



OCTOBER 2024 | ISSUE 13

Navigating the Green Transition: Building Green Skills for a Sustainable Workforce

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EDITORIAL

Welcome to the October 2024 edition of the Skills4Dev Knowledge Digest! This edition focuses on how climate policies and the green transition are transforming labor markets and skills development policies worldwide. Explore key insights and deepen your understanding of this important topic.

Climate change and the policies aimed at tackling it are reshaping labor markets worldwide. Natural disasters, rising temperatures, and desertification are altering the geography of jobs. Additionally, efforts to reduce emissions under the National Climate Action Plans ([NDCs](#)) are further accelerating the transformation of labor markets globally. For example, the [European Green Deal](#) aims to cut greenhouse gas emissions by at least 55 percent by 2030, compared to 1990 levels. As countries implement similar strategies, we are seeing significant changes in the skills required across different sectors. In the Western Balkans alone, it is estimated that [one in six jobs](#) will require new skills to adapt to the green transition. This transformation goes beyond job creation or displacement. It highlights the growing demand for “green skills” – a new set of abilities essential for building [a resilient and sustainable workforce](#).

Green skills refer to the knowledge, abilities, values and attitudes required to support and promote the sustainable development of society and economy in a livable planet. While these are often associated with technical fields like energy and construction, green skills actually cover a [broad range](#) – from generic technical skills that reduce greenhouse emission and resource usage, to specialized expertise in renewable energy systems, to socio-emotional and managerial abilities needed for sustainable project management. These skills can be developed through various channels, including formal education, short courses, on-the-job training, and other learning opportunities. For example, agriculture specialists need green skills to implement water conservation and agroforestry techniques, while managers in any sector require them to effectively plan and execute sustainable projects.

However, global education systems are not well equipped to support the development of the broad range of green skills needed to support the green transition. Most education systems still prioritize [traditional curricula that lack sustainability principles](#) or updated technical knowledge and competency standards essential for meeting green industries' demands. As a result, energy technicians may not receive training in renewable systems, and construction managers might be unfamiliar with sustainable building practices. Closing these gaps will require a comprehensive transformation of the education systems at all levels to integrate green skills development through a lifelong learning approach.

Ensuring a fair and inclusive transition will be also a major challenge. Workers in high-emission industries are at greatest risk of job displacement and may struggle to transition to greener jobs due to existing skills gaps. These people will need targeted support and retraining to acquire the new green skills required for sustainable employment. The ease of this transition will depend largely on how closely a worker's current skills align with those required in the new green occupations. [Lower-educated workers](#) often face more severe skills mismatches, making it harder for them to find new opportunities and putting them at highest risk of being left behind as economies move toward sustainability. Achieving a [“just transition”](#) will involve more than retraining; it will require providing social protection, job placement services, and pathways to decent work for affected workers. Additionally, careful planning will be essential to address regional differences, as [countries](#) with higher concentrations of high-polluting industries will face much greater challenges.

To address these issues, countries must strengthen their formal education as well as lifelong learning systems to support green skills development. This requires updating national qualification frameworks, revising curricula at all levels and types of education and training, and adapting certification systems to align with the competencies needed for a sustainable economy. Expanding other learning opportunities, such as on-the-job training and programs under active labor market policies (ALMPs), is also essential. In addition, robust [Labor Market Information Systems \(LMIS\)](#) are needed to track green skills trends and enable effective workforce planning. Strong coordination between the private sector, educational institutions, and governments is crucial to ensure training programs meet industry demands. By bridging the gap between current education systems and the needs of the green economy, countries can empower both youth and workers to lead the green transition, ensuring the benefits of sustainable development are shared by all.

We would like to hear from you! Please send us your ideas, suggestions, questions, or collaboration opportunities at skillsgsg@worldbankgroup.org. Learn more about what the GSG can do for you at the end of this digest.

Happy Reading!

