International Labour Organization

Greening Enterprises

Transforming processes and workplaces

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Foreword

In the light of the signing of the Paris Agreement on climate change mitigation in 2015 and its adoption in 2016, the Governing Body of the International Labour Organization (ILO) requested the International Labour Office to research the consequences of climate change on labour markets. At that time, the ILO's *Guidelines for a Just Transition towards Environmentally Sustainable Economies and Societies for All* had already received considerable attention, but the Office had yet to establish the evidence base for the relationship between the environment and the world of work.

Since then, the Research Department of the ILO has published many reports and publications looking at the impact for decent work of achieving the goals of the Paris Agreement, including with other United Nations agencies and regional banks. These reports have analysed the impact of reducing carbon emissions on different sectors of the economy, both globally and in specific regions of the world, as well as the measures needed to ensure a just transition to sustainable development. Some challenging questions have also been reviewed on how countries, enterprises and workers could adapt to the consequences of climate change, for example in the report *Working on a Warmer Planet: The Impact of Heat Stress on Productivity and Decent Work* (2019).

Greening Enterprises: Transforming Processes and Workplaces is the first ILO research report focusing specifically on the transition of enterprises. What are enterprises of different sectors and sizes doing to reduce emissions? How are small enterprises in developing countries adapting to the just transition and what was the impact of the COVID-19 crisis on the green transition? What policies promote enterprise productivity and environmental sustainability? These are some of the questions addressed in the report.

The report considers the enterprise not only in terms of its production processes but also as a workplace. Through this approach, it has identified a range of measures that enterprises may use to become more environmentally sustainable and that also give workers a role in the process. Sustainable transport, increased resource intensity, waste management, work organization and sustainable food at work are increasingly part of enterprises' efforts to curb their impact on the environment.

The report was prepared by the Wage, Income and Equity Unit, led by Catherine Saget, of the ILO Research Department, with the support and guidance of its director, Richard Samans. The authors of the report were Catherine Saget, Tahmina Karimova, Trang Luu, Nicolas Maitre and Sévane Ananian.

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List of abbreviations

BIC	collective benefit and interest [*beneficio e interés colectivo*]
CDP	Carbon Disclosure Project
COVID-19	coronavirus disease
CSR	corporate social responsibility
EBMO	employer and business membership organization
EBRD	European Bank for Reconstruction and Development
EIB	European Investment Bank
EPI	Environmental Performance Index
ESG	environmental, social and governance
GDP	gross domestic product
GHG	greenhouse gas
GSC	global supply chain
IEA	International Energy Agency
ILO	International Labour Organization
IPCC	International Panel on Climate Change
ITC	International Trade Centre
ITC-ILO	International Training Centre of the ILO
LPG	liquefied petroleum gas
MSMEs	micro, small and medium-sized enterprises
NSDI	national social dialogue institution
OECD	Organisation for Economic Co-operation and Development
OLS	ordinary least squares
OSH	occupational safety and health
R&D	research and development
SMEs	small and medium-sized enterprises
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNIDO	United Nations Industrial Development Organization

Executive summary

Enterprises are increasingly recognized as crucial to a healthy environment and to making progress on climate change, as well as being key actors in achieving a just transition – a transition based on equity and the participation of all stakeholders. To this end, it is equally important to look at enterprises as places where people work, and not only in terms of how goods and services are produced. Indeed, the workplace is where business opportunities in the green economy take shape and where workers and employers in their respective capacities can change production processes in ways that improve resource efficiency, reduce pressure on the environment and make enterprises greener.

What is a green enterprise?

In general, several options are open to enterprises to reduce their impact on the natural environment, or "go green". One option is to produce green goods and services, for example solar panels. Another option is to adopt greener production processes – in other words, to use renewable energy and sustainable raw materials, relying on technology that produces more output with the same level of inputs (resource efficiency), and to manage waste more efficiently.

However, there is more to enterprises than what they produce and how they produce it. Enterprises are also workplaces. For many enterprises and workers today, the greening of workplaces can play a meaningful role in reducing carbon emissions. For example, sustainable commuting, energy and waste management at the workplace, teleworking and sustainable food at work are relatively common. In this context, the extent to which enterprises may be considered green depends on the extent to which they green their outputs, production processes and workplaces.

Which enterprises are taking green measures?

Among enterprises in the European Union (EU), in EU candidate countries, including Türkiye, and in the United States of America, large enterprises, enterprises enjoying high revenue or that sell their products or services to public administrations, were, in 2021, the year covered by the survey, more likely to have taken resource-efficient measures. This is in part because they benefit from easier access to green technology and have more legal obligations. But many micro, small and medium-sized enterprises (MSMEs) also implement energy-saving and waste management measures and save on material inputs. Some MSMEs working in supply chains are encouraged to adopt green measures at the request of buyers and investors.

While green measures are taken in all sectors of the economy, enterprises engaged in the most carbon-emissive sectors are more likely to implement green initiatives than other enterprises, especially those providing technical services. The latter include manufacturing, electricity, gas, steam and air-conditioning supply. This report finds that the share of green enterprises is higher in countries with more stringent environmental standards, such as Austria, Norway and the United Kingdom.

The demand for greener enterprises is driven by consumers and clients, environmental regulations, and cultural and institutional factors

The impact of consumers and clients on business rationale for sustainability

Consumers and clients are increasingly demanding sustainable products, as illustrated by Google searches for sustainable goods, which rose by 71 per cent between 2016 and 2020. Higher demand is a push factor for informal enterprises, especially those in the circular economy, engaged in the sale and purchase of recycled materials and the maintenance and repair of various goods. The major clients of MSMEs along global supply chains are large enterprises, which in turn are concerned about their reputation with consumers, investors, shareholders and their respective governments. The increase in environmental, social and governance (ESG) investing – which prioritizes the alignment of financial targets with ESG outcomes and the corresponding disclosure requirements – is an additional push factor.

The growing scarcity of resources and the increased frequency of natural disasters are also drivers of the green transformation of enterprises. Green enterprises are more resilient to the consequences of environmental change. Some MSMEs have experienced adverse environmental impacts directly and have been forced to budget green investments as a means of survival, such as changing the site of production because of droughts.

The role of laws and regulations in promoting environmentally sustainable enterprises

The price of goods, just like the cost of waste disposal, does not fully reflect the fact that natural resources are limited and that waste has long-term effects on the environment, resulting in market failure. This is why legislative action and support for enterprises in transition can add value to both the economy and society, recognizing the specific constraints faced by enterprises.

Regulations on the sustainable consumption of resources at the workplace and sustainable transport are a major driver of the greening of enterprises. Labour legislation governing teleworking and working-time organization, and providing workers with rights to protect the environment, is also becoming a common way to promote green workplaces. Green procurement and the legal framework for sustainable business

models appear to be powerful tools to make enterprises greener and to better integrate their sustainable economic, social and environmental development.

Many of the regulations that have an impact on enterprise environmental sustainability, green procurement and sustainable business models are fairly recent – two thirds of the regulations in force in 2019 were introduced after 2004 – and imply a vast adaptation effort on the part of enterprises. All regions are concerned, though Asia, Europe and Latin America have taken more legislative action than other parts of the world. Countries have continued to adopt legislation promoting sustainability and resource efficiency through environmental and labour legislation during the COVID-19 pandemic. In parallel with these regulations, enterprises continue to play an important role in protecting workers from occupational safety and health (OSH) risks resulting from climate change, and standards governing OSH are vital in this regard.

A variety of legal and policy measures to make workplaces greener can be found around the world. Some of these measures are not compulsory, notably for MSMEs, but they provide a wealth of practices from which MSMEs can draw inspiration on their path to sustainability and a just transition.

Although many environmental regulations have initial costs, such as energy-related measures, others mostly involve changes in behaviour. In both cases, training and technical advice, particularly on energy efficiency and waste management, are important to inform employers' decision-making.

Culture, norms and social dialogue

Culture and norms play a role in shaping the strategy adopted by entrepreneurs regarding the green transition, particularly that of owner-managers of smaller enterprises.

Climate change has enlarged the traditional areas of negotiation between the social partners in many national and international contexts. However, more social dialogue at national level does not always mean more dialogue at the enterprise or local level. In fact, it is rare – though not unheard of – for social dialogue at lower levels to focus on supporting businesses' efforts to change their production processes in order to reduce emissions and promote green workplaces.

What obstacles do enterprises face?

Several constraints hinder climate action by multinational enterprises, such as uncertainty in climate policies, unavailability of green technology and lack of investment profitability. The adoption of green practices also remains limited in MSMEs in both developed and developing countries owing to limited access to finance and skills, lack of information and knowledge about innovation, and weak regulation enforcement in some contexts.

Some MSMEs face barriers such as the complexity of administrative and legal procedures or the lack of supply of required materials, and a majority reported a lack of financial support for the green transition. In the case of informal enterprises, both formalization and the transition to environmentally and economically sustainable production are hampered by structural weaknesses of the economy and inadequate regulatory frameworks at the national and sector levels.

Skills mismatches are identified as major obstacles to the greening of enterprises, notably in sectors outside energy and energy efficiency.

How many enterprises adopt green processes?

In the EU, in EU candidate countries, including Türkiye, and in the United States, 90 per cent of enterprises in 2021 had taken action to green their production processes or their output. The share of enterprises that had taken no green measures varied greatly across countries, ranging from 42 per cent in Albania to less than 2 per cent in Italy and Norway.

In a larger sample of countries, including lower- and upper-middle-income developing countries, 70 per cent of formal enterprises reported in 2019 the recent adoption of at least one measure to green their production processes. The most frequently reported measure was energy saving, followed by anti-pollution and water management measures.

What is the effect of greening enterprises?

Among EU countries, EU candidate countries, including Türkiye, and the United States, two thirds of enterprises reported that resource efficiency action had either lowered their production costs or had had no impact on them. The most common resource efficiency actions included minimizing waste and taking energy-saving measures.

A green transition based on substituting traditional sources of energy with renewable ones and increasing energy efficiency creates jobs at the global level, albeit on a modest scale. This raises the question of where these jobs are created and whether they are created in enterprises that implement green processes. In the study sample including developing countries, the introduction of greening processes has had no impact on employment in the surveyed enterprises, except in lower-middle-income countries. In the latter, greening processes are associated with a decrease in employment at the enterprise level, a result that has also been observed in relation to other kinds of technological changes. And while greening of production processes is crucial for the transition, enterprises that supply green products and services create more green jobs than do enterprises implementing resource efficiency measures and are, in that sense, leading the transition.

The decision by enterprises to implement green processes has repercussions for training needs, which is an important element to consider when devising skills development policies.

The impact of the COVID-19 pandemic on the greening of enterprises

The COVID-19 pandemic is another external shock that enterprises have had to deal with, in addition to natural disasters and climate change. The pandemic has had a huge negative impact, especially on MSMEs. According to a qualitative survey conducted for this study, most MSMEs in Colombia, Kyrgyzstan, the Republic of Korea and South Africa have experienced a temporary partial or complete closure. MSMEs in sectors considered to be essential by the government have been least affected.

Some MSMEs have placed less priority on environmental issues. However, in part to respond to the COVID-19 pandemic and protect the health and safety of their staff or to reduce operational costs, some MSMEs have taken measures that have a positive impact on enterprise emissions, such as energy efficiency measures and teleworking. In general, MSMEs reported that they would welcome public financial support that linked pandemic recovery to the green transition.

What is a just transition for enterprises?

For multinationals, just transition means establishing better green and labour practices along global supply chains, including through transparent corporate social responsibility initiatives and strengthening the capacity of enterprises to apply labour standards within the supply chains. Beyond the business response, most MSMEs, and sometimes employers' organizations too, are not aware of specific environmental policies and implications for their businesses and have no knowledge of just transition or of the impact of climate change on labour markets. A just transition to sustainability is also a transition to formality. For informal enterprises, just transition is based on both formalization and environmental sustainability. This requires explicit attention to increasing the ability of the economy to absorb informal workers and enterprises, as well as the ability of workers and enterprises to join the formal economy.

The way forward

Overall, the world of work is doing a great deal for environmental sustainability, particularly small businesses, at a time when many other changes are taking place aside from the COVID-19 pandemic, such as in digital technology, demography and globalization. Enterprises have also given more visibility to the greening of workplaces as a vehicle for the greening of enterprises. However, the results of this report show that, while responsible businesses are key to a just transition, responsible consumption is also part of the equation. A just transition, in addition, involves more than how successful enterprises and workplaces are in transitioning from high- to low-carbon practices and adapting to the impacts of climate change. It also means ensuring that workers are part of this process. The outcomes of enterprise transition need to promote opportunities for decent work.

More could be done to coordinate and promote changes at the enterprise level. There is a need to redesign the landscape of enterprises by means of macro-, sector- and enterprise-level green interventions, taking into account the COVID-19 pandemic and other global challenges. At the macro level, it is vital to improve the policy and regulatory framework to create an enabling business environment, and to give clear information to enterprises and other actors on the strategy towards environmental sustainability, including via monitoring and when adapting the strategy to new circumstances. Business representation in policy debate around the green transition is an important step in that respect, but more could be done to make the transition more inclusive of all stakeholders. Sustainable business models, as an approach for enterprises to pursue their economic objectives as well as environmental and social goals, seem to offer a promising avenue in that they integrate the environmental, economic and social dimensions of sustainability.

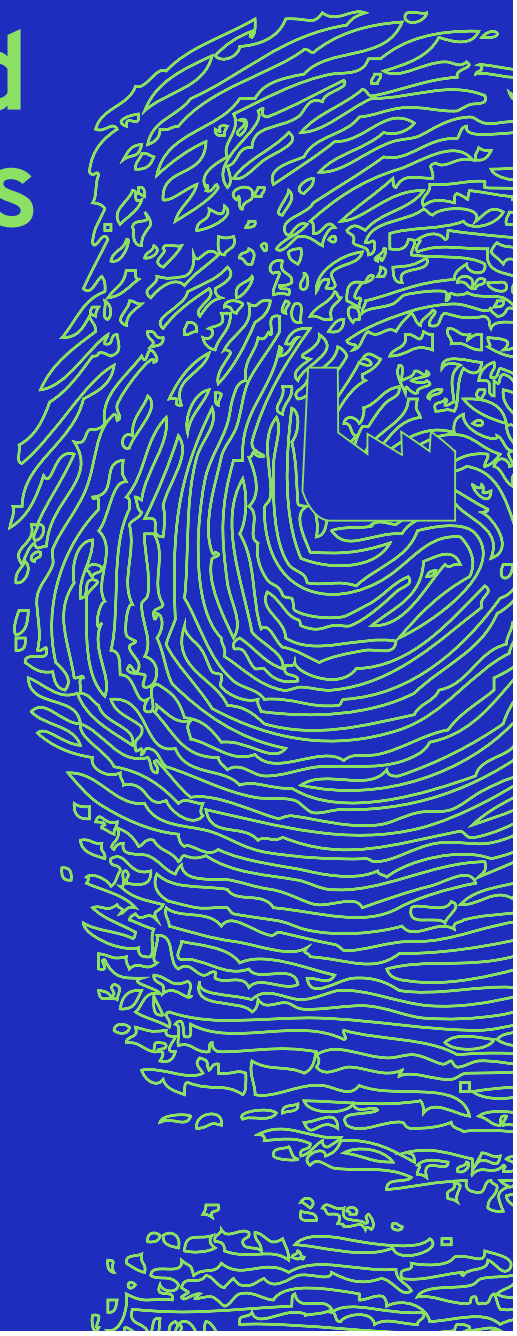
At the sector level, a shared approach will allow all stakeholders, including enterprise management and workers, to prepare for the consequences of climate change for jobs, skills and wages and to ensure a just transition both in the sectors that need to be downsized and in those with the potential for job creation. This includes improving the operation and development of green markets, sectors and value chains, with the view that productivity gains are a major driver of decent work creation. Gender segregation by occupation in these two types of sectors needs to be addressed so that women will benefit from job creation, including through skills development policy.

At the micro level, a green entrepreneurship policy involving the training of managers, technical interventions, and interventions at the enterprise level to facilitate certification formalities and the adoption of green processes could be a major step forward, depending on the type of enterprise and sector. Practical tools exist that employers and workers can use to make their workplaces greener.

The report shows that the greening of workplaces is an increasingly important element of the greening of enterprises and an aspect of working life that matters greatly to many workers and employers.

I

The green transition and the world of enterprises



Key findings

Enterprises need a stable, predictable and healthy natural environment in which to operate their business, so as to grow and make profit and contribute to equitable economic and employment growth.

The natural environment in which enterprises operate is becoming increasingly unhealthy. Accumulation of excessive waste, scarcity of natural resources, climate change, an increase in natural disasters and loss of biodiversity limit the development of sustainable enterprises.

A just transition towards environmentally sustainable economies and societies for all requires the participation of all stakeholders, in their respective capacities. At a broader level, in addition to complying with current environmental regulations and anticipating future policy developments, enterprises manage their environmental footprint as part of their strategic plans to seize new business opportunities and preserve their reputation. Enterprises are also attentive to expectations from consumers and clients, skills shortages and demands from workers. Environmental innovation is a key enabling factor to make enterprises greener and support their competitiveness. In some countries, the recovery from the COVID-19 pandemic has included measures focused on greening MSMEs.

The greening of workplaces, in other words the places where workers need to be to carry out their work, is becoming increasingly relevant for the greening of enterprises. Measures to make workplaces greener include sustainable consumption at the workplace, sustainable transport to the workplace, and work organization such as teleworking.

The policy agenda to deal with the consequences of climate change has enlarged the traditional areas of negotiation between the social partners. However, social dialogue processes often remain at national level, with low impact at the enterprise or local level. Social dialogue rarely focuses on supporting businesses to change their production processes in order to reduce emissions and to promote green workplaces.

At the micro level, opportunities for MSMEs, including informal entities, and multinationals to green their business are substantially different. Resource efficiency and waste management seem the most feasible tools that MSMEs can use to green their activities.

Policy solutions conducive to the greening of enterprises include enabling factors at the macro level (an enabling business environment, transparent and inclusive environmental policies), sectoral policies (green businesses development, skills development, social dialogue) and micro-level interventions (measures to support resource efficiency, training and entrepreneurship policy).

1.1 Introduction

Enterprises are a driving force of economies, introducing technological change, organizing production and its delivery to clients and consumers, and adapting their strategy to find new market opportunities. They are also a recognized participant in climate change solutions. While many enterprises themselves suffer from the consequences of climate change, their economic activities are also a major source of emissions and pollution and contribute to biodiversity loss.

This chapter reviews the environmental challenges facing enterprises of different sizes, sectors of activity and degrees of formality. It provides a conceptual framework for analysing the greening of enterprises and identifies business interests and regulations as major triggers of transition. Other factors include culture and level of motivation of owners or managers of enterprises, social dialogue, technology and availability of skills. The chapter also shows that measures taken by enterprises to reduce emissions are diverse, often including energy efficiency and/or waste management. Among the different ways to make enterprises greener, this chapter, and the report as a whole, stresses the role of greening workplaces.

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1.2 Environmental challenges faced by enterprises

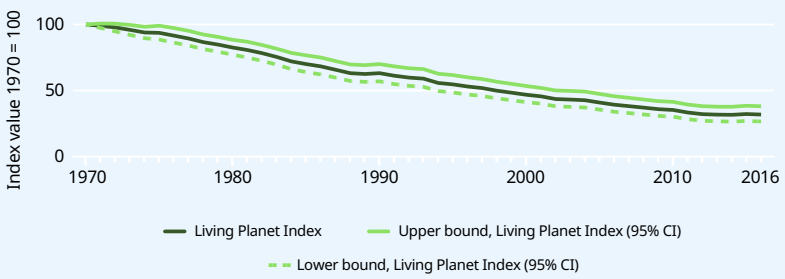
Enterprises rely on a stable, predictable and healthy natural environment for the production and delivery of goods and services (ILO 2018; ITC-ILO 2016). Whereas in agriculture, mining and ecotourism, enterprises rely directly on natural resources for their raw inputs, enterprises in food and beverage manufacturing, textiles and construction are indirectly dependent on the environment by virtue of economic linkages. All of these enterprises are threatened by the increasing scarcity of natural resources and by the Earth's limited capacity to absorb their waste and greenhouse gas (GHG) emissions. Furthermore, the functioning of enterprises depends directly and indirectly on the provision of ecosystem services (for example, pollination of crops, purification of air) that govern the quantity and quality of the enterprises' inputs, many of which are not priced adequately (Costanza et al. 2014).

