its many approaches includes the replication of business models or setting up of franchises through the provision of replication manuals and facilitating partnerships via Connect Workshops. The SEED Awards emphasize eco-inclusive enterprises in sectors of waste management, agroprocessing, energy and green technologies.²¹¹

As an interagency effort, the Global Initiative on Decent Jobs for Youth²¹² includes a thematic plan on youth entrepreneurship and self-employment that recognizes that urgent action is needed to mitigate the critical challenges that young people encounter in their drive for entrepreneurship. The plan is organized around three action lines: (i) promoting and enabling policy and regulatory environment; (ii) facilitating access to markets, networks, knowledge and skills; and (iii) facilitating access to finance, including by equipping young entrepreneurs with financial capabilities.

The examples of these sizable programme interventions illustrate the efforts and funds that go towards promoting green entrepreneurship. Development partners like the World Bank²¹³ and, more recently, the Global Green Growth Institute²¹⁴ are supporting innovation centres, entrepreneurship training and start-ups of green business ventures primarily for youth. Yet, more needs to be done to make these programmes financially sustainable, for example, by attracting local business sponsors or by promoting matchmaking with local investment funds.

Job potential waiting to bloom

In many countries, the green economy holds a largely unexploited job-creation potential, including for young women and men. Under these circumstances, it would appear appropriate for governments and their partners to give high priority to mobilizing investment in green sectors, technologies and skills to manage and operate new, more sustainable business models.

However, greening the economy does not automatically translate into decent jobs for young people. Dedicated initiatives are required, and the issue is whether to take a full-fledged green jobs promotion approach (“green only”) or to enhance the integration of green jobs within existing institutions and programmes (“green blending”).

No single blueprint is available or even recommended. But there are a multitude of entry points and possible synergies among policies and programmes of different kinds. Should a government prioritize formalization, for instance, a green jobs strategy for youth could focus on how to help set up registered green businesses or organize youth workers in cooperatives, possibly in renewable energy (ILO 2013) or waste management. In a similar vein, if migration is a national priority, the strategy could include green jobs employment services or skills training for youth considering leaving the country. These two approaches are not mutually exclusive.

A national employment policy framework must encompass different policy areas and instruments that enable a green economy to grow while promoting decent jobs, especially for young women and men. And then a national employment policy should recognize contemporary environmental challenges and the job opportunities linked to environmental and related policies.

An overall enabling environment for green economy investment is of overriding importance to induce markets and sustainable enterprises to create green jobs for young people.²¹⁵ The market

209 See www.theswitchers.eu/en/.

210 See for example www.seed.uno/publications/case-studies.html.

211 See <https://seed.uno/articles/news/seed-award-winners-lauded-as-green-economy-innovators-at-page-2019>.

212 See www.decentjobsforyouth.org/.

213 An example is Climate Innovation Centre, Kenya, <https://kenyacic.org/about/about-us>.

214 For the Green Entrepreneurship Accelerator Programme, see <http://gggi.org/green-entrepreneurship-accelerator-program/>.

215 This has been reflected, among others, in the programme design of the Partnership for Action on Green Economy as well as in the intervention model of Global Green Growth Institute’s country programmes (GGGI 2017) and in the policy guidance on green skills and green jobs by the French Agency for Development (Afd 2017).

systems framework can be applied to analyse what regulates the functioning of markets and value chains (Ripley 2017) and to enhance decent work creation by making markets of green products and services more inclusive, in this case for youth. Tapping into emerging opportunities in promising sectors will require that young women and men have the right skills; education and skills development systems and programmes should be revised accordingly. Youth entrepreneurship is among the viable policy options for decent jobs for youth in the green economy but, to succeed, young entrepreneurs require the commitment of multiple actors at all stages of the business cycle.

The Global Initiative on Decent Jobs for Youth (GIDJY 2017) proposes a theory of change that relies on a series of coherent actions at the institutional and enterprise levels:

- Identify market constraints to unleash job creation.
 - Conduct market systems analyses in green sectors and value chains with high potential for job creation.
 - Based on market systems analyses, develop intervention proposals and mobilize resources to scale up action on green jobs for young people.
- Stimulate youth-focused employment-intensive green growth.
 - Develop country-specific business cases for adapting current policies and programmes, particularly in employment-intensive infrastructure (“green works”), energy and food production.
 - Foster collaboration with champions in the public and private sectors who will drive forward the needed investments and policy changes.
 - Strengthen technical assistance on youth employment and green jobs at the country level, depending on the requirements of national partners.
- Foster demand-driven skills development in the green economy.
 - Conduct skills gap surveys to understand what specific skills employers in the green

economy demand but what young women and men typically lack. Develop recommendations for closing the gap.

- Collaborate with national service providers and training institutions that have the capacity and incentives to incorporate better skills development and matching, entrepreneurship and information services into their service portfolios.
- Strengthen cooperation with national education agencies to develop a plan for integrating green skills into schools or apprenticeship programmes.
- Strengthen national certification schemes to ensure conformity with training programmes.

This is only one of the possible intervention models, and other avenues can be explored to create more and better job opportunities for youth in the green economy.

Irrespective of the path taken by countries, some critical aspects will deserve continued attention. First, a strong articulation among different policy measures is desirable to scale up influence and impact. Accordingly, there is a need for enhanced collaboration among all national actors, including the government, the private sector and the different entities representing the civil society. Of course, youth, as part of the solution, must be meaningfully engaged in the green growth and related policy processes, programme implementation and evaluation.

Green job opportunities must be sufficiently attractive to young people. This can mean for them the possibility to apply skills they have previously acquired, learning and career development prospects and job quality and working conditions. Future action should not disregard that “green jobs are decent jobs”; it should systematically look into ways and means to promote and protect young workers’ rights, also considering the large proportion of youth in informal settings and hazardous occupations.

There is scope to do more towards reaching the green jobs for youth potential. Moving in this direction would help address a persistent youth employment challenge while preserving the environment and making economies more resilient to climate change.

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