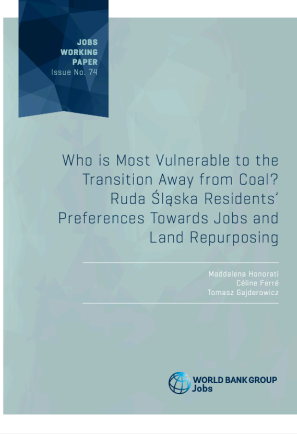
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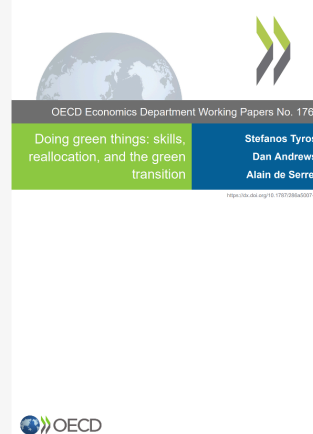
FEATURED WORKS ON GREEN SKILLS



[Who is Most Vulnerable to the Transition Away from Coal? Ruda Śląska Residents' Preferences Towards Jobs and Land Repurposing](#)

Honorati et al. | Working Paper | 2023
| Poland

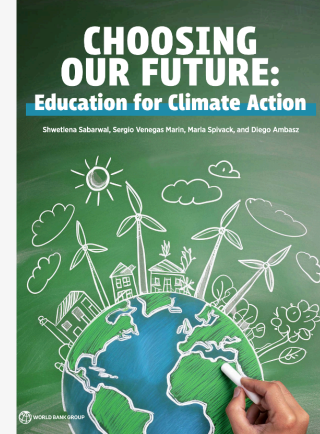
After Germany, **Poland is the EU's second-largest coal producer and consumer**. In 2020, over 40 percent of the country's total energy supply and 70 percent of its electricity generation come from coal and lignite, the highest rate in Europe. **Coal in Poland also continues to employ about 88,000 people directly in the mines, down from about 444,000 in 1989.** Europe's commitment to stop its fossil fuel imports from Russia following Russia's invasion of Ukraine is slowing down Poland's coal phase-out to ensure energy security in Europe, but **Poland remains committed to a complete coal mine closure by 2049.**



[Doing Green Things: Skills, Reallocation, and the Green Transition](#)

Tyros et al. | Working Papers | 2024 |
Global

This paper applies a **task-based framework to granular data from the Occupational Information Network (O*NET)** and country-specific employment sources to **generate new indicators of the green skills structure of labor markets** for many OECD countries and non-OECD EU countries. Significant cross-country differences emerge in the underlying supply of green skills and the **potential of economies to reallocate brown job workers to green jobs** within their broad occupation categories.



[Choosing Our Future: Education for Climate Action](#)

Sabarwal et al. | Report | 2024 |
Global

Extreme climate events and temperatures are eroding hard-won progress on schooling and learning. This report outlines new data, evidence, and examples on **how countries can harness education to propel climate action**. It provides an actionable policy agenda to meet development, education, and **climate goals together, recognizing that tackling climate change requires changes to individual beliefs, behaviors, and skills – changes that education is uniquely positioned to catalyze.**



[Green Jobs](#)

Olivier Deschenes | Working Paper | 2013 | USA

This article reviews the **challenges of defining and measuring green jobs and examines studies on the impact of green policies on employment.** It draws two main conclusions. First, U.S. Bureau of Labor Statistics data shows that green jobs make up a small share of overall employment and have seen weak growth over the past decade. Second, the wide variation in scope and assumptions in existing studies makes it hard to draw firm conclusions about the labor market impact of green policies.



[Environmental Regulation and Green Skills: An Empirical Exploration](#)

Vona et al. | Paper | 2018 | USA

This paper presents new evidence on the skills critical to the transition to sustainable economies. It identifies **two key sets of green skills: engineering skills for technology design and production, and managerial skills for implementing environmental practices.** Analyzing U.S. data from 2006–2014, the study finds that while environmental regulations don't affect overall employment, they increase demand for certain green skills, particularly in technical and engineering roles.