Enterprises rely on a stable, predictable and healthy natural environment for the production and delivery of goods and services.

The natural environment in which enterprises operate is becoming increasingly unhealthy, however. Since the 1970s, economic activity has generated a greater ecological footprint than the Earth's capacity to regenerate, overusing its biocapacity by at least 56 per cent (WWF 2020). The Living Planet Index shows an average decline of 68 per cent in populations of mammals, birds, amphibians, reptiles and fish between 1970 and 2016 (figure 1.1).

Inaction on biodiversity conservation and restoration has an extremely high cost, since biodiversity loss is largely irreversible (UNEP 2019) and impacts on human health (Huynen, Martens and De Groot 2004; WWF 2020). Unsustainable management of forest lands, forest degradation and forest fragmentation also contribute to the spread of COVID-19 and other zoonotic diseases (diseases transmitted from animals to humans) (Tollefson 2020).

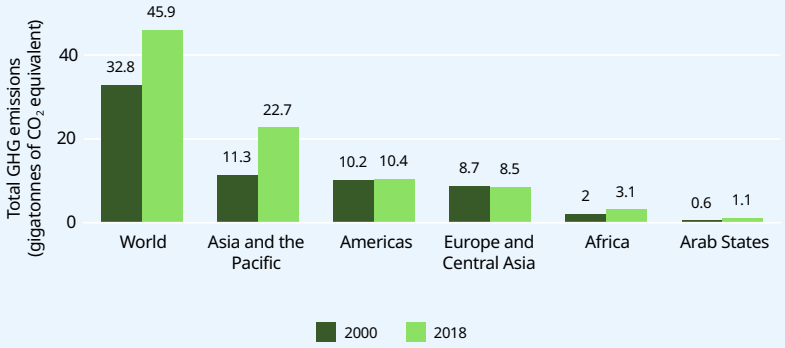
Figure 1.1 Global Living Planet Index 1970–2016



Note: The Living Planet Index measures trends in 20,811 monitored populations of 4,392 vertebrate species. It is not a census of all wildlife but reports the average percentage change in the size of these populations monitored throughout the world. The light green bounds show the lower and upper confidence interval (CI) of the index.

Source: Adapted from WWF (2020).

Figure 1.2 Total greenhouse gas emissions, by region, 2000 and 2018 (gigatonnes of CO_2 equivalent)



Source: ILO calculations based on World Development Indicators.

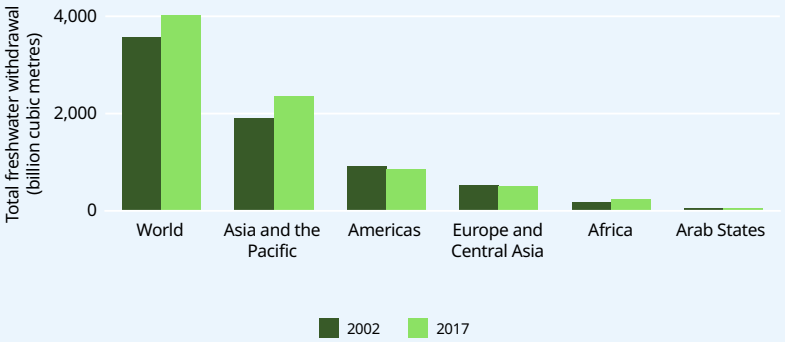
Total GHG emissions increased globally between 2000 and 2018, with the Asia and the Pacific region doubling its emissions during this period (figure 1.2). In addition, climate change is resulting in higher intensity and frequency of extreme weather events such as droughts, floods, increases in sea level, heatwaves and devastating fires (IPCC 2014).

Enterprises need to adapt to climate change and its consequences, such as heat stress. Worldwide, 2.2 per cent of labour productivity will be lost in 2030 owing to heat stress, since very high temperatures affect people's ability to complete their tasks at a normal pace (Kjellstrom et al. 2019).

Water scarcity is also a growing risk for enterprises. Two thirds of the world's largest multinational companies report that exposure to water-related business risk could generate a substantive change in their business, operations or revenue (CDP 2016). Over the past century, water use has increased at more than twice the rate of population growth, making water scarcity one of the most urgent challenges facing human society in the twenty-first century (Arto, Andreoni and Rueda-Cantuche 2016).

The trend in freshwater withdrawal is increasing worldwide (figure 1.3). It is estimated that roughly 78 per cent of jobs worldwide are dependent on water (UNESCO 2016), highlighting the role of water in creating and maintaining jobs.

Figure 1.3 Total freshwater withdrawal, by region, 2002 and 2017 (billion cubic metres)



Source: ILO calculations based on AQUASTAT.

At the other end of the production cycle, waste represents a significant business sector, accounting for 0.6 per cent of GDP (UNEP 2011). However, the excessive accumulation of waste also generates costs for enterprises for the stocking, sorting and recycling of waste, and constitutes a serious risk to ecosystems and human health. The decay of the organic proportion of solid waste contributes approximately 5 per cent of global GHG emissions (World Bank 2018).

Box 1.1 The historical involvement of the business sector in the sustainability of the natural environment

The need for the business sector to take action and provide solutions for achieving environmentally sustainable development was first recognized at the United Nations Conference on Sustainable Development in Rio de Janeiro in 1992 (the "Earth Summit"). The conference endorsed the concept of eco-efficiency as a way for enterprises to produce economically valuable goods and services while reducing the ecological impacts of production. For businesses, a major outcome of the Summit was the recognition that the business sector needs to be part of the policy development process because enterprises are the main sources of action and solutions in this complex transition.

Since the Earth Summit, many businesses around the world have acknowledged that environmental issues pose major challenges to their operations and that addressing them presents significant business opportunities (WBCSD 2010). More recently, the private sector has been recognized as a key actor in implementing the Sustainable Development Goals, particularly Goal 17 on partnerships for the goals.

Source: Adapted from ITC-ILO (2016).

The private sector is a substantial user of energy and natural resources, a large GHG emitter and waste disposer, and at the same time a source of innovation, know-how, financing, and strategic perspectives and skills to address environmental challenges. It is estimated that 87 per cent of total employment, equivalent to 2.8 billion individuals worldwide, is in the private sector, while the remaining 13 per cent is in the common public sector (ILO 2017).[1]

Over the past 30 years, action on climate change and other environmental issues has ceased to be the responsibility solely of governments and has become also that of civil society and workers' organizations, individuals and businesses (box 1.1). Representation of business and workers' interests and other stakeholders in policy debates around the sustainability of the natural environment has been recognized as a key principle of a just transition. A just transition to the green economy creates decent jobs and is built upon four pillars: social dialogue, social protection, rights at work, and employment (ILO 2015). Governments are increasingly basing their environmental policy on this approach, whose starting point is that consultation with all relevant stakeholders is key to achieving real progress on carbon reduction (ILO 2018).

1 The common public sector comprises health and social services, public administration, and defence.

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1.3 The heterogeneity of enterprises

The concept of sustainable enterprises recognizes enterprises as the engine of economic growth, employment creation, poverty reduction and environmental sustainability (ILO 2007).[2] It refers to small, medium-sized, large and multinational enterprises, cooperatives, green businesses and social enterprises that balance their own needs and interests with those of the people who work for them and with the wider society in which they operate.

In the context of this report, micro, small and medium-sized enterprises (MSMEs) are defined as enterprises with size classes of fewer than 10, fewer than 50 and fewer than 250 employees, respectively.[3] Large enterprises have more than 250 employees.

1.3.1 Large and multinational enterprises

Large corporations, especially multinationals, produce huge environmental footprints, mainly those involved in the mining and extraction sector. Such companies need to anticipate, assess and react to massive structural, technological and legal transformations relating to environmental change. They also need to adapt their human resource policies. Large enterprises possess the human and capital resources to invest in and

2 An enterprise is defined as a unit engaged in the production of goods or services for sale or barter. The term "enterprise" is used in a broad sense and includes own-account workers. The activities may be undertaken inside or outside the enterprise owner's home, and they may be carried out in identifiable premises or without fixed location. Accordingly, self-employed street vendors, taxi drivers, home-based workers and so on are all considered enterprises. In terms of legal organization, a private enterprise may be a corporation or an unincorporated or non-profit institution (ILO 2002).

3 Definitions of enterprise size classes are often based on a combination of multiple criteria, including, for example, the size of the workforce, sales volume and the amount of capital invested. For statistical purposes, the number of employees is a practical and generally comparable yardstick (ILO 2019a). The definition of MSMEs and the thresholds to distinguish them from large enterprises vary according to countries' statistical approaches and economic situation. The most common upper thresholds are 100 and 250 employees, but other thresholds are also used by national statistical offices.

adopt environmentally sustainable practices and to access a large pool of consumers and multiple economic linkages along their supply chains. Their human resource departments are increasingly adding environment-related competences in their vacancy notices (Amrutha and Geetha 2020). The human resource strategy of enterprises in relation to climate change largely depends on whether the green skills they need will be available in the labour market, or whether the enterprises themselves expect to provide these skills to their workforce.

Given the urgency of the climate situation, environmental sustainability has become an element of the success of a large enterprise, next to its economic gains and the social commitments that are the traditional elements of corporate social responsibility policy (Rodriguez-Gomez et al. 2020). For example, several hundred large enterprises, mostly multinationals, have released information on environmental transparency and action on climate change and forest and water security, as part of the Carbon Disclosure Project (CDP).[4] And thousands of other enterprises have disclosed their environmental footprints through the project and as stakeholder requests have been passed along the supply chains.

However, some initiatives by multinationals have been labelled as "greenwashing" – in other words, claims not followed by real changes in corporate activities. Such greenwashing could result from the entirely voluntary approach to corporate social responsibility (Gatti, Seele and Rademacher 2019). Also, the lack of detailed information disclosed by the majority of multinationals makes it difficult to assess the environmental impact of their supply chains (Lewis 2016).[5] A just transition for large enterprises and multinational enterprises (MNEs) therefore means implementing greening processes and outputs along the supply chains, and also ensuring better social outcomes.

1.3.2 Micro, small and medium-sized enterprises

MSMEs and the self-employed play a key role in the transition to a green economy owing to their high number and importance in local economic development (ILO 2018; OECD 2018). Economic units with fewer than 50 workers employ around 70 per cent of total employment worldwide and are the main employer in low-income and lower-middle-income countries, accounting for more than 90 per cent of total employment (figure 1.4, panel A). In South Asia and sub-Saharan Africa, employment in small economic units also accounts for over 90 per cent of total employment (figure 1.4, panel B).

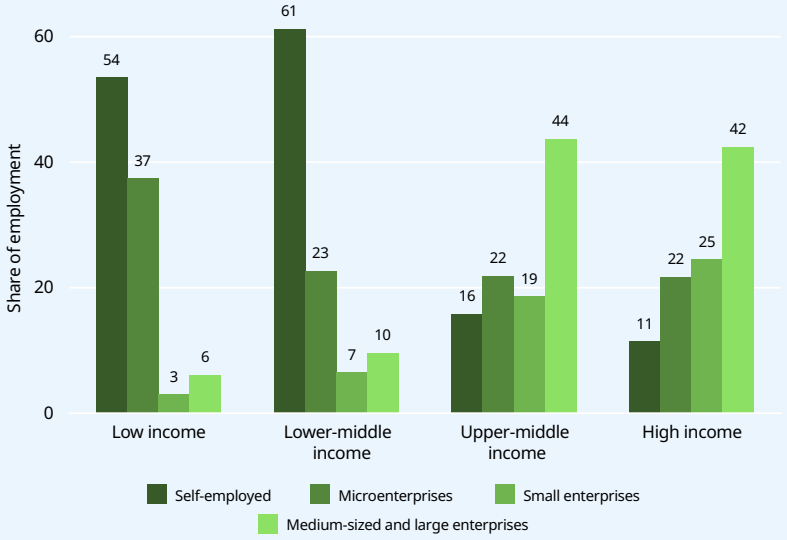
Although emissions produced by individual small and medium-sized enterprises (SMEs) can be small relative to those of large enterprises, their collective environmental impact is substantial. For example, SMEs account for 64 per cent of total industrial pollution in Europe and 53 per cent of total industrial carbon emissions in China (table 1.1).

4 The Carbon Disclosure Project runs the global disclosure system for investors, companies, cities, states and regions to manage their environmental impacts.

5 Nonetheless, the evidence shows that an increasing number of countries are experiencing economic growth without increasing their emissions or resource use (see ILO 2018, 14, figure 1.4) – mostly, though not exclusively, among high-income countries. This tends to support the view that MNEs have not exported their most polluting activities on a large scale.

Figure 1.4 Enterprise dynamics and share of employment by country income group and region

Panel A. Employment share of the self-employed and different enterprise size classes, by country income group (percentage)



Panel B. Employment share of the self-employed and different enterprise size classes, by region (percentage)

Note: Data are from the ILO database on employment and economic unit size based on household surveys, labour force surveys and similar national surveys. The 99 countries included in the database are from all world regions except North America. The data were collected between 2009 and 2018. Enterprise size classes: "self-employed" refers to the subcategory of "independent workers without employees"; microenterprises: 2–9 persons; small enterprises: 10–49 persons; medium-sized and large enterprises: 50 persons or more. Owing to the way the surveys are structured, medium-sized and large enterprises are classified in one category. Regions: EAP = East Asia and the Pacific; ECA = Europe and Central Asia; LAC = Latin America and the Caribbean; MENA = Middle East and North Africa; SA = South Asia; SSA = sub-Saharan Africa.

Source: ILO (2019a).

Table 1.1 Estimating the environmental impact of SMEs, world and selected countries

Geographical coverage	Definition of SMEs	Environmental impact	Reference
Worldwide	Varies by countries in the data set, mostly fewer than 250 employees	13% of total energy demand and one third of total industrial and service energy use	(IEA 2015)
European Union	Fewer than 250 employees and an annual turnover not exceeding €50 million, and/or an annual balance sheet total not exceeding €43 million	64% of industrial pollution	(Constantinos et al. 2010)
United Kingdom	Fewer than 250 employees	55% of business energy in 2016	(BEIS 2017)
Australia	Fewer than 200 employees	29% of total business electricity and 27% of natural gas demand during 2014–15	(ABS 2019)
China	Fewer than 1,000 employees	53% of total industrial CO_2 emissions in 2010	(Meng et al. 2018)

Source: ILO compilation. The definition of SMEs in China and the United Kingdom of Great Britain and Northern Ireland includes microenterprises. Australian and European statistics refer to SMEs; data for the EU are reported according to respective national definitions.

Owners of SMEs are generally close to their employees and local community constituencies (Demuijnck and Ngnodjom 2013; Jenkins 2006; Perrini 2006). In addition, when setting up a small enterprise, founders have strong aspirations regarding the identity of their enterprise. Unfortunately, the adoption of green practices by SMEs in both developed and developing countries is constrained by their limited access to financial and human resources, lack of knowledge about innovation and new technology, and weak regulation enforcement (Jamali, Lund-Thomsen and Jeppesen 2017). Small enterprises in labour-intensive sectors have fewer opportunities to invest in the transition.

Given the diversity of SMEs and the various business environments in which they operate, policy measures and support programmes targeted at them cannot be the same as those aimed at large enterprises. For example, evidence shows that small entrepreneurial start-ups with an interest in sustainable principles often look to goals other than financial gain (Rodgers 2010). The smaller the enterprise, the less certainty there can be about the profit maximization rationale of the owner/manager. Hence any attempt to engage SME owners/managers purely in terms of profitability would be inappropriate (Parry 2012). On the whole, SMEs have opportunities to participate in the just transition through their engagement in local communities but typically face challenges of access to technology, training and finance, as well as lack of adequate representation and social dialogue.

Microenterprises – enterprises with fewer than ten employees – differ substantially from SMEs in terms of the conditions and variables affecting their environmental behaviour. They are unlikely to take voluntary pro-environmental action, since most micro-entrepreneurs have low environmental awareness, or eco-literacy, and limited financial and human resources. Thus, environmental issues are expected to have a low business priority, unless the manager takes a personal interest in the subject (Mir and Feitelson 2007).

1.3.3 Informal enterprises

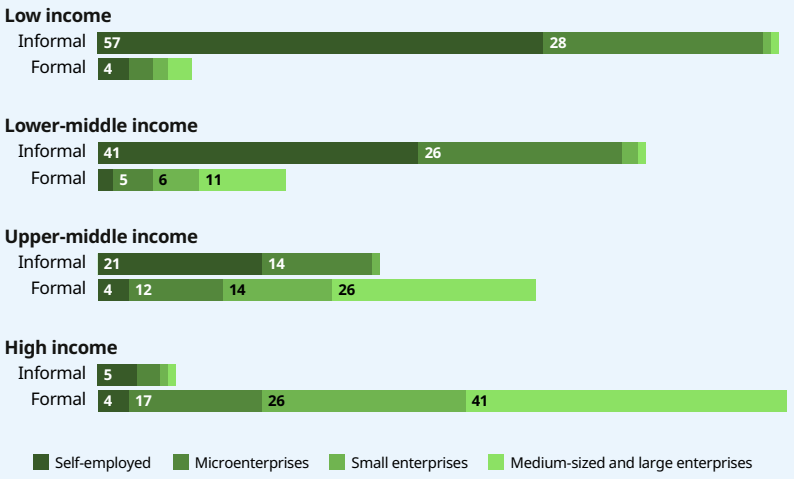
Informality characterizes microenterprises in many parts of the world, especially in low- and lower-middle-income countries (see figure 1.5).[6] The informal economy is closely tied to the natural environment, a majority of informal jobs depending on natural resources. This can be damaging to the environment, as in the cases of agriculture, forestry, fisheries and mining (Sierra Leal, Roman and van Doorn 2022). Nonetheless, the linkage between informality and the environment is not necessarily always negative. Indeed, informal actors' close links to their local communities provide valuable networks for resource management and climate change adaptation and mitigation (IIED 2016).

Given the size of the world's informal economy (see figure 1.5) and its close interdependence with the environment, a just transition to sustainability must include workers and enterprises in that category and support their transition to formality. This requires explicit attention to increasing the ability of the economy to absorb informal workers and enterprises, as well as to increasing the ability of workers and enterprises to enter the formal economy (ILO 2021a).

Informality excludes enterprises from public incentives (for example, subsidies to adopt energy efficiency and green finance) and their workers from training and skills development programmes, and it precludes social dialogue. This is why a just transition to sustainability entails also a transition to formality.

Strategies that promote formalization and the environmental sustainability of informal firms are based on integrated approaches, including: (i) legal and policy frameworks at the macro level; (ii) strengthened sectoral policy and social dialogue on skills,

Figure 1.5 Distribution of employment by formality status and economic unit size, across country income groups (percentage)



Source: ILO (2019a).

6 The informal economy comprises all economic activities by workers and economic units that are not covered or are insufficiently covered by formal arrangements.

labour protection and occupational safety and health (OSH) at the sector level; and (iii), at the enterprise level, green licensing and registration procedures and incentives to formalize and adopt green processes (Sierra Leal, Roman and van Doorn 2022).

1.3.4 Cooperatives and other social and solidarity economy models

Cooperatives employ at least 279 million people worldwide, which equates to 9.5 per cent of total employment (CICOPA 2017).[7] Cooperative enterprises also provide social and societal benefits, such as market access, as well as certain levels of social protection and the opportunity to form workers' organizations, including among marginalized population groups (ILO 2017).

They also have several competitive advantages in the production, provision and distribution of energy, including democratic local control over energy production and use, as well as the capacity to create local employment and promote local development through rural electrification and the scope to offer reasonable pricing (ILO 2013).

Renewable energy cooperatives are widespread across the world, including rural electricity cooperatives in Bangladesh and Costa Rica, biomass production plants in Brazil and Finland, and photovoltaic cooperatives in Argentina and Denmark. Energy cooperatives are also gradually gaining ground in Germany and many other Western countries (ILO 2019b).

In urban areas, cooperatives have played a key role in integrating informal waste pickers into formal waste management chains, particularly in Latin America and South Asia (ILO 2019c). The case of Brazil underscores the importance of clear policies and regulations in e-waste management that integrates training and capacity-building for the marginalized population (box 1.2).

Box 1.2 The cooperative movement in waste management in Brazil

The 2010 National Policy on Waste in Brazil recognizes the value of waste as an economic asset that is capable of creating employment and income and promoting sustainable development. Brazilian municipalities are allowed to hire waste-picker cooperatives as private service providers without going through the formal bidding process. In the city of Belo Horizonte, for example, workers acknowledged that their lives had changed for the better owing to the city's approach to integrating their cooperatives into the formal waste management system (Dias 2011).

In 2011, the regional state of Minas Gerais implemented the Recycling Bonus programme *(Bolsa Reciclagem)*, which offers a financial bonus to cooperatives dependent on the quality and kind of recyclables collected and sold. This programme has been shown to lead to more efficient picking and higher incomes for waste pickers (Dias 2016).

Social programmes on e-waste include Eco Electro, which provides training and certification on separating and dismantling e-waste to cooperatives active in the management of solid waste, using local development components such as donations of refurbished computers to poor communities.

Source: Saget, Vogt-Schilb and Luu (2020); ILO (2014).

7 A cooperative is an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise.

1.4 Enabling factors for enterprises to engage in the green transition

Research has shown that both internal and external factors influence enterprises in taking or not taking environmental action. Among the internal factors, green finance and the business case for producing green outputs or greening production processes influence the enterprise's decisions, as do its management culture and norms. Among the external factors are the government's broad regulatory and policy frameworks in which enterprises must operate (figure 1.6).

Social dialogue is both an external factor, in the sense that the social partners' views are often represented in policy debates on the just transition in some form, and an internal factor, in the case of enterprise-level dialogue. The same can be said of environmental innovation and the availability of skills, which are partly exogenous to the enterprise, but also partly belong to enterprise strategy (figure 1.6).

Figure 1.6 Enabling factors for enterprise just transition

Source: ILO compilation adapted from DCED (2014).

1.4.1 Rules and regulations

In emerging economies and high-income countries alike, a green transition is successful only when there are functional institutions (Kemp and Never 2017). Besides the basic principles of sound government, such as the capacity of the government to create, develop and monitor policies, there are other features that can ensure a successful green transition.

First, the transition plan needs to be communicated from an early stage and developed with the participation of stakeholders, including investors and enterprises, business associations and consumers.

Second, the government should be mindful of new (market, technology and social) circumstances in order to make the transition acceptable economically and socially and to compensate any losers in the transition. As industries to be phased out are often the dominant employer in a given region, the representation of local interests has been useful in countries such as China and India.

Third, the capacity of the government to deal with opposition from traditional energy companies and from within government helps prevent any attempts to delegitimize the plan. Closely related to the inclusion of stakeholders in the process is that the government also needs to reduce gender inequality in occupations in the new green sectors of the economy – since jobs created in these sectors tend to be occupied by men (ILO 2018; Saget, Vogt-Schilb and Luu 2020).

Environmental policy regulations may, for instance, include non-market-based instruments such as environmental standards that limit pollution or introduce technology requirements. They may also include market-based instruments that increase the opportunity costs of emissions. In climate change policies, these are mainly connected to GHG emissions or energy efficiency.[8] Both kinds of instruments affect the production processes of enterprises, from resource allocation to technological choice.

A review of the literature on the impact of environmental regulations on the competitiveness of enterprises shows that the impact depends on the enterprises' levels of pollution and energy intensity (Dechezleprêtre and Sato 2017). In Member countries of the Organisation for Economic Co-operation and Development (OECD), an econometric analysis to estimate the impact of changes in environmental policy stringency on industry- and enterprise-level productivity growth identified a temporary boost in productivity for the most productive enterprises, while the less productive ones experienced a productivity slowdown (Albrizio, Kozluk and Zipperer 2017).

In addition to incentive programmes provided by governments, in developing countries international donors play an important role in incentivizing greening practices among enterprises (box 1.3).

Box 1.3 The role of development cooperation in greening enterprises

The SWITCH-Asia Grants Programme is an EU-funded programme that finances enterprises in a wide range of sectors in Asia (energy efficiency in industrial plants and houses, agrifood and fishing sectors, textiles and leather, tourism, logistics and freight) to encourage them to adopt cleaner technologies and more sustainable industrial practices.

An example is the Biomass Gasification Technology (BEST) project in Viet Nam, which promotes sustainable production and energy consumption among agrifood-processing micro and small enterprises in four north-western mountainous provinces of Viet Nam. Through knowledge-sharing and capacity-building, the programme helps local enterprises to access more easily the supply chains of multinationals seeking to establish green – but also better – labour practices within their value chains.

8 There is little mention of incentives for MSMEs or SMEs in nationally determined contributions (NDCs) of developing countries. Exceptions include Jordan, where energy auditing is subsidized for SMEs and subsequent energy efficiency measures taken by SMEs can benefit from credit subsidies. In Cabo Verde, NDCs comprise measures to stimulate ecotourism and strengthen the production of organic traditional food items.

Green public procurement also increases the demand for green products in the public market. Brazil, for example, introduced special bidding procedures for micro and small enterprises in 2014, as well as compulsory subcontracting of micro and small enterprises for specific contracts, with environmental criteria. Many other countries promote the procurement of goods and services with low environmental impact, including Ghana and the Philippines. The status and progress of green public procurement legislation will be analysed further in Chapter 2.

Turning to government action during the COVID-19 pandemic: the OECD green recovery database offers a number of examples of COVID-19 responses targeting MSMEs and simultaneously seeking positive environmental impact, and some that do not have a green component. In Estonia, a green fund of US$110 million was adopted for MSME green transition investments. In France, the green recovery response included the renovation of buildings in the tertiary sector, the acceleration of the ecological transition of craftspersons, shopkeepers and self-employed individuals by financing diagnostics and developing aid and services to support environmental initiatives developed by MSMEs, and the implementation of measures to support sustainable tourism involving MSMEs. The planned budget was €200 million.

1.4.2 Business rationale

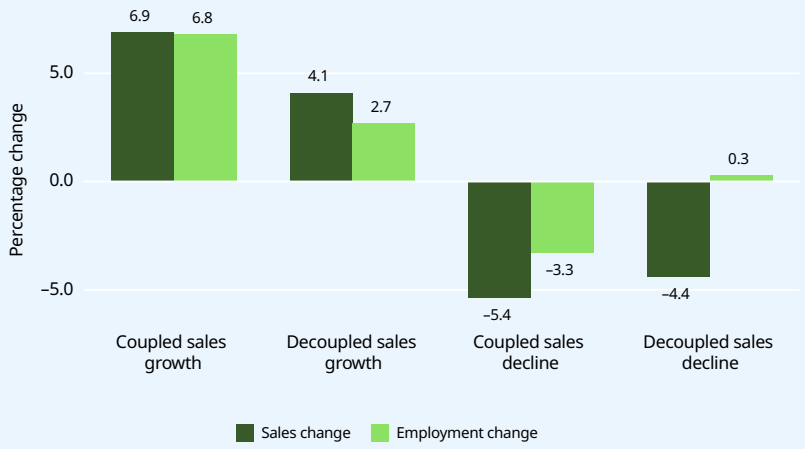
The past few decades have seen many enterprises take action beyond environmental legal standards, implying the existence of other factors that drive enterprises to take up environmental practices. The most prevalent activities centre on the financial profits to be made from emerging green markets or from cost savings. As evidenced by Google searches for sustainable goods, between 2016 and 2020 consumer demand for sustainable products increased by 71 per cent. By producing more with less, going green can cut down long-term costs as enterprises find new ways to make savings and increase profit margins. This can be done, for example, by reducing energy consumption, increasing resources intensity and recycling materials. Therefore, business rationale constitutes a major factor influencing enterprises' decisions to go green. Reducing environmental impacts can also be a way for enterprises to enhance competitiveness and secure resilient and sustainable growth in responding to the impact of the global pandemic (ITC 2021).

Business rationale constitutes a major factor influencing enterprises' decisions to go green.

Evidence shows that reducing GHG emissions does not necessarily entail economic or employment losses, at least for large enterprises. Between 2010 and 2015, companies that decoupled sales growth from GHG emissions achieved an annual rate of sales growth of 4.1 per cent and an annual rate of employment growth of 2.7 per cent (figure 1.7).

Another factor that is driving the green transition at the enterprise level is increased labour productivity, itself driven by innovation and skills. First, new technology, as with the introduction of environmental standards, requires enterprises to change organizational practices in ways that at the same time increase employee knowledge and skills in relation to new processes, and hence increase labour productivity, as has been documented in France

Figure 1.7 Change in sales and employment for coupled and decoupled enterprises between 2010 and 2015 (percentage)



Note: Enterprises that have coupled sales growth are those with increased sales and GHG emissions, while enterprises that have decoupled sales growth are those with increased sales and reduced GHG emissions. The calculation is based on data from the CDP, a voluntary survey in which companies disclose their GHG emissions and give their opinions and experience concerning policies and their efforts to mitigate emissions.

Source: ILO (2018).

(Delmas and Pekovic 2018) and Spain (García-Marco, Zouaghi and Sánchez 2020). Second, employees may be more committed to enterprises that have adopted environmental standards, as is recognized by a growing body of human resource policy (Amrutha and Geetha 2020). There are many examples of financial incentives contributing to the development of green skills in enterprises, including in Bangladesh, Brazil and Spain (ILO 2018), even if green skills gaps and inequality of opportunity persist in many sectors.

Enterprises can also play a pivotal role in ensuring equity in access to skills development and training, as well as in the hiring of the newly reskilled, and offering career development and learning opportunities in green jobs. This will help to break down persistent structural inequalities, including gender-based occupational segregation and stereotyping, and to narrow the gender pay gap.

Pressure from buyers and consumers along the supply chain can drive decisions by enterprises to adopt a green business model and tap into the growing market demand for green products. SMEs' adoption of voluntary environmental management certifications, such as the ISO 14001 standard, is mainly driven by pressure from clients and buyers and sector-level changes, rather than the individual values of employers and managers (Johnstone and Hallberg 2020).

The existence of strong labour institutions is associated with environmental commitments by larger enterprises but not necessarily with the fulfilment of these commitments (Abriata and Delautre 2020). In smaller enterprises, participation in supply chains may help SMEs transition to economic, social and environmental sustainability through technical know-how, but monitoring compliance among sub-suppliers may be an issue. On the policy side, strengthening the capacity of enterprises to apply labour standards within supply chains has been shown to help enterprises foster decent work (ILO 2016).

1.4.3 Green finance

Green finance, also known as environmental, social and governance (ESG) investing, encompasses all financial instruments developed to promote the transition towards low-carbon, sustainable and inclusive development. Many such financial instruments have been proposed over the last two decades, at both the international and national levels. A further push factor comes from regulators, which are more and more frequently imposing ESG disclosure requirements, even in the absence of a universally accepted framework for consistent and factual reporting (OECD 2021). Green bond issuance increased from US$37 billion in 2014 to US$290 billion in 2020.[9] At the international level, several frameworks provide guidance on identifying, assessing and managing social and environmental risks in projects, such as the Equator Principles.[10] At the national level, green finance is among the most common tools adopted in both developed and developing countries to finance or re-finance projects with sustainability performance targets. Modalities of these tools which are of particular relevance for MSMEs include refunding the expenses of independent sustainability assessment, as well as the use of special loan frameworks for MSMEs. Public–private partnerships provide another source of finance for the greening of enterprises (see box 1.4).

Box 1.4 Africa Agriculture and Trade Investment Fund

The Africa Agriculture and Trade Investment Fund is a public–private partnership set up in 2011. It is targeted at MSMEs in local value chains in agriculture and also seeks to promote socially and environmentally responsible investment. The sustainability framework of this fund was developed by the Government of Germany, the KfW promotional bank and Deutsche Bank in partnership with the ILO and the United Nations Environment Programme (UNEP) and included social and environmental factors.

The fund's loans are aimed at MSMEs and often range from US$5 million to US$15 million with repayment terms of up to 12 years. Eligibility conditions include environmental commitments, such as the ban on commercial logging in ecologically sensitive forests. Since 2018, the fund has also collected data to evaluate the impact of projects on poverty.

Source: Common Fund for Commodities (2020).

In addition to regulations, financial incentives such as tax exemptions, grants and subsidized interest rates can give impetus to the greening of enterprises. For example, the Nepali Government provided cash reimbursements to producers if they obtained organic certification and established tax exemption for five years for enterprises specializing in the packaging and export of organic teas (UNEP 2013). In the Uttar Pradesh state in India, the Mini-Grid Policy provides capital grants of up to 30 per cent of investment costs for mini-grid developers to speed up electrification in rural areas through renewable energy (IEA 2021).

International development organizations often give loans to national banks rather than lending directly to enterprises. These national banks provide credit to MSMEs so they can invest in upgrading their production in line with sustainability standards. For example, in Armenia some banks offer green loans for energy-saving projects, including energy-efficient lighting, heat insulation and installation of thermal solar systems, with the support of the Green for Growth Fund for Southeast Europe.

9 See https://www.climatebonds.net/market/data/.

10 Currently, 123 Equator Principles Financial Institutions (EPFIs) in 37 countries have officially adopted the Equator Principles, covering the majority of international project finance debt within developed and emerging markets.

1.4.4 Innovation and skills

Innovation is an important driver of enterprise transformation, leading to higher competitiveness and increased labour productivity (ILO 2017). It is often feared that more stringent environmental policy could affect the competitiveness of enterprises. One way for enterprises to remain competitive is to innovate by means of process, product, marketing or organizational change. Overall, innovation leads to better outcomes for both enterprises and workers. Innovative enterprises tend to be more productive, create more jobs, employ more skilled workers and hire more female workers (ILO 2017).

Regarding environmental innovation, it has been suggested that new regulations might trigger productivity increases through a change in production processes or a reallocation of resources within firms. This is known as the "Porter hypothesis". Recent data for OECD countries confirm that more stringent environmental policies are associated with productivity gains for the most productive enterprises, and with a decrease for the least productive ones (OECD 2021). Importantly, however, no industry experiences a decline in productivity growth as environmental policies become stricter.

A meta-analysis of the effect of environmental regulation on competitiveness also reveals heterogeneous results at the enterprise level and on the whole positive results at the country level (Cohen and Tubb 2018). In the EU, environmental innovation is expected to greatly increase the scope for resource efficiency and reduction of carbon emissions, especially if innovation comes with organizational change (EEA 2020). Green innovation also seems to have benefits at the national level, as countries that reduce their emissions by sector tend to industrialize further (UNIDO 2016).

In the EU, government policy is a strong driver of environmental innovation in some sectors, such as energy. In addition, both environmental innovation and organizational change are relevant to reducing carbon emissions; that is, changes in organizations are as important as innovations in most sectors, often operating as a leading force in technological development (Borghesi et al. 2015). Nonetheless, a complementarity of the different elements of strategy (innovation, managerial processes, structure) in an enterprise, giving rise to better performance and higher labour productivity, seems to be found predominantly in industrial niche sectors (Gilli, Mancinelli and Mazzanti 2014).

Enterprises play a vital role in the development of green skills that correspond to the needs of the labour market by helping to identify skills gaps and developing new training programmes (ILO 2019d). In that respect, some countries have taken into account the implications of their climate change policy for the skills needed for the realization of this policy, particularly in priority sectors such as renewable energy and energy efficiency (ILO 2018).

Most countries, however, have not yet integrated skills development into environmental policy, especially outside energy. Very few have established specific bodies to consider the question of skills needed for the green transition, and discussions on this issue do not always involve employers, and trade unions even less frequently.

Skills development policy should also pay attention to equal opportunities, since both jobs destroyed and jobs created tend to be dominated by men. Nonetheless, policy coherence has been strengthened over the past 15 years, particularly in the identification of skills needs and in vocational training (ILO 2019d). As new jobs emerge in the transition, the definition of the competences, skills and experience required, also

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known as "certification" of new jobs, is an important part of skills development policy and a component of just transition.

Enterprises, notably the largest ones, need to consider training their workforce in green skills not available in the labour market. For smaller firms, interventions such as capacity-building on technological pathways and information-sharing play an important role in enhancing environmental awareness and practices. Training appears to be an important contribution to help improve the adoption of environmental protection policies by enterprises in Ghana and Nigeria (Efobi et al. 2019).

1.4.5 Culture and norms

Much work has been undertaken by governments around the world to strengthen the education and awareness of students and the general public on environmental issues. The United Nations Educational, Scientific and Cultural Organization (UNESCO) recently published a report on environmental education (UNESCO 2021). The assessment evaluates the level of the integration of environmental components into national development plans and educational policies, and also draws on surveys conducted among experts and teachers. There was a positive trend between 1950 and 2011 in the 50 countries reviewed; environmental protection and damage were the most dominant issues addressed.

At the enterprise level, qualitative evidence shows the importance of cultures, values and norms in decisions on environmental sustainability taken by entrepreneurs, particularly those of owners/managers in smaller-sized enterprises. A sample of green MSMEs in the United Kingdom reported that company environmental culture was the main factor that enabled them to adopt a circular economic business model (Rizos et al. 2016). Studying MSMEs in Bosnia and Herzegovina, Silajdžić, Midžić Kurtagić and Vučijak (2015) found that the key drivers for green-oriented businesses were the personal motivations of the owner/manager, the location and a forward-thinking sustainability orientation.

1.4.6 Social dialogue

On a broader level, the social partners were involved in the policy debate on just transition in many countries in the period leading up to the 2015 Paris Agreement and beyond. However, social dialogue institutions and the social partners have limited capacity to bridge the gap between the national level, where general policy orientations are provided, and the local or enterprise level, where measures are implemented.

Below are the main results of a desk review of the role of a tripartite institutionalized mechanism, in other words national social dialogue institutions (NSDIs), in effectively influencing practices and policies for a just transition in 17 countries.[11] Two dimensions of effectiveness are considered. First, the capacity of social dialogue and tripartite institutions to participate in just transition policy debates, initiatives and policies by setting the agenda or providing analysis. Second, the capacity of social dialogue institutions and the social partners to bridge the gap between the national level and the local or enterprise level.

Beyond tripartite social dialogue, bipartite social dialogue and collective bargaining also offer means for workers and employers to reach shared solutions for a just transition, typically on working conditions and terms of employment. However, a recent global review of collective bargaining has highlighted that, in practice, just under a quarter of the agreements analysed address environmental transitions (ILO 2022).

The capacity of NSDIs to influence just transition policy debates

Just transition approaches can range from a narrow focus on creating employment, training, and protecting redundant workers, to new development strategies at the local and national levels (Saget, Luu and Karimova 2021). The capacity of NSDIs to influence just transition debates depends not only on their mandate but also on the governance of the just transition (table 1.2).

Under a multi-stakeholder approach with social dialogue (table 1.2, third column), just transition involves a wide variety of actors, including businesses, local communities, consumers, workers and trade unions. Their role in drafting and implementing just transition plans can vary from participation via online platforms to a more institutionalized involvement through the creation of ad hoc bodies at national, regional or local level. In some instances, the multi-stakeholder approach is not based on social dialogue (table 1.2, second column). Under the government-led governance mode, just transition plans respond to government initiatives, very often with the support of groups of experts, but with limited or no involvement of other civil society actors (table 1.2, first column).

Regarding the role of social dialogue, social partner involvement may vary in format (formalized channels, including NSDIs, versus informal ad hoc meetings and committees) and intensity (from information to consultation or negotiation).

11 The section on social dialogue is based on Molina Romo (2022).

Table 1.2 Governance of a just transition and the capacity of social dialogue institutions

		Governance of just transition		
		Government led	Multi-stakeholder	Multi-stakeholder with social dialogue
Role of national social dialogue institutions	Non-existent	Australia (national), Chile	Australia (local)	Canada, New Zealand
	Limited	Colombia, Indonesia, Kyrgyzstan, Mexico, Republic of Korea	Argentina, Slovenia	Guinea, Senegal
	Strong			Ireland, Netherlands, South Africa, Spain

Source: Molina Romo (2022).