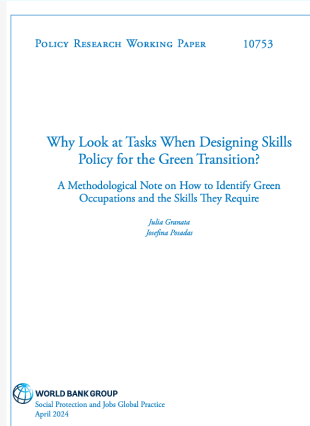


[Labour Markets and the Green Transition: A Practitioner's Guide to the Task-Based Approach](#)

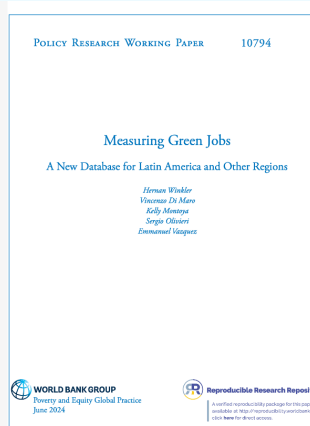
F. Vona | Report | 2021 | Europe

Studies on the link between green policies and the labor market have often remained in grey literature due to unclear definitions of green jobs and skills. Uncoordinated statistical efforts across countries have hindered the creation of standardized measures for evaluating the green economy. **As interest in the low-carbon transition grows, and with the need to assess post-pandemic green stimuli, a widely accepted framework for analyzing labor market changes is crucial.** This report argues that **a task-based approach is the best solution.**

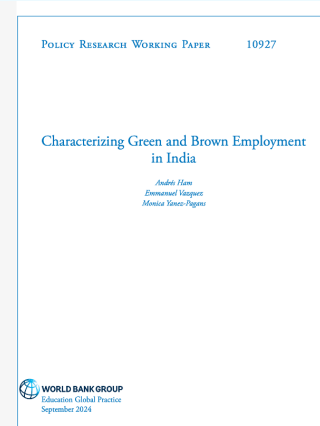
WHAT'S BREWING AT THE WBG?



[Why Look at Tasks When Designing Skills Policy for the Green Transition? A](#)



[Measuring Green Jobs: A New Database for Latin America and Other Regions](#)



[Characterizing Green and Brown Employment in India](#)

[Methodological Note on How to Identify Green Occupations and the Skills They Require](#)

Granata and Posadas | Working Paper | 2024 | USA & Indonesia

This paper first presents an **organizing framework for the existing definitions, measurement instruments, and policy frameworks**. It then delves into discussing two appropriate approaches for identifying green occupations to guide skills development policy: **the task-content and the skills approaches**. In the process, it introduces a novel methodology with a dictionary of green terms for identifying green tasks and occupations.

Winkler et al. | Working Paper | 2024 | Latin America

A growing body of literature investigates **the labor market implications of scaling up “green” policies**. Since most of this literature is focused on developed economies, little is known about the **labor market consequences for developing countries**. This paper contributes to filling this gap by providing new stylized facts on the prevalence of green occupations and sectors across countries at varying levels of economic development.

Ham et al. | Working Paper | 2024 | India

India established the Skill Council for Green Jobs to identify green jobs and define the skills required for these occupations. This paper applies **the Skill Council for Green Jobs definition of green jobs** and an **international definition of brown jobs** to data from the 2019–20 Periodic Labour Force Survey **to estimate the size of green and brown employment**, document patterns between and within occupations, characterize workers by attributes and skills, and study wage differentials.

ADDITIONAL PUBLICATIONS

[Greening of the World of Work: Revisiting Occupational Consequences](#)

Dierdorff et al. | Report | 2011 | Global

This report aims to assess the sustainability and impact of the concepts and definitions offered in the original [2009 report](#). In doing so, this report seeks to accomplish three primary goals. First, it reviews the broader literature in order to describe **the current state of the world of work in relation to green economic activities**. Second, it outlines several **major workforce development challenges facing the green economy** from an occupational standpoint. Finally, it specifically discusses updated research pertaining to **green new and emerging occupations**.

[Greener Skills and Jobs](#)

OECD and Cedefop | Paper | 2014 | Europe

Green skills will be required in all sectors and at all levels in the workforce as emerging economic activities create new (or renewed) occupations. Structural changes will realign sectors that are likely to decline as a result of the greening of the economy and workers will need to be retrained accordingly. The successful transition to a low-carbon economy will only be possible if workers can flexibly adapt and transfer from areas of decreasing employment to new industries. This report suggests that **the role of skills and education and training policies should be an important component of the ecological transformation process**.