Coordination of social dialogue

One recurring aspect of the just transition debate is the need to coordinate the different levels: national, sectoral, regional, local or enterprise. The coordination of social dialogue in just transition processes thus plays a key role.

For example, in the Latrobe Valley in Australia – a region strongly affected by the closure of coal power stations – a series of climate change forums brought together national and state secretaries of the region's major unions, environmental organizations, local community groups and local and state government representatives to discuss the future of the region. Similarly, in New Zealand, a key focus of the Just Transition Unit is to ensure that regions are supported in planning and managing the social, economic and environmental impacts of a transition. Two regional plans are currently receiving support from the Just Transition Unit: the Taranaki region and the Southland region. In the Republic of Korea, local government bodies have established regional green growth plans and created regional green growth committees, with strong adoption of a multi-stakeholder approach.

Social dialogue topics and policies in relation to the greening of workplaces

In the sample of 17 countries reviewed, social dialogue on the greening of workplaces seems to focus on the production process and the reduction of emissions, and more rarely on reskilling, functional mobility, and flexibility and organization of work, in addition to the usual topics of skills, social protection and employment creation. Social dialogue topics also depend on the type of climate risk that countries are facing and on the strategies chosen to deal with it.

Climate change. A first group of countries consists of those at high risk because of the impact of climate change, and includes Argentina, Guinea, Indonesia and Kyrgyzstan. As climate change is seriously affecting the development path of these countries, social dialogue has focused on broader issues, with a more limited focus on topics related to the just transition of enterprises.

For example, in Indonesia, the issue of climate change has gained importance on the political agenda, since the large number of islands and the country's reliance on primary activities (agriculture and fishery) and tourism make it highly vulnerable

to climate change. Although there have been some high-level discussions on the just transition, these have not always translated into concrete policies and programmes that would link carbon emission strategies to labour markets.

Decarbonization. A second group consists of countries such as Australia, Canada, Chile, Colombia, Mexico, New Zealand, Senegal and Slovenia, where the focus is on tackling the impact of decarbonization and the need to develop new sectors and activities in the regions affected by plant closures. Chile belongs to this group because of the importance of the mining sector and its impact on the economy and the environment. Thus far, green transition initiatives have mostly focused on decarbonization and the impact of the closure of coal-fired plants on employment and the economy. A commission for decarbonization has been set up, bringing together representatives of enterprises as well as other civil society actors.

Production processes. A third group consists of countries such as Ireland, the Netherlands and South Africa, where, in addition to policies to tackle the impact of climate change, policies also aim to help businesses change their production processes in order to reduce emissions and to promote green workplaces. One of the best examples of the role of social dialogue in promoting green workplaces in the sample of countries studied was the 2011 tripartite Green Accord in South Africa, which provides for the specific commitment of the three parties.

Unions and collective bargaining. Outside the sample of countries, evidence on the role of unions in the process of greening enterprises is scarce, except in Antonioli and Mazzanti's (2017) analyses of 555 Italian manufacturing SMEs (enterprises of more than 20 workers). The mere presence of a union in an enterprise is not a driver of environmental innovation. However, collective bargaining on strategic decisions concerning innovation is positively related to the probability of adopting green innovation policies.

1.5 Measures to make enterprises greener

1.5.1 Conceptual framework for the greening of enterprises

The greening of enterprises entails the greening of outputs and/or greening of processes (ITC-ILO 2016; OECD 2018). Explicit attention to the greening of workplaces is useful to the general goal of restoring a healthy natural environment (figure 1.8).

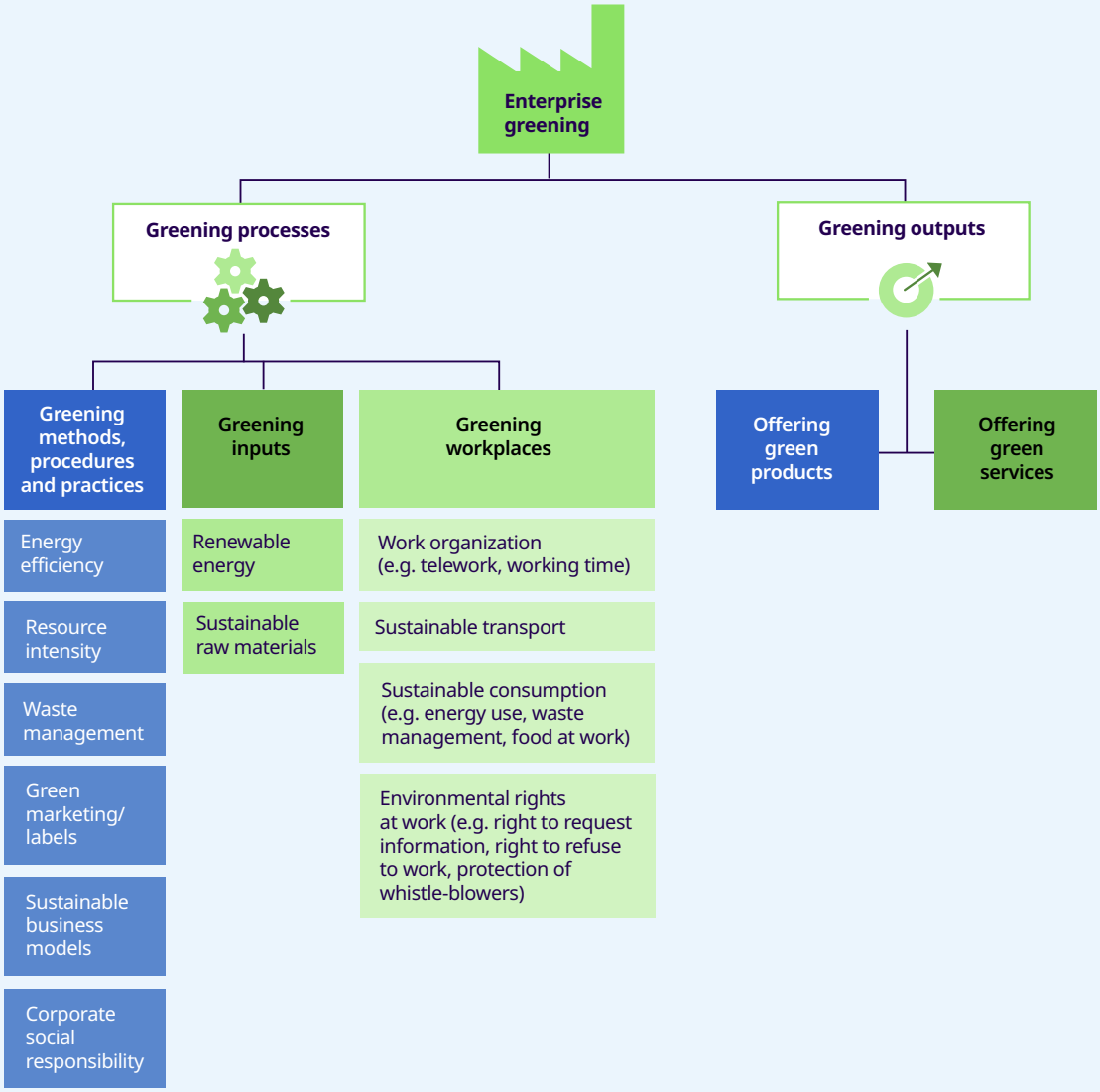
Explicit attention to the greening of workplaces is useful to the general goal of restoring a healthy natural environment

Green outputs are outputs produced by the enterprise that directly contribute to reducing carbon emissions, such as solar panels, for example.

Greening processes include the greening of methods, procedures and practices, as well as greening inputs and greening workplaces (third line of the first, second and third columns of figure 1.8, respectively).

Various elements contribute to the greening of workplaces, including sustainable consumption at the workplace, work organization and teleworking, and sustainable transport. Other main elements of the greening of methods, procedure and practices

Figure 1.8 Enabling factors for the just transition of enterprises



Source: ILO compilation.

include renewable energy, energy efficiency, resource intensity and waste management (figure 1.8).[12]

While the analytical framework for the greening of enterprises is detailed here in Chapter 1, Chapter 2 analyses the legal framework in several countries for the greening of workplaces, as well as other types of regulations that are highly relevant to greening both large enterprises and MSMEs – relating, in particular, to green procurement and sustainable business models. Chapter 3 estimates the numbers of enterprises taking measures to green their processes and to produce green outputs, as well as the effects that adoption of greening processes may have on employment.

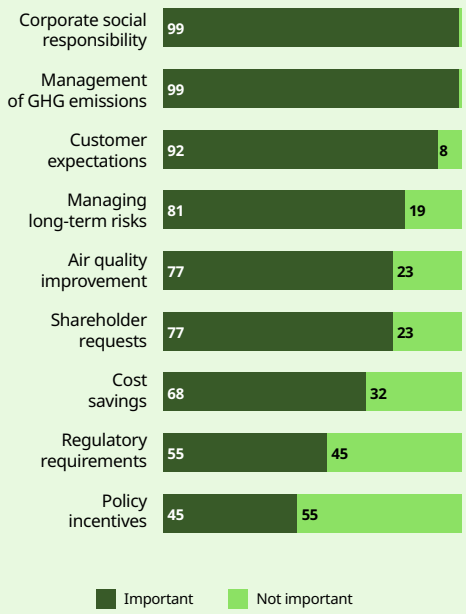
12 The greening of workplaces category partly overlaps with the other two categories of greening methods, procedures and practices, as well as with greening inputs. For example, waste management encompasses both management of waste in the production process and waste management by workers in the workplace.

Box 1.5 The RE100 initiative

RE100 is a collaborative initiative bringing together more than 260 large businesses committed to 100 per cent renewable electricity. In 2020, almost half (47 per cent) of its members sourced 50 per cent or more of their electricity from renewables. While some enterprises have progressed, others face difficulties owing to regulatory barriers, costs, lack of certification of energy sources and the cost of acquiring certificates.

Several common factors have been found to drive enterprises' renewable energy transition (figure 1.9). The most cited drivers are: (i) reducing GHG emissions and (ii) corporate social responsibility (99 per cent of participants identified these two factors as important for the switch to renewable energy). Only 45 per cent of participants identified policy incentives as an important driver, implying that it is market forces rather than policies that drive these enterprises' corporate sourcing of renewables (CDP and Climate Group 2020).

Figure 1.9 Renewable electricity drivers for RE100 participants in 2020



Source: CDP and Climate Group (2020).

RE100 companies reported influencing their suppliers' transition to renewable energy. Contracts with suppliers represent one third of total renewable energy consumption by RE100 enterprises (CDP and Climate Group 2020).

On the basis of six country case studies, Chapter 4 looks at the different ways in which the focus on enterprises has become more central in these countries' legal frameworks for transforming their economies and societies into sustainable ones. A similar comprehensive perspective is taken in Chapter 5, which looks at the greening of MSMEs in the context of the COVID-19 recovery, on the basis of qualitative surveys of four countries – Colombia, Kyrgyzstan, the Republic of Korea and South Africa.

1.5.2 Examples of measures to make enterprises greener

Renewable energy

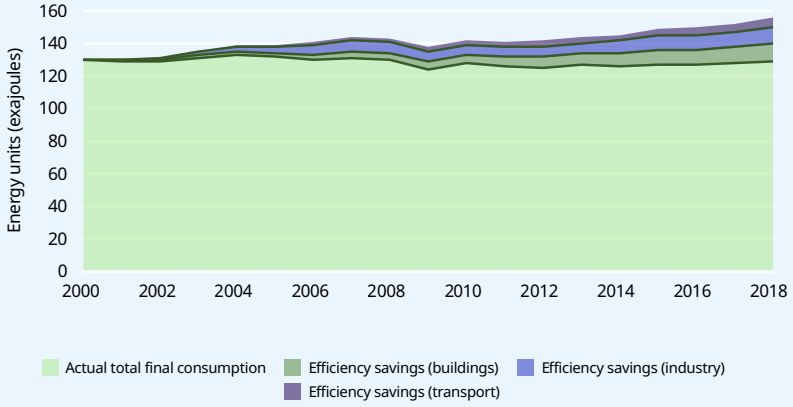
The use of renewable energy sources, such as solar, wind, geothermal, hydro, ocean and biomass, is leading the way towards a zero-carbon economy. However, in 2018 the corporate renewable electricity market accounted for only 3.5 per cent of total electricity demand and 18.5 per cent of total renewable electricity demand in the commercial and industrial sectors (IRENA 2018). The adoption of renewable energy is more limited among MSMEs in both developed and developing economies – for example, in Germany (Rahbauer et al. 2016) and Nigeria (Adepoju and Akinwale 2019). The most popular model of renewable energy for enterprises is self-generation, in which enterprises generate energy on site, for example through the installation of solar panels.

Worldwide, large enterprises have taken action to switch from fossil fuels to renewable sources, as in the RE100 initiative (box 1.5). Major barriers that MSMEs face in sourcing renewable energy include financial constraints, lack of skills and training, and regulatory challenges.

Energy efficiency

Improvements in energy efficiency in Member countries of the International Energy Agency (IEA) since 2000 resulted in energy savings of

Figure 1.10 Estimated savings of final energy use in IEA countries, 2000–18



Note: The IEA has 31 Member States, including the countries of the EU, Switzerland, Türkiye, the United Kingdom and the United States.

Source: IEA (2020a).

some 20 per cent by 2018 (IEA 2020a). The industry sector accounted for 42 per cent of these savings; the buildings sector, which includes all energy-related activities in residential and commercial places, accounted for 38 per cent and the transport sector for the remaining 20 per cent (figure 1.10).

Energy efficiency often starts with an energy audit, followed by changes in the organization of production. Energy auditing and measurement help identify steps along the production process where energy savings can be made and improvements monitored. In most developed countries, but also in developing countries, large enterprises are subject to mandatory audit requirements, whereas for MSMEs energy auditing is often voluntary (see Chapter 2).

Organizational changes include training workers on energy-saving measures, designating a focal worker or team responsible for energy efficiency management, and introducing incentives for staff to improve energy efficiency. MSMEs are less likely to introduce major changes and may focus on more simple measures, such as switching off equipment not being used or dedicating personnel to energy efficiency management.

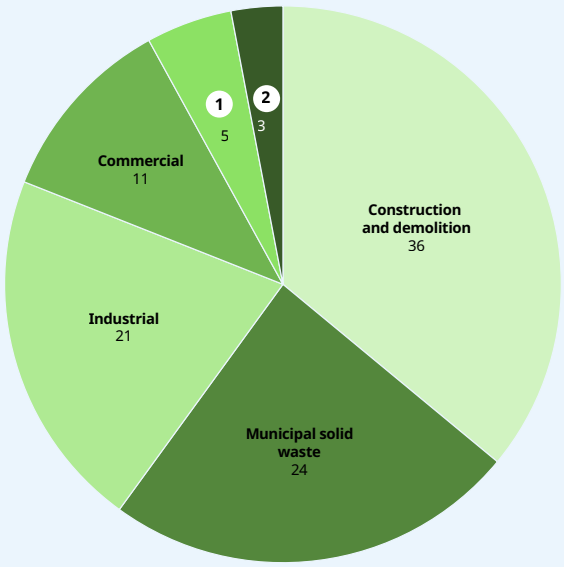
Technological changes are also a key driver in the adoption of energy efficiency measures at the enterprise level (Segarra-Blasco and Jove-Llopis 2019). However, such changes are often less applicable to MSMEs. To promote the advance of energy efficiency, measures should aim to improve environmental awareness among enterprises, particularly among MSMEs.

Waste reduction and the transition to a circular economy

The share of waste generated by enterprises at the global level is substantial. In OECD countries, according to a UNEP (2015) study, 76 per cent of waste comes from enterprises, while households are responsible for 24 per cent (municipal solid waste) (figure 1.11).[13] There remains great potential for climate change mitigation in waste

13 Commercial and industrial (C&I) waste is defined as waste generated from enterprises of any size. The C&I waste stream includes materials ranging from those similar in composition to household waste to chemicals and composite products. Some countries include C&I waste partially or fully within the definition of municipal waste, while in other countries C&I constitutes a separate category (Woodard 2020).

Figure 1.11 Share of waste by generation source in OECD countries in 2014 (percentage)



1 Water supply, sewage treatment, waste management and land remediation

2 Energy production

Note: Data are for the OECD countries as a proxy, owing to limitations on the availability of data from the rest of the world. All data exclude waste from agricultural, forestry, mining and quarrying activities. Where there are significant gaps in the OECD database for a particular category of waste in a specific country, other sources have been used (using the Environmental Management Centre [EMC] master database compiled for *Global Waste Management Outlook*), or an estimate has been made.

Source: UNEP (2015).

management. Global GHG emissions could be reduced by 10 to 15 per cent through improved solid waste management (UNEP 2015).

Measures to reduce waste often include recycling or using waste as an input or selling it to another enterprise. Further gains can be achieved from taking a holistic, circular economy approach to waste management (Romero-Hernández and Romero 2018). A transition to a circular economy could yield a net creation of 6 million jobs in 2030 (ILO 2018). Circular economy principles seek to maximize the use of inputs and outputs through reusing materials, extending the durability of goods, remanufacturing and recycling to create a kind of closed-loop economy where new activities are resourced with discarded by-products.

Waste management and resource efficiency seem the most feasible tools that MSMEs can use to green their activities.

Enterprises that adopt a circular model of production see reduced costs for materials, improved customer satisfaction, less product complexity and more manageable product life cycles. It is expected that increasing regulations (Chapter 2) and consumer pressure will lead enterprises to further adjust their waste management strategies.

Several large corporations have already begun adopting circular economy strategies (Romero-Hernández and Romero 2018). In

Europe, while 45 per cent of waste material from large enterprises is resold, the figure is only 25 per cent for MSMEs.[14] Waste management and resource efficiency seem nonetheless the most feasible tools that MSMEs can use to green their activities. As in energy efficiency management, the first steps to be taken towards a circular economy are waste accounting and deciding on the best way to manage waste.

Sustainable food consumption at the workplace

Most workers eat at least one main meal during their working day and it is therefore important that they have access to nutrition and clean water at the workplace (box 1.6). At the same time, in recent years, online ordering of takeaway food has emerged as a mode of daily food consumption at the workplace in many growing cities across the globe. Although convenient for workers, food delivery services can have a negative impact on environmental sustainability, in regard not only to food waste and packaging (Li, Mirosa and Bremer 2020; Sharma et al. 2021) but also to fuel consumption, since in many urban locations deliveries are made using motorbikes or scooters. The working conditions of delivery workers have also been questioned, notably the income they receive and the frequent lack of adequate social protection and safety at work (ILO 2021b).

Box 1.6 Food at work: Environmental sustainability and OSH

As most workers eat at least one main meal during their working day, it is important to the goal of decent work that they have access to nutritious, safe and affordable food, and adequate meal breaks and decent conditions for eating (ILO 2005). Although food choices are made by the individual, one's decisions can be influenced by the surrounding environment. The workplace can therefore help to encourage healthy eating behaviour. It can also encourage sustainable food consumption. One example of this is Green Monday in Hong Kong, China. Through promoting plant-based eating, the initiative works with enterprises of all sizes to help them reduce their carbon footprint by offering greener options.

Sustainable commuting

The transport sector accounts for 16.2 per cent of global GHG emissions (Ritchie and Roser 2020), a considerable share of which is the result of daily commuting. Measures such as encouraging workers to use public transport, cycling or walking, or carpooling and shuttle services could go a long way towards mitigating carbon emissions generated from transport (table 1.3).

While some employers are reluctant to invest in mobility management because they believe it should be the responsibility of the public sector and the individual workers themselves (Rye 1999), others acknowledge the positive link between workers' health, productivity and sustainable transport (ILO and UNECE 2020).

In the United Kingdom, senior managers of enterprises see the following as the main benefits of sustainable transport: reduced delays and reduced stress associated with traffic congestion, less demand for car parking, improved staff well-being and greater recruitment opportunities for workers without private cars (Bartle and Chatterjee 2019).

Sustainable mobility plans adopted by enterprises, particularly in Europe, have been found to increase workers' use of greener and healthier transport modes, such as cycling and carpooling (Van Malderen et al. 2012). However, viable alternative modes of transport cannot be developed without some kind of infrastructure at

14 Available at https://ec.europa.eu/newsroom/growth/items/48589/en.

Table 1.3 Enterprise-level measures to promote sustainable transport practices among employees

Category	Examples of measures
Promote alternative modes of transport	▸ Subsidize rail and bus passes ▸ Offer free cycle-share membership ▸ Provide shuttles to and from train stations ▸ Provide cycle storage, parking for shared vehicles, showers, lockers and other such amenities
Disincentivize driving	▸ Eliminate parking subsidies and reduce the number of parking spaces
Foster car sharing	▸ Encourage and foster a carpooling programme for workers
Flexible working hours and teleworking	▸ Provide alternative work schedules with core hours to prevent overcrowding on public transport ▸ Implement teleworking
Designate staff responsible for enterprise mobility plan	▸ Propose sustainable transport initiatives to encourage staff to use alternatives to private cars, even temporarily ▸ Offer information and advocacy around the workplace on sustainable and healthy transport

Source: ILO compilation.

the workplace, such as cycle storage rooms, clothes-changing facilities, showers and lockers (Heinen, Maat and van Wee 2013). Moreover, social dialogue between workers and employers can influence mobility management by clarifying the needs and preferences of workers.

Work organization: Teleworking

Teleworking is one way of organizing work which has received much attention following the outbreak of the COVID-19 pandemic in early 2020, which affected enterprises and workers' jobs and lives. Teleworking was first introduced in the United States in the early 1970s, thanks to the development of telecommunications technology, as a way to reduce commuting time and energy costs. However, it was only with the onset of COVID-19 that mass teleworking became widespread, with millions of workers worldwide working remotely to comply with safety regulations at the workplace.

Teleworking can offer environmental, social and economic benefits to both workers and employers. It eliminates the daily commute, thus saving energy and reducing emissions and traffic congestion, especially for people commuting more than 6 kilometres by car (IEA 2020b). Teleworking means that employers need less office space for their staff, and it can also have a positive impact on labour productivity. However, the overall effects on emissions are still unclear. In some countries, while carbon emissions from transport may be reduced, workers may be using other energy sources that may not necessarily be clean. There is also the issue that computers and data storage consume a lot of energy.

The share of jobs that can be performed remotely depends to a great extent on the skills and occupational structure of the workforce (ILO 2021c), as well as on software

Table 1.4 Estimates of the share of workers working from home during Q2 2020

	Upper	Estimate	Lower
High income	17.8	25.4	33.0
Upper-middle income	11.4	17.1	22.8
Lower-middle income	11.6	13.6	15.7
All countries	14.9	17.4	19.9

Note: Estimates are based on 32 surveys, including household, labour force and ad hoc COVID-19 surveys, including questions on the place of work that allowed for the identification of workers working from home. "Upper" and "Lower" represent 95 per cent upper and lower confidence intervals, respectively.

Source: ILO (2021b).

solutions (ILO 2021b). Infrastructure, including reliable access to electricity and internet connectivity, is another important aspect of teleworking policy. Worldwide, lower-middle-income economies have a lower share of jobs that can be performed at home, 13.6 per cent, compared with 25.4 per cent in high-income economies (table 1.4) (ILO 2021c). In the United States, 37 per cent of jobs could be performed entirely at home, although the proportion varies significantly across cities and industries (Dingel and Neiman 2020).

There are, nonetheless, some risks associated with teleworking, especially when it is carried out on a full-time basis – notably, social isolation and detachment from colleagues and the enterprise itself (ILO 2021d). Teleworking may aggravate existing gender inequalities in childcare and household chores. The psychosocial risks associated with teleworking require assessment, and these include risks of violence and harassment. The social partners' views will contribute to the debate on post-pandemic teleworking to develop arrangements that will benefit all partners and reduce the pressure on the environment.

1.6 Conclusion

Both external and internal factors prompt enterprises to adopt green processes or produce green outputs. This chapter has identified the following drivers of the greening of enterprises: business rationale, compliance with government regulations, green finance, values of the owner/manager, availability of technology and skills in the labour market, the requests of distributors in supply chains, and, to a lesser extent, social dialogue. The just transition of enterprises – that is, the transformation of their activities alongside the creation of decent jobs – has different meanings for enterprises of different sizes and sectors.

This chapter has provided a conceptual framework for the greening of enterprises, particularly of workplaces. The greening of workplaces – including sustainable consumption at the workplace, sustainable transport, and work organization (for example, teleworking) – is becoming increasingly important both in enterprises' practices and in workers' lives.

Policy solutions conducive to the greening of enterprises, including workplaces, encompass a range of interventions at the macro, sectoral and micro levels.

At the macro level, solutions include enabling factors such as functioning institutions; clear, inclusive and monitored environmental policies; and an enabling business

environment. At the sector level, policies are needed to encourage the development and functioning of green businesses (green business development, skills development, social dialogue). Micro-level interventions (training and technical support to support resource efficiency) can facilitate certification formalities and the adoption of green processes.

References

A

Abriata, B., and G. Delautre. 2020. "What Drives CSR? An Empirical Analysis on the Labour Dimensions of CSR", ILO Working Paper No. 7.

ABS (Australian Board of Statistics). 2019. *Energy Use and Electricity Generation, Australia*. https://www.abs.gov.au/statistics/industry/energy/energy-use-and-electricity-generation-australia/2017-18/.

Adepoju, A.O., and Y.O. Akinwale. 2019. "Factors Influencing Willingness to Adopt Renewable Energy Technologies among Micro and Small Enterprises in Lagos State Nigeria". *International Journal of Sustainable Energy Planning and Management* 19: 69–82.

Albrizio, S., T. Kozluk, and V. Zipperer. 2017. "Environmental Policies and Productivity Growth: Evidence across Industries and Firms". *Journal of Environmental Economics and Management* 81: 209–226.

Amrutha, V.N., and S.N. Geetha. 2020. "A Systematic Review on Green Human Resource Management: Implications for Social Sustainability". *Journal of Cleaner Production* 247 (1): 119–131.

Antonioli, D., and M. Mazzanti. 2017. "Towards a Green Economy through Innovations: The Role of Trade Union Involvement". *Ecological Economics* 131: 286–299.

Arto, I., V. Andreoni, and J.M. Rueda-Cantuche. 2016. "Global Use of Water Resources: A Multiregional Analysis of Water Use, Water Footprint and Water Trade Balance". *Water Resources and Economics* 15: 1–14.

B

Bartle, C., and K. Chatterjee. 2019. "Employer Perceptions of the Business Benefits of Sustainable Transport: A Case Study of Peri-urban Employment Areas in South West England". *Transportation Research Part A: Policy and Practice* 126: 297–313.

BEIS (UK Department for Business, Energy and Industrial Strategy). 2017. *The Clean Growth Strategy Leading the Way to a Low Carbon Future*.

Borghesi S., F. Crespi, A. D'Amato, M. Mazzanti, and F. Silvestri. 2015. "Carbon Abatement, Sector Heterogeneity and Policy Responses: Evidence on Induced Eco Innovations in the EU". *Environmental Science and Policy* 54: 377–388.

C

CDP (Carbon Disclosure Project). 2016. *Thirsty Business: Why Water Is Vital to Climate Action: 2016 Annual Report of Corporate Water Disclosure*.

CDP and the Climate Group. 2020. *Growing Renewable Power: Companies Seizing Leadership Opportunities*.

CICOPA (International Organization of Cooperatives in Industry and Services). 2017. *Cooperatives and Employment: Second Global Report 2017 – Contribution of Cooperatives to Decent Work in the Changing World of Work*.

Cohen, M., and A. Tubb. 2018. "The Impact of Environmental Regulation on Firm and Country Competitiveness: A Meta-analysis of the Porter Hypothesis". *Journal of the Association of Environmental and Resource Economists* 5 (2): 371–399.

Common Fund for Commodities. 2020. *Annual Report 2019*.

Constantinos, C., S.Y. Sorensen, P.B. Larsen, and S. Alexopoulou. 2010. *SMEs and the Environment in the European Union*. European Commission.

Costanza, R., R. de Groot, P. Sutton, S. van der Ploeg, S. Anderson, I. Kubszewski, and S. Faber. 2014. "Changes in the Global Value of Ecosystem Services". *Global Environmental Change* 26: 152–158.

D

DCED (Donor Committee on Enterprise Development). 2014. *Final Report: Green Growth and Private Sector Development – Stocktaking of DCED Experiences*.

Dechezleprêtre, A., and M. Sato. 2017. "The Impacts of Environmental Regulations on Competitiveness". *Review of Environmental Economics and Policy* 11 (2): 183–206.

Delmas, M.A., and S. Pekovic. 2018. "Organizational Configurations for Sustainability and Employee Productivity: A Qualitative Comparative Analysis Approach". *Business & Society* 57 (1): 216–251.

Demuijnck, G., and H. Ngnodjom. 2013. "Responsibility and Informal CSR in Formal Cameroonian SMEs". *Journal of Business Ethics* 112 (4): 653–665.

Dias, S.M. 2011. *Integrating Informal Workers into Selective Waste Collection: The Case of Belo Horizonte, Brazil*. Women in Informal Employment: Globalizing and Organising (WIEGO) Policy Brief (Urban Policies) No. 4.

———. 2016. "Waste Pickers and Cities". *Environment and Urbanization* 28 (2): 375–390.

Dingel, J.I., and B. Neiman. 2020. "How Many Jobs Can Be Done at Home?" *Journal of Public Economics* 189: 104–235.

E

EEA (European Environmental Agency). 2020. *The Sustainability Transition in Europe in an Age of Demographic and Technological Change: An Exploration of Implications for Fiscal and Financial Strategies*.

Efobi, U., T. Belmondo, E. Orkoh, S.N. Atata, O. Akinyemi, and I. Beecroft. 2019. "Environmental Pollution Policy of Small Businesses in Nigeria and Ghana: Extent and Impact". *Environmental Science and Pollution Research* 26 (3): 2882–2897.

G

García-Marco, T., F. Zouaghi, and M. Sánchez. 2020. "Do Firms with Different Levels of Environmental Regulatory Pressure Behave Differently Regarding Complementarity among Innovation Practices?" *Business Strategy and the Environment* 29 (4): 1684–1694.

Gatti, L., P. Seele, and L. Rademacher. 2019. "Grey Zone In – Greenwash Out: A Review of Greenwashing Research and Implications for the Voluntary-Mandatory Transition of CSR". *International Journal of Corporate Social Responsibility* 4 (6).

Gilli, M., S. Mancinelli, and M. Mazzanti. 2014. "Innovation Complementarity and Environmental Productivity Effects: Reality or Delusion? Evidence from the EU". *Ecological Economics* 103: 56–67.

H

Heinen, E., K. Maat, and B. van Wee. 2013. "The Effect of Work-Related Factors on the Bicycle Commute Mode Choice in the Netherlands". *Transportation* 40 (1): 23–43.

Huynen, M., P. Martens, and R. De Groot. 2004. "Linkages between Biodiversity Loss and Human Health: A Global Indicator Analysis". *International Journal of Environmental Health Research* 14 (1): 13–30.

I

IEA (International Energy Agency). 2015. *Accelerating Energy Efficiency in Small and Medium-Sized Enterprises: Powering SMEs to Catalyse Economic Growth*.

———. 2020a. *Energy Efficiency Indicators: Overview*.

———. 2020b. *Working from Home Can Save Energy and Reduce Emissions. But How Much?*

———. 2021. *Uttar Pradesh Mini-Grid Policy 2016*. IEA/IRENA Renewables Policies Database.

IIED (International Institute for Environment and Development). 2016. *Informality and Inclusive Green Growth: Evidence from "The Biggest Private Sector" Event*.

ILO. 2002. *Decent Work and the Informal Economy*.

———. 2005. *Food at Work: Workplace Solutions for Malnutrition, Obesity and Chronic Diseases*.

———. 2007. Conclusions concerning the promotion of sustainable enterprises. International Labour Conference. 96th Session.

———. 2013. *Providing Clean Energy and Energy Access through Cooperatives*.

———. 2014. *Tackling Informality in E-waste Management: The Potential of Cooperative Enterprises*.

———. 2015. *Guidelines for a Just Transition towards Environmentally Sustainable Economies and Societies for All*.

———. 2016. Resolution concerning decent work in global supply chains. International Labour Conference. 105th Session.

———. 2017. *World Employment and Social Outlook 2017: Sustainable Enterprises and Jobs: Formal Enterprises and Decent Work*.

———. 2018. *World Employment and Social Outlook 2018: Greening with Jobs*.

———. 2019a. *Small Matters: Global Evidence on the Contribution to Employment by the Self-Employed, Micro-enterprises and SMEs*.

———. 2019b. *The Contribution of the Social and Solidarity Economy and Social Finance to the Future of Work*.

———. 2019c. *Waste Pickers' Cooperatives and Social and Solidarity Economy Organizations*.

———. 2019d. *Skills for a Greener Future: A Global View*.

———. 2021a. *Transition from the Informal to the Formal Economy – Theory of Change*.

———. 2021b. *World Employment and Social Outlook 2021: The Role of Digital Labour Platforms in Transforming the World of Work*.

———. 2021c. *From Potential to Practice: Preliminary Findings on the Numbers of Workers Working from Home during the COVID-19 Pandemic*. ILO Policy Brief.

———. 2021d. *Teleworking Arrangements during the COVID-19 Crisis and Beyond.* Paper prepared for the 2nd Employment Working Group Meeting under the 2021 Italian Presidency of the G20.

———. 2022. *Social Dialogue Report 2022: Collective Bargaining for an Inclusive, Sustainable and Resilient Recovery.*

ILO and UNECE (United Nations Economic Commission for Europe). 2020. *Jobs in Green and Healthy Transport: Making the Green Shift*.

IPCC (Intergovernmental Panel on Climate Change). 2014. *Climate Change 2014: Impacts, Adaptation, and Vulnerability*.

IRENA (International Renewable Energy Agency). 2018. *Corporate Sourcing of Renewables: Market and Industry Trends – REmade Index 2018*.

ITC (International Trade Centre). 2021. *SME Competitiveness Outlook 2021: Empowering the Green Recovery*.

ITC-ILO (International Training Centre of the International Labour Organization). 2016. *Greening Economies, Enterprises and Jobs*.

J

Jamali, D., P. Lund-Thomsen, and S. Jeppesen. 2017. "SMEs and CSR in Developing Countries". *Business & Society* 56 (1): 11–22.

Jenkins, H. 2006. "Small Business Champions for Corporate Social Responsibility". *Journal of Business Ethics* 67 (3): 241–256.

Johnstone, L., and P. Hallberg. 2020. "ISO 14001 Adoption and Environmental Performance in Small to Medium-Sized Enterprises". *Journal of Environmental Management* 266: 110–592.

K

Kemp, R., and B. Never. 2017. "Green Transition, Industrial Policy, and Economic Development". *Oxford Review of Economic Policy* 33 (1): 66–84.

Kjellstrom, T., N. Maitre, C. Saget, M. Otto, and T. Karimova. 2019. *Working on a Warmer Planet: The Impact of Heat Stress on Productivity and Decent Work*. ILO.

L

Lewis, J.K. 2016. "Corporate Social Responsibility/Sustainability Reporting among the Fortune Global 250: Greenwashing or Green Supply Chain?" *Eurasian Studies in Business and Economics* 3 (1): 347–362.

Li, C., M. Mirosa, and P. Bremer. 2020. "Review of Online Food Delivery Platforms and their Impacts on Sustainability". *Sustainability* 12 (14): 5528.

M

Meng, B. Y. Liu, R. Andrew, M. Zhou, K. Hubacek, J. Xue, G. Peters, and Y. Gao. 2018. "More than Half of China's CO_2 Emissions Are from Micro, Small and Medium-Sized Enterprises". *Applied Energy* 230: 712–725.

Mir, D.F., and E. Feitelson. 2007. "Factors Affecting Environmental Behavior in Micro-enterprises: Laundry and Motor Vehicle Repair Firms in Jerusalem". *International Small Business Journal* 25 (4): 383–415.

Molina Romo, O. 2022. "The Role of Tripartite Social Dialogue in Facilitating a Just Transition: Experiences from Selected Countries", ILO Working Paper.

O

OECD (Organisation for Economic Co-operation and Development). 2018. *SMEs: Key Drivers of Green and Inclusive Growth*.

———. 2021. *ESG Investing and Climate Transition: Market Practices, Issues and Policy Considerations.*

P

Parry, S. 2012. "Going Green: The Evolution of Micro-business Environmental Practices". *Business Ethics: A European Review* 21 (2): 220–237.

Perrini, F. 2006. "SMEs and CSR Theory: Evidence and Implications from an Italian Perspective". *Journal of Business Ethics* 67 (3): 305–316.

R

Rahbauer, S., L. Menapace, K. Menrad, and T. Decker. 2016. "Adoption of Green Electricity by German Small and Medium-Sized Enterprises (SMEs) – A Qualitative Analysis". *Journal of Cleaner Production* 129: 102–112.

Ritchie, H., and M. Roser. 2020. "CO_2 and Greenhouse Gas Emissions". https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions/.

Rizos, V., A. Behrens, W. Van der Gaast, E. Hofman, A. Ioannou, T. Kafyeke, A. Flamos et al. 2016. "Implementation of Circular Economy Business Models by Small and Medium-Sized Enterprises (SMEs): Barriers and Enablers". *Sustainability* 8 (11): 1212.

Rodgers, C. 2010. "Sustainable Entrepreneurship in SMEs: A Case Study Analysis". *Corporate Social Responsibility and Environmental Management* 17 (3): 125–132.

Rodriguez-Gomez, S., M.L. Arco-Castro, M.V. Lopez-Perez, and L. Rodríguez-Ariza. 2020. "Where Does CSR Come from and Where Does It Go? A Review of the State of the Art". *Administrative Sciences* 10 (3): 60.

Romero-Hernández, O., and S. Romero. 2018. "Maximizing the Value of Waste: From Waste Management to the Circular Economy". *Thunderbird International Business Review* 60 (5): 757–764.

Rye, T. 1999. "Employer Attitudes to Employer Transport Plans: A Comparison of UK and Dutch Experience". *Transport Policy* 6 (3): 183–196.

S

Saget, C., T. Luu, and T. Karimova. 2021. "A Just Transition towards Environmental Sustainability for All". In *The Palgrave Handbook of Environmental Labour Studies*, edited by Nora Räthzel, Dimitris Stevis and David Uzzell, 467–491. Cham: Palgrave Macmillan.

Saget, C., A. Vogt-Schilb, and T. Luu. 2020. *Jobs in a Net-Zero Emissions Future in Latin America and the Caribbean*. Inter-American Development Bank and ILO.

Segarra-Blasco, A., and E. Jove-Llopis. 2019. "Determinants of Energy Efficiency and Renewable Energy in European SMEs". *Economics of Energy and Environmental Policy* 8 (2).

Sharma, R., A. Dhir, S. Talwar, and P. Kaur. 2021. "Over-ordering and Food Waste: The Use of Food Delivery Apps during a Pandemic". *International Journal of Hospitality Management* 96: 102–977.

Sierra Leal, A., C. Roman, and J. van Doorn. 2022. *A Double Transition: Formalization and the Shift to Environmental Sustainability with Decent Work*. ILO.

Silajdžić, I., S. Midžić Kurtagić, and B. Vučijak. 2015. "Green Entrepreneurship in Transition Economies: A Case Study of Bosnia and Herzegovina". *Journal of Cleaner Production* 88: 376–384.

T

Tollefson, J. 2020. "Why Deforestation and Extinctions Make Pandemics More Likely". *Nature* 584: 175–176.

U

UNEP (United Nations Environment Programme). 2011. *Waste: Investing in Energy and Resource Efficiency*.

———. 2013. *GE-TOP Report: Green Economy and Trade – Trends, Challenges and Opportunities*.

———. 2015. *Global Waste Management Outlook*.

———. 2019. *Global Environment Outlook: GEO-6 – Healthy Planet, Healthy People*.

UNESCO (United Nations Educational, Scientific and Cultural Organization). 2016. *The United Nations World Water Development Report 2016: Water and Jobs*.

———. 2021. *Learn for Our Planet: A Global Review of How Environmental Issues Are Integrated in Education*.

UNIDO (United Nations Industrial Development Organization). 2016. *Industrial Development Report 2016: The Role of Technology and Innovation in Inclusive and Sustainable Industrial Development*.