[Green Skills](#)

Vona et al. | Working Paper | 2015 | USA

The catchword ‘green skills’ has been common parlance in policy circles for a while, yet there is little systematic empirical research to guide public intervention for meeting the demand for skills that will be needed to operate and develop green technology. The present paper proposes **a data-driven methodology to identify green skills** and to gauge the ways in which the demand for these competences responds to environmental regulation. Accordingly, it finds that green skills are high-level analytical and technical know-how related to the design, production, management and monitoring of technology.

[Do Green Jobs Differ from Non-green Jobs in Terms of Skills and Human Capital?](#)

Consoli et al. | Research Policy Paper | 2016 | USA

This paper elaborates an empirical analysis of labor force characteristics that emerge as a response to the growing importance of environmental sustainability. Using data on the United States, **it compares green and non-green occupations to detect differences in terms of skill content and of human capital.** Its empirical profiling reveals that **green jobs use more intensively high-level cognitive and interpersonal skills compared to non-green jobs.** Green occupations also exhibit higher levels of standard dimensions of human capital such as formal education, work experience and on-the-job training.

[Skills for a Greener Future: A Global View: Based on 32 Country Studies](#)

ILO | Report | 2019 | Global

Expanding on the ILO's exploration of the likely job impacts by 2030 of keeping the rise in global temperature below the 2°C ceiling set by the Paris Agreement on Climate Change, this is **the first global study to analyze the implications of the transition to low-carbon and resource-efficient economies for skills, gender and occupations** (Based on 32 country studies).

[Measures, Drivers and Effects of Green Employment: Evidence from US Local Labor Markets, 2006–2014](#)

Vona et al. | Journal Article | 2019 | USA

This paper explores the nature and the key empirical regularities of green employment in US local labor markets in 2006–2014. The main methodological novelty consists of **a new measure of green employment based on the task content of occupations.** Descriptive analysis reveals that **green employment is pro-cyclical, highly skilled, commands a 4% wage premium and is geographically concentrated.** Green employment dynamics positively correlates with local green subsidies within the American Recovery and Reinvestment Act, local green knowledge, and resilience to the great recession. Finally, it finds that one additional green job is associated with 4.2 (2.2 in the crisis period) new local jobs in non-tradable non-green activities.

[Global Green Skills Report 2023](#)

LinkedIn | Report | 2023 | Global

This report identifies trends at the **intersection of the workforce and sustainability, based on the activity of more than 930 million LinkedIn users worldwide.** It includes critical questions that policymakers, business leaders, and others might explore as they seek to develop regulations, programs, and policies that foster green skills development and create pathways for workers to transition into jobs that help green the planet.

[Making the European Green Deal Work for People: The Role of Human Development in the Green Transition](#)

Sanchez-Reaza et al. | Report | 2023 | Europe

A human-centered approach will be essential to achieving a just transition to the more sustainable environment envisioned under the European Green Deal. This report discusses how human development policies will play a key role in achieving this goal. It offers an analysis of the challenges and the implications for the region posed by the green transition in Europe, and discusses important topics, such as equipping people with green skills, strengthening labor market conditions, and improving the health sector.

[Assessing Green Job Dynamics in the EU: A Comparison of Alternative Methodologies](#)

Maldonado et al. | Discussion Paper | 2024 | Europe

As the green transition is set to accelerate swiftly over the next decades, its implications for labor markets and workers are of key concern to policymakers. The aim of this paper is to review **different methodologies to identify green jobs in cross-country comparable data** that are regularly and timely available for EU Member States and assess **their usefulness for policy-relevant labor market analysis.** Three different methodologies are compared, one of which draws on Eurostat's

environmental accounts data. The two other methodologies use EU Labour Force Survey data to implement task-based approaches.

[OECD Employment Outlook 2024: The Net-Zero Transition and the Labour Market](#)

OECD | Report | 2024 | Global

The transition to net-zero emissions by 2050 will have profound impacts on the labor market and the jobs of millions of workers. Aggregate effects on employment are estimated to be limited. This edition of the OECD Employment Outlook examines **the characteristics of the jobs that are likely to thrive because of the transition (“green-driven jobs”)**, including **their attractiveness in terms of job quality**, and compares them to **jobs in high-emission industries that tend to shrink**.

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