V

Van Malderen, L., B. Jourquin, I. Thomas, T. Vanoutrive, A. Verhetsel, and F. Witlox. 2012. "On the Mobility Policies of Companies: What Are the Good Practices? The Belgian Case". *Transport Policy* 21: 10–19.

W

WBCSD (World Business Council for Sustainable Development). 2010. *Vision 2050: The New Agenda for Business*.

Woodard, R. 2020. "Waste Management in Small and Medium Enterprises (SMEs): A Barrier to Developing Circular Cities", *Waste Management* 118: 369–379.

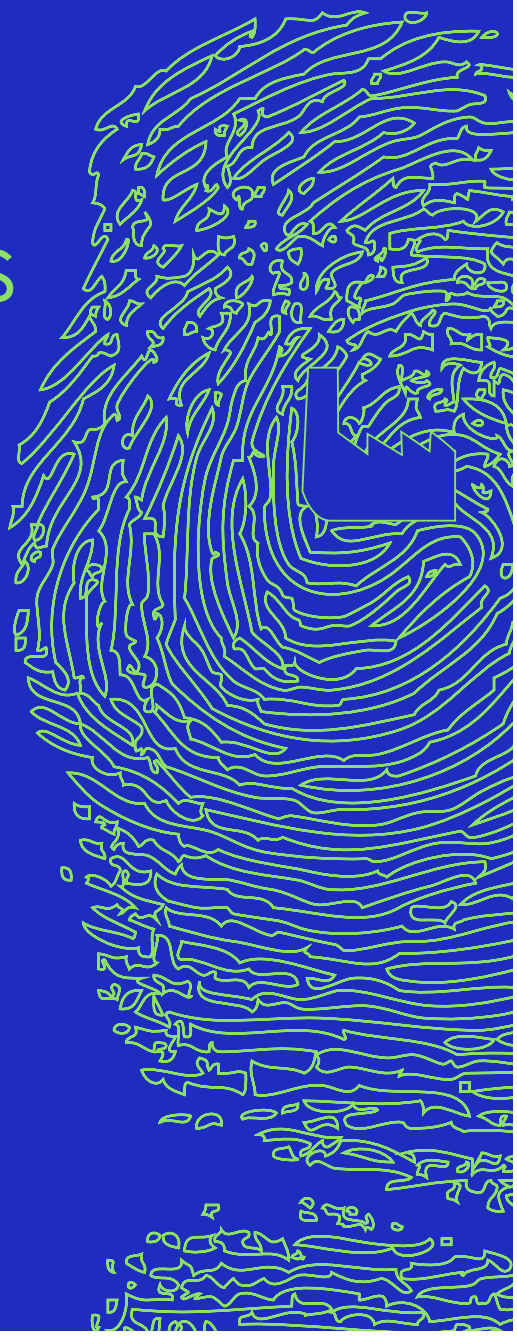
World Bank. 2018. *What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050*.

WWF (World Wildlife Fund). 2020. *Living Planet Report 2020: Bending the Curve of Biodiversity Loss.*

II

Greening workplaces

The role of regulatory tools



Key findings

Over 65 countries and territories, encompassing all regions of the world, have introduced legislative initiatives to promote sustainability through workplaces. These initiatives provide a legal basis, formulated in terms of options, for enterprises that wish to make their workplace a virtuous example of contributing to a better environment.

Over 180 instruments governing the organization of work, sustainable transport, waste management, energy, labour legislation dealing with workers' environment-related rights, sustainable business models and green public procurement provide a legal basis for the greening of workplaces and enterprises. They also provide a wealth of practices that MSMEs can adopt on their path towards sustainability.

The number of rules impacting on the workplace through environmental or environment-related legislation has grown exponentially in the past few decades. Thus, workplace and enterprise-level sustainability practices were already making their way into legislation relating to energy and transport before the 2000s. Two thirds of the regulations in force in 2019 were introduced after 2004.

The legal and policy measures proposed are diverse and flexible in that they are promotional in nature and tend to focus on integrating sustainable consumption at the workplace. MSMEs are able to engage in a process of introducing sustainability practices that are adapted to their needs and also to mitigate any costs.

One lesson to be learned from these regulatory frameworks is that promoting the greening of workplaces, including at the enterprise level, can help to deliver sustainability through business models and through enhancing resource efficiency.

2.1 Introduction

Although the COVID-19 pandemic has changed the landscape of workplace consumption, blurring the distinction between home and work, workplaces remain key settings in which to reduce a society's environmental footprint. Most of us spend a large part of our lives at a workplace, where every day we consume resources and generate waste.

Laws, policies and institutions are crucial to the integration of environmental sustainability into the world of work. Such laws and policies can ensure a just transition towards sustainable economies and promote structural changes at the workplace. Although individuals' voluntary sustainable practices to reduce consumption at work are laudable, it can be challenging to deviate from the established norms and practices among one's peers. For this reason, regulatory tools that serve the greening of workplaces can help mobilize the workforce to promote sustainability in general and, more specifically, sustainable consumption in the enterprise.[1] They provide a basis for action, trigger change and determine the relationships between the various actors involved.

This chapter reviews legal innovations and instruments developed across the regions to foster sustainable change through workplaces. It provides, firstly, an overview of the types of regulations researched and areas of normative development. It then highlights key trends in the proposed greening processes across the regions and discusses resource implications (for example, in financial, organizational and human resources).

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1 In this chapter, the notion of "enterprise", unless specified otherwise in laws and policies, encompasses all enterprises without distinction.

Laws, policies and institutions are crucial to integrating environmental sustainability into the world of work and to ensuring a just transition towards sustainable economies.

The second part of the chapter discusses areas of specific legal and policy developments. These are arranged in the following six themes: (a) organization of work (teleworking, working time), (b) sustainable transport, (c) sustainable consumption at work (waste management, energy), (d) workers' environment-related rights, (e) green public procurement, and (f) sustainable business models. All of the examples are drawn from laws, regulations and policies from 65 countries and territories representing all regions of the world. Although neither exhaustive nor prescriptive, these examples showcase the regulatory frameworks deployed by countries as entry points to promoting sustainability at enterprise level.

The chapter does not, however, assess the degree of implementation of the regulations and norms, which depends on a multitude of factors. What is regarded as a successful result is the presence across jurisdictions of a legal basis for enterprises that wish to make the workplace a virtuous example of contributing to a better environment (see Chapter 5).

2.2 Objective, scope and methodology

In workplaces both employers and workers can intervene to put in place practices to make their enterprise sustainable and resilient to environmental degradation and climate change. The ILO *Guidelines for a Just Transition towards Environmentally Sustainable Economies and Societies for All* stipulate that "Sustainable development is only possible with the active engagement of the world of work" and that "Governments, employers and workers are not passive bystanders, but are rather agents of change, who are able to develop new ways of working that safeguard the environment for present and future generations".[2]

The *Guidelines* express the aspiration that "Greening all enterprises and jobs by introducing more energy and resource efficient practices, avoiding pollution and managing natural resources sustainably leads to innovation, enhances resilience and generates savings which drive new investment and employment".[3] They also emphasize workplace cooperation and dialogue among employers, workers and their representatives, and governments, where appropriate, on the means to achieve that goal while at the same time creating and protecting employment. Governments play a crucial role in fostering such enterprise-level transition towards sustainability, including by creating a conducive environment through laws and regulations.

This chapter analyses regulatory instruments from around the world, highlighting legal and policy provisions that promote resource efficiency and sustainable consumption and production at the workplace. Little research exists on how workplaces can lower their environmental footprint by increasing resource efficiency, reducing their negative impacts on the environment and reducing waste. There is also little insight into how regulations allow enterprises to be principal actors in promoting workplace sustainability.

2 ILO, *Guidelines for a Just Transition towards Environmentally Sustainable Economies and Societies for All*, 2015, para. 9.

3 ILO, *Guidelines for a Just Transition*, para. 8.

The chapter therefore seeks to identify whether and to what extent countries have promoted workplace sustainability, and, where they have taken steps in this direction, what type of legal and policy approaches they have adopted.

The first criterion for selecting examples was the inclusion of legal and policy instruments that recognized the role that workplaces in general and that employers and workers in particular played in promoting greening at the enterprise level. To ensure the widest coverage possible, the second criterion was the public and language accessibility of legal and policy material. Another important consideration was to ensure there was coverage of all regions of the world (at least one country per region), representing different legal systems and different levels of economic development. Lastly, the chapter investigated whether any special provisions were made for SMEs in relation to the greening of workplaces.

Our extensive desk review and analysis of legal and policy frameworks found examples in 65 countries of regulatory instruments that contain provisions promoting the greening of workplaces.

No country, however, has adopted a single comprehensive framework that brings together all aspects of sustainability in the workplace. Instead, piecemeal legal provisions that encourage sustainable processes and practices in enterprises are found in labour codes and civil codes, environmental legislation and sectoral and subsidiary regulations and their institutions. Measures for the greening of workplaces are found in laws and policies governing the organization of work (teleworking and working time), sustainable transport, sustainable consumption at work (waste management and energy) and workers' environment-related rights. The chapter also covers regulations governing sustainable business models and green public procurement which have an impact on workplaces.

The objective of this chapter is to point to trends in the greening of workplaces and to highlight key areas where normative developments are taking place, while recognizing that laws and policies are context specific. The chapter shows how a newer generation of regulatory instruments is being created to enhance sustainability in the workplace and how the world of work can reduce its environmental footprint by increasing its resource efficiency and reducing waste.

In what follows, the term "workplace" is used more or less interchangeably with "enterprise". What defines a workplace depends on national legislation. Often the "workplace" means any premises, or parts of premises, that are made available as a place of work. Domestic premises may also be included.[4] Regulatory frameworks sometimes distinguish between MSMEs and large enterprises. Unless there is a specific distinction, the term "enterprise" is used here as a single concept to encompass all enterprises. Research has shown that a distinction is often made in which legislators create obligations for large enterprises and only recommendations for MSMEs.

4 According to Article 3(c) of ILO Occupational Safety and Health Convention, 1981 (No. 155), "the term workplace covers all places where workers need to be or to go by reason of their work and which are under the direct or indirect control of the employer".

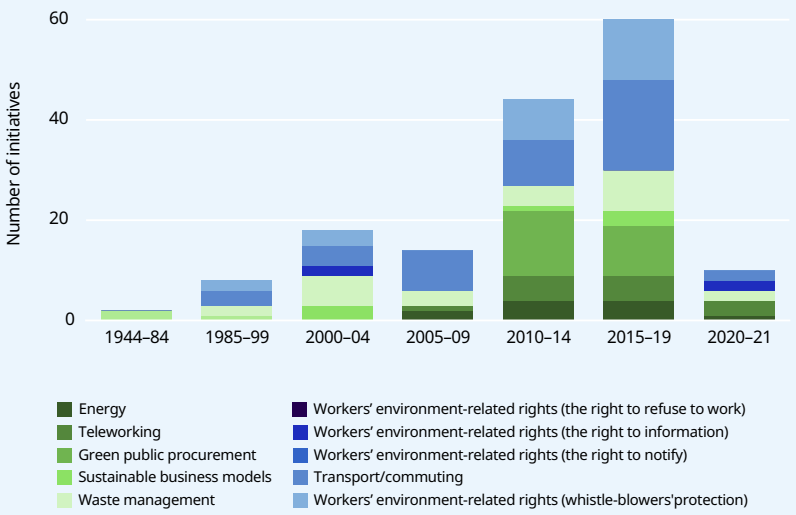
The number of rules impacting on the workplace through environmental or environment-related legislation has grown exponentially in the past few decades.

2.3 Global overview of approaches to the greening of workplaces

2.3.1 Key trends

Over 65 countries and territories, encompassing all regions of the world, have introduced legislative initiatives to promote sustainability through workplaces. Analysis of the legislation and relevant policy frameworks in these 65 countries shows that the issue of sustainability is not entirely novel in the world of work (figure 2.1). The seeds of labour regulations promoting sustainable enterprises through means such as workers' environment-related rights were sown during the period between 1944 and 1980;[5] such regulations have evolved gradually since then. The protection of the environment as a stand-alone issue in labour regulations granting workers' environment-related rights developed at a later stage, when rights to information, notification and refusal to work were already well-known categories linked to occupational safety and health (OSH).

Figure 2.1 Regulatory initiatives integrating sustainability by sector over time



Source: ILO review of legal instruments.

5 Begoña María Tomé Gil and Agustín González, "Moving towards Eco-unionism: Reflecting the Spanish Experience", in *Trade Unions in the Green Economy: Working for the Environment*, ed. Nora Rathzel and David Uzzell (London: Routledge, 2013), 71.

Regulation of the workplace through environment-related legislation has grown exponentially in the past few decades.[6] Workplace and enterprise-level sustainability practices began to make their way into energy and transport legislation before the 2000s, but significantly more so from 2009 onwards. The awareness that has led to the present state of play started to evolve after the adoption in 1972 of the Declaration of the United Nations Conference on the Human Environment (the "Stockholm Declaration") and continued after 1992 with the United Nations Conference on Environment and Development (the "Earth Summit").

In the decades since the United Nations Framework Convention on Climate Change came into force, all the countries reviewed in this report have developed at least one environmental law or regulation;[7] the laws adopted include ones on sustainable growth and climate change. Figure 2.2 shows the growing interest in integrating workplaces and workers as well as employers as agents of change in environmental regulations. The increased importance of green initiatives across the world has led to the adoption of legal instruments to protect the environment in sectors such as energy, transport/commuting, waste management and public procurement. In these sectoral instruments, as well as in general environmental laws, one finds the highest number of provisions relating to enterprise-level initiatives to reduce environmental footprint.

It is no accident that provisions supporting the transition to ecological workplaces and societies are mainly to be found in environmental regulations, and have a more limited presence in labour regulations. Environmental protection has been an area of international concern for some decades and has seen exponential growth in normative developments.

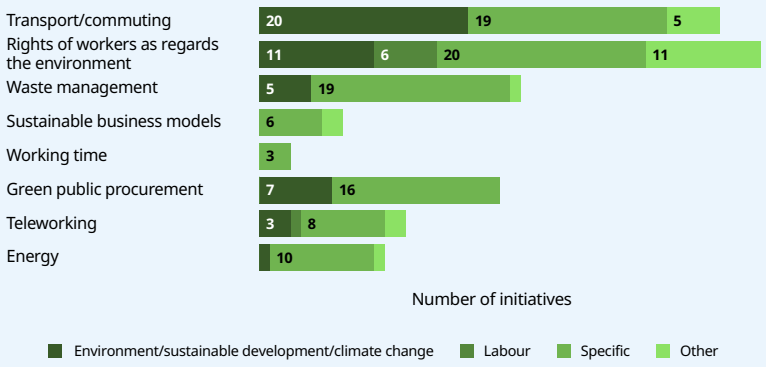
However, as is amply demonstrated in the report on *World Employment and Social Outlook 2018: Greening with Jobs*,[8] it would be erroneous to state that labour regulations are not engaged with helping enterprises to embrace sustainability. Years before the international community began to take its environmental awareness into law and policy, labour regulations were already regulating the working environment from several perspectives: (a) OSH issues, (b) workers' right to a clean and safe environment, and (c) protection of the individual as an intrinsic part of the environment. Standards governingOSH, therefore, are and will remain vital in enterprises' adaptation to climate change.

6 For the impact of trade agreements on national laws, see Marva Corley-Coulibaly, Ira Postolachi and Netsanet Tesfay, *A Multi-faceted Typology of Labour Provisions in Trade Agreements: Overview, Methodology and Trends* (Geneva: ILO, 2001).

7 Edith Brown Weiss, "The Evolution of International Environmental Law", *Japanese Yearbook of International Law* 54, No. 6 (2011): 1–27.

8 ILO, *World Employment and Social Outlook 2018: Greening with Jobs*, 2018.

Figure 2.2 Workplace sustainability practices classified by field of regulation



Note: This figure compares numbers of initiatives in areas where legal interventions to integrate sustainability have been adopted. The bars also indicate the areas of law that have integrated those initiatives. For example, workers' environment-related rights can be found in environmental legislation, labour laws, and specific instruments such as whistle-blowers' protection as well as in "other" non-related regulatory frameworks (for example, service law or salary law). The right to refuse to work, the right to information, the right to notify and protection of whistle-blowers are subsumed for the ease of reference under the category of workers' environment-related rights.

Source: ILO review of legal instruments.

This context explains why provisions requiring workplaces to reduce high-carbon-producing practices, although firmly entrenched in labour law, are usually a stated outcome of environmental law. Perhaps it is consistent with this that some countries have granted legal recognition to enterprises seeking voluntarily to redefine the meaning of enterprise success.

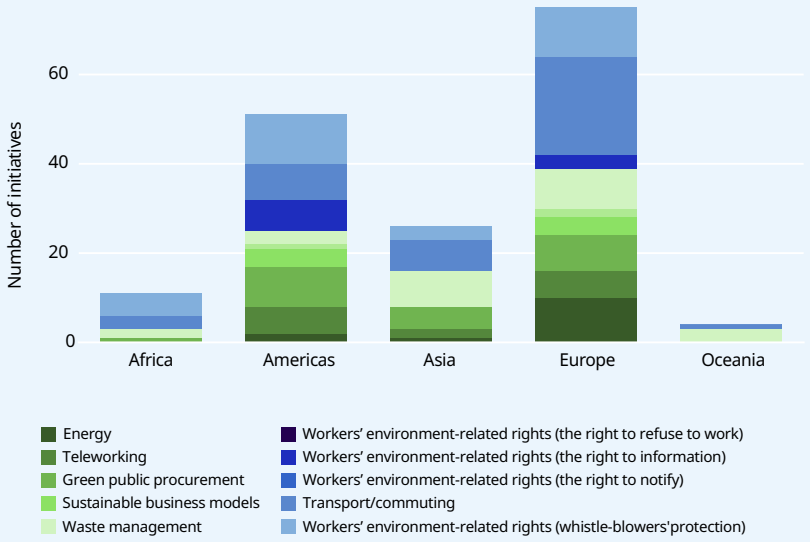
Through laws on sustainable business models, some countries offer a legal framework for businesses that voluntarily choose to combine the benefits of their commercial and economic activities with concrete action to promote the welfare of their workers and to contribute to the social equity of the country and the protection of the environment.

As this report demonstrates, all regions of the world have been involved, at the regulatory level, in the green transformation of workplaces. Figure 2.3 highlights the regions where a more consistent development of a legal framework for the role of enterprises in protecting the environment has been recorded. Legislation on sustainable business models is a reality only in a few countries in Europe and the Americas, but three regions – the Americas, Asia and Europe – have developed legal frameworks covering all the areas identified, albeit each to a different extent. The research identified fewer examples of legal provisions in African countries. In our view, this can be partly explained by the fact that the focus of the latter's sustainability measures thus far has been mainly on the transition of sectors towards an environmentally sustainable economy.

All regions of the world have been involved, at the regulatory level, in the green transformation of workplaces.

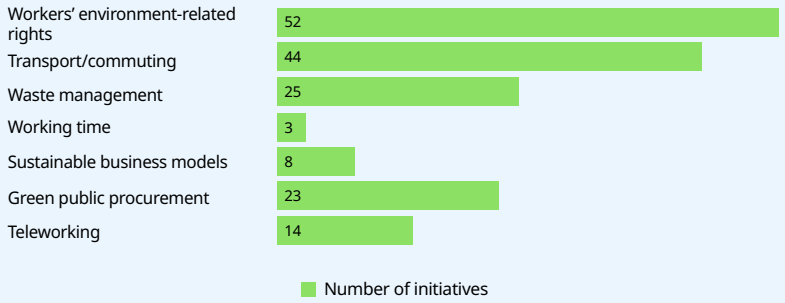
Figure 2.4 shows the workplace initiatives that have been the most successful on political and legislative agendas. Sustainable transport, energy efficiency and green public procurement have generally received strong support. Workers' environmental or environment-related rights comprise the rights (a) to request environmental information, (b) to notify employers of any risk to the

Figure 2.3 Distribution of legal initiatives by region, with a breakdown of areas where legal initiatives were introduced



Source: ILO review of legal instruments.

Figure 2.4 Number of legal interventions by subject area



Note: The right to refuse to work, the right to information, the right to notify and protection of whistle-blowers are subsumed for the ease of reference under the category of workers' environment-related rights.

Source: ILO review of legal instruments.

environment, (c) to refuse to work, and (d) to the protection of environmental whistle-blowers. The protection of whistle-blowers, in particular, has received increasing attention. These rights have so far mostly been adapted from OSH legislation and are part of the broader framework of ensuring safety and health at work.

By contrast, regulators have paid less attention to the organization of working time and to flexible working arrangements – whether in spatial (teleworking) or temporal (reduction/compression of working hours) terms – as ways to reduce GHG emissions into the atmosphere. One reason for this is that both these issues have usually been associated with a better work–life balance for workers rather than with the protection of the environment. But the main reason for limited attention in this area is the complexity of the issues and the fact that they raise many questions relating to the

organization of working time. However, lessons learned from the COVID-19 pandemic concerning flexibility in the organization of work and working time may bring about significant changes in this area.

2.3.2 Flexibility and diversity of the proposed legal and policy measures

Any effort to implement measures prescribed by the legal or policy framework may make demands on enterprises' financial and/or human resources. Environmental regulations may imply additional costs – such as for installing pollution abatement equipment in certain industries and for building infrastructure for renewable energy and sustainable transport.

By way of a preliminary conclusion, it may be suggested that such an assessment of costs is essentially context specific. Although it is beyond the purpose of this report to evaluate the economic opportunities and costs of the suggested workplace measures, an aggregate basic review can be undertaken on the basis of the actions prescribed by various legal instruments.

Table 2.1 summarizes various measures proposed by legal and policy frameworks as ways for enterprises to go green. It shows that most of the proposed courses of action will entail costs for the enterprises. Some of the initial costs can be offset – as in the case of investment in energy-saving measures.

Regulatory frameworks frequently prescribe measures that incur costs (in financial, human or other resources) for enterprises exceeding a specific size or number of employees. For example, in California in the United States, sustainable transportation measures, such as parking subsidies (to use free parking provided by an employer or receive a payment instead), are designed for an employer of 50 people or more. In Italy, the legal framework requires businesses with single units of more than 300 employees and enterprises with more than 800 employees to adopt a commuting plan. Energy audits in the European Union are not mandatory for MSMEs.

Table 2.1 Comparative analysis of greening/sustainable practices proposed by regulatory frameworks around the world

Sector/area of regulation	Regulatory approach	Types of measures proposed	Feasibility	Initial and potential financial costs for enterprises
Working time	Promotional; optional	Short working week Compressed working week	Successful examples only at enterprise level Existing legislative models on compressed working week Nationwide trials on the way	Uncalculated as yet in the case of a four-day week
Teleworking	Promotional; optional	Allowing workers/ employers to perform work remotely	Growing evidence of positive impact on the environment	Costs can include equipping staff with mobile computers, software, etc.

Table 2.1 (cont'd)

Sector/area of regulation	Regulatory approach	Types of measures proposed	Feasibility	Initial and potential financial costs for enterprises
Sustainable transport systems	Mainly mandatory; some regulations aimed at public agencies	Encouraging employees to commute by public transport; car sharing; transport by bicycle Teleworking; collective transportation; flexible working hours Electrical mobility; electric car-charging units Cash allowance for employees who opt to adopt sustainable transport practice (public transport tickets; expenses related to trips by bicycle)	Information not available	Financing of public transport for employees; parking places for bicycles Little to no cost Possible financial costs Possible financial costs
Waste management (circular economy)	Mandatory	Sound waste management system/waste reduction work plan; reducing resource consumption; reducing generation and discharge of waste; improving recycling; sorting waste	Many countries have effective and enforceable waste management systems	Limited costs; most provisions require behavioural change
Energy	Mandatory	Energy audit Training/education on energy saving Savings on energy consumption	Some examples at country and enterprise level	Costs associated with energy audits Limited information on the cost of training staff on energy saving Can be beneficial for an enterprise but may have costs relating to equipment purchase
Workers' environment-related rights	Mandatory	The right to request information from employer; the right to notify; the right to refuse to work; protection of environmental whistle-blowers	Some examples at country level	Same costs as for implementing workers' rights relating to occupational safety and health
Sustainable business models	Promotional; optional	Legal recognition of a corporate entity that pursues social and public interest objectives	Countries where there is a conducive legal environment	Context specific; costs related to implementing freely chosen social and environmental objectives

It is safe to conclude that, in the majority of cases, where a law or policy provides for a specific course of action (such as energy audits or a commuting plan) it tends to exempt SMEs.

Legal provisions relating to workplace greening can be found in labour codes, civil codes, environmental legislation, sectoral regulations and other frameworks.

2.4 Integrating sustainability in the workplace: Results of the review of country practices

Our review of legal and policy documents of 65 countries and territories shows that no country has adopted a single comprehensive framework that brings together all aspects of sustainability in the workplace. Instead, legal provisions relating to workplace greening can be found in a variety of legal frameworks – such as labour codes, civil codes, environmental legislation and sectoral regulations. The present report also analyses policies on workplace greening, since such frameworks have been among the preferred tools for designing and implementing climate adaptation and mitigation measures.

The following sections describe in detail workplace-related sustainability measures proposed in laws and policies governing: (a) organization of work (such as teleworking, short working weeks); (b) sustainable transport systems; (c) sustainable consumption at the workplace (such as measures relating to waste management and energy consumption); (d) workers' environment-related rights; and (e) other tools that affect the greening of workplaces (such as sustainable business models and green public procurement).

2.4.1 Organization of work (working arrangements and time)

Teleworking

For decades, before the COVID-19 pandemic, discussions revolved around the growth of flexible and mobile working programmes such as homeworking, mobile working, hot-desking or flexible hours as means to optimize work–life balance and also, increasingly, to serve environmental purposes. The pandemic has provided an unprecedented opportunity to investigate the advantages and disadvantages of teleworking.[9]

The argument in favour of teleworking is that it not only reduces the use of fossil fuels, thereby decreasing carbon emissions, but also leads to employees consuming less energy because they are at home, using less paper and plastic, and spending more time on activities of choice, including environmental initiatives.[10] Some studies draw from the experience of the pandemic to demonstrate the impact of full

9 ILO, *Teleworking Arrangements during the COVID-19 Crisis and Beyond*, 2021.

10 Kate Lister and Tom Hamish, "The State of Telework in the U.S.: How Individuals, Business, and Government Benefit", Telework Research Network, 2011, 4.

teleworking. One study calculated that a transition to full teleworking capacity could generate GHG emission reductions in Canada of around 11 per cent of the transport emissions of Canadian households.[11] Another study, exploring the savings potential in Germany, argues that one additional day working from home could save the equivalent of 1.6 million tonnes of carbon dioxide (CO_2) emissions per year by reducing passenger-kilometres[12] by 10.9 billion.[13]

Despite this exponential growth of teleworking during the pandemic in both developed and developing economies, it is still unknown whether teleworking will endure as a tool to reduce carbon emissions, to promote gender equality in terms of access to the job market, to reduce absenteeism and turnover rates, to reduce costs of office space rental and energy consumption or to improve productivity.[14]

Before the pandemic, developing countries were rapidly emerging as the new frontier for teleworking, to the point that this form of organization of work had been advancing primarily in emerging markets. Several programmes have been adopted in Asian and African countries by private enterprises or with the support of international organizations.[15] Teleworking in these countries has been seen as apposite given issues such as poor road and railway networks,[16] which lead to traffic congestion and high levels of air pollution, and has been made possible by the increasingly widespread use of affordable telecommunications.

Although one of the main challenges remains the absence of strong government engagement in implementing the legal framework to facilitate teleworkers' rights,[17] in recent years several countries have promoted the adoption of specific provisions on teleworking. These include Brazil, Chile, Colombia, Costa Rica, Mexico, Panama, the Philippines, Romania and Türkiye.[18] In the following section, some examples of laws providing for teleworking linked to the environment will be examined.

Domestic legislation linking teleworking to the environment

Much legislative action on teleworking has focused on its beneficial effects on employee work–life balance and well-being. However, a growing trend is to link it to other issues such as energy saving, traffic congestion and various environmental

11 René Morissette, Zechuan Deng and Derek Messacar, "Working from Home: Potential Implications for Public Transit and Greenhouse Gas Emissions", Economic and Social Reports, Statistics Canada, 2021.

12 A passenger-kilometre is the unit of measurement representing the transportation of one passenger by a defined mode of transport (road, rail, air, sea, inland waterway, etc.) over 1 kilometre.

13 Lisa Buettner and Anna Breitkreuz, *How COVID-19 Working Routines Can Save Emissions in a Post-COVID-19 World* (Hamburg: Greenpeace, 2020).

14 OECD (Organisation for Economic Co-operation and Development), *Be Flexible! Background Brief on How Workplace Flexibility Can Help European Employees to Balance Work and Family*, 2016, 6.

15 Boon Heng Teh et al., "Enhancing the Implementation of Telecommuting (Work from Home) in Malaysia", *Asian Social Science* 9, No. 7 (2013).

16 Peter Nelson et al., "Telecommuting and Environmental Policy: Lessons from the Ecommute Program", *Transportation Research Part D: Transport and Environment* 12, No. 3 (2007): 195–207.

17 Kumudinei Dissanayake, "Teleworking as a Mode of Working for Women in Sri Lanka: Concept, Challenges and Prospects", Institute of Developing Economies Discussion Paper No. 680, 2017, 13–18.

18 Brazil, Consolidación de las Leyes del Trabajo, Law No. 12551/2011 of 2011, art. 6; Chile, Ley N° 21220 que modifica el Código del Trabajo en materia de trabajo a distancia, 20 marzo 2020; Colombia, Ley N° 1221 del año 2008, Decreto N° 884 de 2012, Resolución N° 2886 de 2012; Costa Rica, Decreto Ejecutivo N° 37695 – Promoción del Teletrabajo en las Instituciones Públicas, 2013, art. 1; Mexico, General Law on Climate Change, 2012, art. 34; Panama, Ley N° 126 de 18 febrero de 2020, que establece y regula el teletrabajo en la República de Panamá y modifica un artículo del Código de Trabajo; Philippines, Explanatory Note on the Act Institutionalizing Telecommuting as an Alternative Work Arrangement for Employees in the Private Sector, House Bill No. 5630, 2017; Romania, Law No. 81/2018, 2018; Türkiye, Act No. 6715 dated 6 May 2016 amending Labour Law and Turkish Employment Agency Law.

Legislative action on teleworking has often focused on the benefits for employee well-being, but a growing trend is to link it to environmental concerns.

concerns. Belgium, France, Mexico and Portugal include teleworking in their environmental regulations, and Argentina, Costa Rica, the Netherlands, the Philippines and the Russian Federation have included teleworking in labour legislation that highlights its benefits to the environment.

As teleworking falls within the domain of labour, its adoption for environmental reasons has been included in labour regulations. This is the approach taken in Costa Rica, where teleworking in public institutions is regulated as an instrument to promote, among other things, the protection of the environment.[19] In the Netherlands, the explanatory memorandum on the act on flexible working adopted in 2016 states that teleworking may lead to a significant reduction in traffic congestion, thereby reducing the level of polluting substances in the atmosphere.[20]

Argentina similarly identifies the protection of the environment as one of the benefits of teleworking.[21] The explanatory note to the act on telecommuting adopted by the Philippines in 2017 states that the institutionalization of teleworking is very "timely", since it addresses public transport congestion and weather unpredictability, both of which are pressing issues for the country.[22] The Russian Federation justified teleworking by referring to ecological concerns such as energy saving and reducing environmental pollution.[23]

Mexico's general law on climate change adopted in 2012 is unique in that it expressly states that teleworking can be understood as a mitigation policy, while also promoting and encouraging alternative programmes that significantly reduce the need for employees to travel to their workplaces.[24] The law states that one way to reduce emissions in the transport sector is to "reduce employee travel and services" and put in place workplace programmes that promote working from home.

In Portugal, teleworking is mentioned as a strategy to slow down climate change in a decision adopted by the Council of Ministers.[25] In France, teleworking is included in an act on energy transition adopted in 2015 as a way to save energy, prevent traffic congestion and reduce air pollution.[26] In Belgium, a strategy on climate change adaptation describes the choice of working from home as a tool not only to protect the environment but also to achieve more efficiency, converting hours spent in traffic jams into more hours spent working, especially among workers who live far from their workplace.[27]

In the United States, the 2010 Telework Enhancement Act establishes a link between public employees working from home and a reduction in energy consumption. This

19 Costa Rica, Decreto Ejecutivo N° 37695 – Promoción del Teletrabajo en las Instituciones Públicas, 2013, art. 1.

20 Netherlands, Explanatory Memorandum of the Wet Flexibel Werken (Flexible Working Act), 2016, heading 1.3.

21 Declaración de lineamientos y compromisos en materia de teletrabajo, para la promoción de trabajo decente y como garantía de calidad laboral, 2010.

22 Philippines, House Bill No. 5630.

23 Russian Federation, Explanatory Note to Law No. 60-ФЗ of 5 April 2013 on amendments to the Labour Code.

24 Mexico, General Law on Climate Change, 2012, art. 34.

25 Portugal, Council of Ministers Decision No. 56/2015, 2015, T3.3.

26 France, Loi N° 2015-992 du 17 août 2015 relative à la transition énergétique pour la croissance verte, Chapter 1, art. 36.I.

27 Belgium, National Climate Change Adaptation Strategy, 2010, TR-B03.

legislation also provides that the outcomes associated with an increase in teleworking – including the effects of teleworking on energy consumption – should be documented in the reports on the teleworking programmes of each executive body.[28]

In all the above-mentioned cases, teleworking has been envisaged as a means to achieve the goals of protecting the environment and public health.

Regional frameworks on teleworking and the environment

These types of domestic initiatives have also been extended to the regional level. One example is the 2010 Buenos Aires Declaration on Telework, signed by 14 countries of Latin America and the Caribbean. Although the declaration itself does not refer to teleworking as a "strategy" to reduce carbon emissions in the atmosphere, the document is the outcome of a conference on teleworking for sustainable development held in August 2010 in Buenos Aires.

The European Framework Agreement on Telework (2002), signed by the most important social partners in Europe, contains no reference to environmental concerns.[29] However, subsequent declarations based on this document and drafted for specific professional sectors do establish the link between teleworking and the environment. For instance, both the joint declaration on telework signed by the European social partners in the telecommunications sector and a similar joint declaration in the insurance sector mention how a move to teleworking to reduce pollution by decreasing the use of transport will benefit the environment and the whole community.[30] The fact that teleworking is increasingly included in environmental regulations, rather than in labour legislation, where it typically belongs, indicates that teleworking is starting to be perceived as a strategy to reduce carbon emissions.[31]

Working time and sustainability

Issues of time policy, including the balance between working time and family life, have long been debated. Recently, time policy has become of significant interest in debates on sustainable societies and workplaces. It is also being widely used in government responses to the COVID-19 pandemic.[32]

Although research on time policy is still at an early stage, environmental research has found that sustainability is intertwined with time and that, in turn, time is closely connected to patterns of consumption. Accelerated work processes and technological advances have led to greater consumption. From this standpoint, labour and employment policy "is always also time policy, and sometimes also environmental policy", given that "more working hours also mean more energy and environmental consumption and more harmful emissions".[33]

28 United States, Telework Enhancement Act, 2010, Chapter 65, §6506, and section 4.a.

29 European Trade Union Confederation (ETUC) et al., European Framework Agreement on Telework, 2002.

30 UNI Europa and ETNO, Joint Declaration on Telework by the European Social Partners in the Telecom Sector, 2016; UNI Europa Finance and Insurance Europe, BIPAR and AMICE, Joint Declaration on Telework by the European Social Partners in the Insurance Sector, 2015.

31 When teleworking is regulated by environmental legislation, questions arise as to whether working environment safeguards as well as labour relations institutions are dealt with in the same manner.

32 ILO, *Protecting the Life and Health of Workers during the COVID-19 Pandemic: Overview of National Legislative and Policy Responses*, 2021.

33 Lucia A. Reisch, *Time Policies for a Sustainable Society* (Cham: Springer, 2015).

The idea that the regulation of working time will contribute to sustainability is not new. As with flexible working arrangements, time use and distribution at work were initially closely linked to the issues of well-being and family–work balance.[34] As environmental economists have suggested, the time dimension of sustainability, particularly when related to working time, involves a strong correlation between working hours and environmental degradation. It is argued that "a successful path to sustainability must confront our commitment to growth and will ultimately entail a stabilization of consumption through reductions in hours of work".[35]

Despite the growing interest in the subject, there is little systematic research on the potential environmental and carbon-emission-reducing benefits of reduced working time.[36] The oft-quoted study by Schor found a significant correlation between working hours and carbon footprint in the United States. A study by Rosnick and Weisbrot found that 1 per cent less gainful employment can result in 1.3 per cent less energy consumption.[37] A more recent study on the subject by J. Nässén and J. Larsson has shown that a decrease in working hours may have a large impact on both energy use and GHG emissions.[38] These authors also note that a reduction in working hours could be an important complement to eco-efficiency strategies for reaching long-term climate targets.

The same research also shows that the issue of working-time policies for sustainable economies may raise a number of policy issues that will require further examination. One crucial question is whether a general policy of reduction of hours should be pursued, or whether policies should instead offer individual opportunities for such a reduction. Other concerns include whether a reduction in working time will be reflected in income and take into account that a gender-specific division of labour as well as leisure-time preferences also have an impact on environmental consumption.[39]

Legislative and policy precedents

Despite the fact that the link between working time and ecological footprint has still not been widely recognized, changes to the traditional working week have been successfully introduced in an increasing number of enterprises.[40] Political debates were also taking place in some countries on the feasibility of introducing a four-day week in the context of the COVID-19 pandemic.[41] Spain, for example, announced a voluntary nationwide three-year trial of a 32-hour working week, which was due to begin in 2022.[42]

34 British Sustainable Development Commission, *Governing for the Future: The Opportunities for Mainstreaming Sustainable Development*, 2011.

35 Juliet B. Schor, "Sustainable Consumption and Worktime Reduction", *Journal of Industrial Ecology* 9, Nos 1–2 (2005): 38.

36 "Britain's Green Party Proposes a Three-day Weekend", *The Economist*, 6 April 2017.

37 David Rosnick and Mark Weisbrot, "Are Shorter Work Hours Good for the Environment? A Comparison of U.S. and European Energy Consumption", *International Journal of Health Services* 37 No. 3 (2007): 405–417.

38 Jonas Nässén and Jörgen Larsson, "Would Shorter Working Time Reduce Greenhouse Gas Emissions? An Analysis of Time Use and Consumption in Swedish Households", *Environment and Planning C: Government and Policy* 33, No. 4 (2015): 726–745.

39 Reisch, 16.

40 See, for example, "String of British Firms Switch over to Four-Day Working Week", *The Guardian*, 12 March 2019.

41 See, for example, on debates in Scotland, "SNP Conference to Debate Four-Day Working Week in Scotland", *The Herald*, 4 March 2019.

42 "La jornada laboral de cuatro días arrancará en 2022 en España con 160 empresas", *Economía Digital*, 20 October 2021.

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The Prime Ministers of Finland and New Zealand have proposed considering a four-day working week, and the Russian Federation has been actively pursuing the idea of making the four-day week permanent. Japan's annual economic policy guidelines also propose consideration of the four-day week.[43] Singapore is another example of a country debating a possible shorter working week.[44]

Although the results of these initiatives are yet to be seen, there are at least three legislative and policy precedents in which governments and employers introduced changes to the "normal" working week. These policies pursued a variety of objectives – ranging from managing productivity in the face of increased energy prices to boosting employee satisfaction and protecting the environment.

The earliest precedent dates back to 1974, when a three-day week was introduced in the United Kingdom by Edward Heath's Conservative government for the first two months of 1974 in order to conserve electricity during industrial action by coal miners, who provided most of the country's fuel and had a powerful trade union. When the crisis ended, analysts found that industrial production had dropped by 6 per cent. Improved productivity, combined with a decrease in absenteeism, had made up the difference in lost production.

Another precedent is the "Working 4 Utah" initiative in the state of Utah in the United States. The initiative was launched in 2008 and put into effect through an executive order by Utah's Governor. It was basically a model of a compressed work schedule.[45] The executive order specified that the aim of reducing working time was to reduce energy consumption and that "closing state agency offices on Fridays will result in increased energy efficiency", reducing energy consumption by 20 per cent by 2015.

A more recent precedent can be seen in France's 1998 Loi Aubry, under which a move from a 39- to a 35-hour week was initiated; it became mandatory in 2000 for all private

43 "Experts Divided as Japan Government Backs Four-Day Workweek", *Japan Times*, 19 June 2021.

44 "In Parliament: WP MP Louis Chua Proposes Trial of 4-Day Work Week", *Independent Singapore*, 28 July 2021.

45 Utah State Government, "Launching the Working 4 Utah Initiative", *Utah State Bulletin*, 15 August 2008.

companies with more than 20 employees. The real impact of this reform is not yet fully known. One commentator noted, "these laws produced neither a miracle (as their proponents hoped) nor an apocalypse (as their foes warned), at least in the short term".[46] He went on to observe that, at the time of writing, there was "no empirical research" that "proposes a complete welfare analysis of the 35-hour working week or its progressive removal".

Alternative approaches to reducing working time

In view of the complexity of the issue, it is perhaps not surprising that, to date, only ad hoc policies and initiatives regulate the issue of working-time reduction in relation to sustainability. The only model that has been legally endorsed, though different in its scope and nature, is the compression of the working week. Instead of the typical nine-to-five, Monday-to-Friday working week, legislation allows for a standard 40-hour schedule of ten hours per day for four days per week.

A few countries have adopted this approach. The United States, for example, has adopted federal legislation – the 1982 Federal Employees Flexible and Compressed Work Schedules Act – allowing for alternative work schedules based on environmental considerations.[47] This legislation authorizes federal agencies to offer employees non-mandatory alternative work schedules – specifically: (a) flexible work schedules, by permitting employees to choose non-traditional arrival and departure times, centred on core agency hours; and (b) compressed work schedules that allow employees to experiment with four-day working weeks or other compressed schedules. More recent studies have shown the positive impact of alternative work schedules on air quality.[48]

Similar regulatory provisions can be found in Austria and Finland. Neither country, however, introduced reduced working hours with the idea of protecting the environment or stimulating sustainable consumption.

In conclusion, it is worth recalling the UNEP–ILO report that suggested, in addressing the controversies around working-time policies for sustainability, that to move towards a sustainable and lower-consumption economy may also require a rethink of how the economy functions. The economy perhaps "needs a different theory, abandoning the outdated assumption that quantitative growth is unconditionally desirable and embracing instead the notion of qualitative growth".[49]

2.4.2 Sustainable transport systems

Commuting represents a substantial share of overall transport needs around the world, and workplaces in the private and public sectors are often the largest traffic generators.[50] To achieve environmental sustainability, sustainable transport systems are crucial. Since the 2000s, regions, cities and businesses around the world have been trying to implement transport policies to reduce the effects of motorized

46 Philippe Askenazy, "Working Time Regulation in France from 1996 to 2012", *Cambridge Journal of Economics* 37 No. 2 (2013): 323–347.

47 Statement of Senator Thomas Eagleton, 97th Congress Reg. 15414, 30 June 1982.

48 In its report, the United States Environmental Protection Agency (EPA) advocated the use of compressed working weeks as a transport control measure to meet the objectives specified in the Clean Air Act. See EPA, *Transportation Control Measures: Work Schedule Changes*, EPA420-S-98-014, 1998.

49 UNEP (United Nations Environment Programme) et al., *Green Jobs: Towards Decent Work in a Sustainable, Low-Carbon World*, 2008, 83.

50 OECD, *Effective Transport Policies for Corporate Mobility Management*, 2010, 15–16.

mobility on the natural environment.[51] Many regions have also developed policies to promote integrated strategies for sustainable mobility.[52]

Sustainable transport depends not only on technological advances and organizational factors but also on regulations. When implemented, these invite a wide range of strategies adapted to the geographical, technological, social and economic characteristics of the regions, countries and cities in question.[53] In recent years, sustainable transport has been included in regulations and plans for environmental protection and the rational use of energy, green growth and climate change, as well as in fiscal measures.

Sustainable transport systems are one of the key areas for achieving environmental sustainability.

Alternative transport options available to workers for commuting to their workplace are regulated through policies on mobility and sustainable transport. The regulations have invited greening strategies involving the following elements: (a) enterprise-level corporate mobility plans for employees, promoting sustainable mobility choices; (b) fiscal and other economic incentives supporting sustainable commuting; and (c) urban planning initiatives addressing the distance between home and the workplace.

Corporate mobility plans

A consistent body of laws and policies in several countries invites enterprises to adopt corporate travel plans, which are the key instruments for coordinating green commuting action in public or private enterprises. A typical model of a corporate mobility plan is described in the Commute Trip Reduction Efficiency Act adopted in 2006 by the state of Washington in the United States, which will be discussed below.[54]

At the core of corporate mobility plans are implementation measures, which should be diverse enough to enable them to be adapted to the specific needs of employers and employees. However, some national laws only support the idea of corporate mobility plans, without specifying what measures should be implemented. Examples of this include: (a) the Brussels Code for Air, Climate and Energy Management, adopted in 2013; (b) a decree adopted by Italy on sustainable mobility in urban areas; and (c) Spain's climate change and clean energy strategy, which also refers to social dialogue and collective agreements. These examples appear to be more promotional in nature, enterprises in these countries merely being strongly encouraged by the governments to implement corporate mobility plans and being offered support to do so.

Other examples of regulations include the establishment of targets for corporate mobility plans and the provision of implementation measures. An enterprise's mobility

51 Jean Mercier et al., *Governance and Sustainable Urban Transport in the Americas* (Berlin: Springer, 2019), 17.

52 European Commission: Mobility and Transport, "Urban Mobility Package", n.d.; Association of Southeast Asian Nations, Kuala Lumpur Transport Strategic Plan 2016–2025, 2016; United Nations Economic and Social Commission for Asia and the Pacific, Ministerial Declaration on Sustainable Transport Connectivity in Asia and the Pacific, 2017.

53 Mercier et al., 17.

54 Washington (United States), Commute Trip Reduction Efficiency Act, 2006, section 2.4.

plan may simply aim to inform employees of alternative travel options available to them. In Japan, these are known as "enlightenment activities" and are part of the mobility plan provided for in the 2005 Kyoto Protocol Target Achievement Plan.[55]

An enterprise may also offer internal incentives to adopt alternative travel options such as car sharing or the use of low-emission vehicles and public transport. Enterprises can also promote carpooling matching programmes; further encouragement can be provided by offering reserved parking spaces for carpoolers, creating an internal computer-based matching system, and encouraging drivers to take out insurance for passengers. Carpooling can complement public transport in rural areas, where commuting distances are longer and where it may not be cost efficient to provide public transport because of low population densities.[56]

The United Arab Emirates has stepped up its efforts towards sustainable transport, in particular by identifying the increased use of public transport as one of its priorities for sustainability in its Green Agenda 2015–2030.[57]

The Commute Trip Reduction Efficiency Act adopted in the state of Washington in 2006 aims to promote corporate mobility management through employer-based trip reduction programmes that are based on the amendments to the US Clean Air Act.[58] This law calls for reductions in the number of commuter trips made via single-occupant vehicles as an effective way of reducing automobile-related air pollution, traffic congestion and energy use. The law is very precise and structured and defines content, procedures and rules for promoting transportation demand management. Besides encouraging a shift to more sustainable ways of travelling, enterprises can also reduce the number of trips taken by allowing teleworking and teleconferences, and can enable employees to avoid peak-hour journeys through introducing more flexible working hours, as has been proposed in Ireland.[59] Such strategies have produced positive results and proved less costly for enterprises.

Fiscal and economic incentives may support sustainable commuting initiatives.

Fiscal and other economic incentives supporting sustainable commuting initiatives

The main set of incentives adopted by governments to promote sustainable commuting include the fiscal treatment of commuting, business trips and parking costs. In recent years, several countries have increased tax benefits for more sustainable modes of travel.[60]

There is a broad range of such incentives. For example, under Californian law, cash allowances can be granted to employees as an alternative to the provision of free parking spaces at work. France and Ireland have similar schemes providing tax-exempt "employer-paid benefits" to employees, such as a travel pass for use on the public transport system or the reimbursement of carpool charges. Another measure used frequently in Belgium, France and

55 Japan, Kyoto Protocol Target Achievement Plan, Cabinet Decision on 28 April 2005.

56 UITP (Union Internationale des Transports Publics), "Knowledge Brief: The Rural Mobility Challenge for Public Transport: How Combined Mobility Can Help", 2022.

57 United Arab Emirates, Green Agenda 2015–2030, strategic objective 5.3.

58 United States, Clean Air Act Amendments, 1990, 751la(d)(1)(b).

59 Ireland, National Climate Change Strategy 2007–2012, 2007, 23.

60 For instance, Germany, the Netherlands and Switzerland. See Stephen Potter et al., "Tax Treatment of Employer Commuting Support: An International Review", *Transport Reviews* 26, No. 2 (2016): 221–237.

the United States is the provision of transport fringe benefits – for example, offering a tax-exempt bicycle mileage allowance to employees who cycle to work.

The Green Transport Strategy for South Africa (2018–50) provides a basis for developing tax incentives related to corporate and private spend on rail transport.[61] In countries without sophisticated government fiscal and economic support measures, private sector employers may provide staff with simple loans to support the transition to sustainable transport – for example, to enable workers to buy bicycles for work purposes. Such a scheme was proposed in Uganda in 2012 during the drafting of the Non-Motorized Transport Policy, based on the informal practices common in the African region.

Urban planning

Besides fiscal and economic incentives, governments have other opportunities to leverage corporate mobility management measures. Through a smart rethinking of land development and urban planning,[62] workplaces could be moved closer to employees' residential areas, and commuting journeys thus significantly shortened, with beneficial impacts on the environment and on the workers' well-being.

This process should take place outside enterprises and involve decisions and actions taken at central and local government levels. The regulatory instruments on mobility and the transport sector in Catalonia in Spain and in the Republic of Korea recommend that, when planning urban development, whether for a city or a new area within a city, public authorities should focus on preventing urban sprawl and creating compact centres. If population displacement cannot be minimized through spatial planning, this goal could still be achieved by promoting specific programmes such as housing exchange or leasing programmes that bring employees closer to their places of employment. This was the approach suggested in Mexico's above-mentioned general law on climate change.

Sustainable commuting to the workplace improves air quality, prevents traffic congestion and reduces impact on global warming, while in most cases being reasonably easy for enterprises to implement. It is clear that the deployment of enterprise mobility strategies depends on a favourable environment, based on supportive rules, adequate alternative travel options, targeted assistance and supportive fiscal policies. Governments should ensure the presence of these components – according to the specific circumstances – and link them together when drafting regulations and creating plans for a sustainable transport sector.

Cooperation between employers and employees should be considered a guiding principle at all stages of a regulation's or policy's life, from drafting to implementation and evaluation. Internal cooperation, between management and staff, is also vital to ensure that concrete action occurs.

61 South Africa, Green Transport Strategy for South Africa (2018–2050).

62 OECD, *Effective Transport Policies for Corporate Mobility Management*, 13.

2.4.3 Sustainable consumption at the workplace (waste management)

In 2016, waste was estimated to account for around 5 per cent of global emissions, producing 1.6 billion tonnes of CO_2-equivalent GHG emissions.[63] Given the amount of time that people spend at work, workplaces are key settings for waste reduction efforts. Simple strategies for reusing, repurposing and recycling can be undertaken as much in offices as in homes, shops, multifunctional areas, factories and other spaces. Some measures are as easy as changing the order in which tasks are carried out in order to generate less waste,[64] or setting up an area for employees to exchange used items. These initiatives can benefit a workplace while not being either costly for the employer or time consuming or difficult for employees to implement.

Given the amount of time that people spend at work, workplaces are key settings for waste reduction efforts.

Reducing waste through purchasing choices

The principle of reducing waste generation is regulated in many jurisdictions.[65] In India, the regulation of solid waste management is comprehensive and establishes extensive guidance, including for street vendors.[66] In Austria, Canada, France, Luxembourg, North Macedonia, the Philippines, South Africa, the United Kingdom and the United States, there is a specific legal requirement for employers and workers to implement environmentally sound waste management practices in workplaces. Such obligations arise (a) when making purchasing choices, before waste is generated, and (b) in managing the waste generated as a result of activities conducted in the workplace. In the first scenario, workplaces can minimize waste from the moment a decision about the purchase of something is made.

In France, for instance, Article D543-281 of the Code de l'environnement (Environmental Code) specifies that plastic, glass, paper, metal and wood waste products should be separated "at source". In China, the strategy to reduce the consumption of certain goods is stipulated in Article 9 of the law on the promotion of the circular economy. In the Philippines, the rules and regulations on green public procurement and waste management require public offices to purchase green alternatives for office goods.[67] This regulation includes "the pursuit of environment-friendly purchasing policies" as part of the waste management programmes that public authorities' work premises should plan and implement.

63 World Bank Group, *What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050*, Urban Development Series, 2018.

64 Deniz S. Ones et al., "Multiple Domains and Categories of Employee Green Behaviours: More than Conservation", in *Research Handbook on Employee Pro-environmental Behaviour*, ed. V. Wells et al. (Cheltenham: Edward Elgar, 2018), 19.

65 European Commission, Directive 2008/98/EC on Waste (Waste Framework Directive), 2008, art. 4(1); Japan, Fundamental Law No. 10 for Establishing a Sound Material-Cycle Society, 2000; Australia (New South Wales), Waste Avoidance and Recovery Act, 2001, s. 3(b); New Zealand, Waste Minimisation Act, 2008; Australia (South Australia), Environmental Protection Act, 1993; EPA, *Waste Management Hierarchy and Homeland Security Incidents*, 2016.

66 India, Ministry of Environment, Forest and Climate Change, Solid Waste Management Rules, 2016.

67 Philippines, DENR Administrative Order No. 2001, Implementing Rules and Regulations of Republic Act 9003.

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Waste management strategies

Most waste reduction strategies in the workplace, however, focus on waste management – that is, when waste is generated and needs to be dealt with.[68] Legislation in Luxembourg, North Macedonia and the United Kingdom establishes the requirement for employers and workers to adopt the "3R (reduce, reuse and recycle) approach" to implementing integrated solid waste management, with the aim of valuing waste.[69] The approach promotes the principle of the "reasonability" of measures, meaning that they should not pose an excessive and unjustified burden on the parties involved.

The same requirement is reaffirmed in the law adopted by the Republic of Korea on waste control, which is extended to all citizens and "every owner, occupant and manager of a parcel of land or a building", regardless of the use made of it. In Ontario in Canada, Regulation No. 102/94 sets out how the specific initiatives linked to the "3R approach" to waste management should be detailed in a waste reduction plan, following a waste audit in the workplace.

South Africa goes beyond the "3R approach", adding that "where waste must be disposed of" the waste holder must "ensure that the waste is treated and disposed of in an environmentally sound manner". Furthermore, this regulation establishes the responsibility of employers for the conduct of employees, should they breach these obligations.[70]

In most cases, regulations do not specify the products to be recycled or reused, since these may vary from one sector to another or according to whether the workplace is an office or an industrial site. An exception is the French Environmental Code,

68 Not dealt with here is the issue of establishing compliance and enforcement measures to ensure that waste management systems are effective. For a discussion, see UNEP, *Guidelines for Framework Legislation for Integrated Waste Management*, 2016.

69 Luxembourg, Loi relative à la gestion des déchets of 21 March 2012; North Macedonia, Law on Waste Management of 2004; United Kingdom, Regulation No. 988 of 2011.

70 South Africa, Law No. 59/2008, art. 6.

which specifically refers to all objects made of paper, metal, plastic, glass and wood. In Maryland in the United States, existing regulations provide a checklist of goods typically present in workplaces which must be recycled.[71]

Austrian legislation specifically refers to packaging accumulated in the workplace and reaffirms the principle of "extended producer responsibility". This means that any person who may be considered responsible for the presence of packaging in the worksite is obliged to return the packaging to "a recycling plant compliant with the latest technological standards".[72]

The scope of the Austrian regulation is broad: it refers to waste generated in the workplace by any "manufacturers, importers, packers and distributors", thereby holding all those involved at all stages of the production process, at any level, responsible for sound waste management. The language used in legislation may be even broader and refer to any "producer" and "holder" of waste, as can be seen in the legislation in France, Scotland in the United Kingdom, and South Africa. Worksites, being large-scale producers and consumers of goods, usually fall under these definitions.

Awareness-raising is a key element in creating sustainable workplaces and has been provided for in the legislation of several countries.

Awareness-raising and training of employees

Awareness-raising is a key element in transforming workplaces to make them sustainable. Some countries impose a legal obligation on employers to inform employees about waste management and provide them with training programmes on this subject. Workplace awareness-raising and training on waste management have been provided for in legislation in Australia, Brazil, Ontario (Canada), France, Japan, Luxembourg, Paraguay, the Philippines, the Republic of Korea, North Macedonia and the United States.[73] The Ontario regulations require employers to make their waste regulation plan available to employees. Should the employer only provide a summary of the waste reduction plan, the employees have the right to request access to the full text of the plan.[74]

In North Macedonia, the law on waste management goes beyond merely requiring employers to inform workers of the existence of a waste management plan and includes a requirement to provide educational programmes on how to deal with waste. However, it is limited to the "staff involved in waste management", indicating the existence of a separation of duties in the workplace with respect to

71 United States (Montgomery County, Maryland), Executive Regulation No. 1-15, 2016.

72 Austria, Packaging Ordinance 1996, Chapter 10.

73 Australia (Queensland), Waste Reduction and Recycling Act No. 31 of 2011, art. 143; Brazil, Normative Instruction SLTI/MP No. 01/2010, 2010, art. 6; Canada (Ontario), O. Reg. 102/94: Waste Audits and Waste Reduction Work Plans, under Environmental Protection Act, RSO 1990, c. E.19, paras 9 ss. and 31 ss.; France, Programme national de prévention des déchets 2014–2020, 2.3.3.1 (opérationnaliser la Loi n° 2015-992 du 17 août 2015 relative à la transition énergétique pour la croissance verte, Titre IV); Japan, Waste Management and Public Cleansing Law No. 137 of 1970 (amended in 2001); Japan, Act on the Promotion of Environmental Conservation Activities through Environmental Education, Act No. 130 of 25 July 2003, art. 3; Japan, Waste Recycling Governance Guidelines for Waste Generating Companies, 2004; Luxembourg, Loi du 21 mars 2012 relative à la gestion des déchets, 2012, art. 27.2; North Macedonia, Law on Waste Management of 2004, art. 21; Paraguay, Law No. 80 of the Integrated Management of Solid Waste, 2018, art. 10; Philippines, DENR Administrative Order No. 2001, section 3.e); Republic of Korea, Framework Act on Low Carbon, Green Growth, Act No. 14122, 29 March 2016, art. 24; United States (Montgomery County, Maryland), Executive Regulation 1-15, 2016.

74 Canada (Ontario), O. Reg. 102/94: Waste Audits and Waste Reduction Work Plans, paras 9 ss. 31 ss.

waste operations.[75] In Queensland in Australia, legislation adopts a broader approach and considers the training of all employees to be an essential element in the "effective" enforcement of the employer's waste management plan.[76]

Japanese legislation promotes a more inclusive model based on cooperation between the various components of society, each playing its own role in the establishment of a sustainable society that respects the "voluntary intentions of citizens and private organizations".[77] The Government has also developed guidelines for waste-generating enterprises which stipulate the importance of employees knowing not only *whether* a waste management plan is in place in their workplace and how to implement it effectively, but also *why* it is important and *how* the waste that they have helped to sort and minimize is going to be treated or used in the future.[78] Similarly, the French Programme national de prévention des déchets 2014–2020 reaffirms the importance of training staff in the benefits of waste reduction initiatives.

Educational programmes for employees may also differ in terms of their breadth of content. Some may explain waste management holistically, thereby helping workers to understand the role of waste management in the circular economy. Such is the case in legislation of the Republic of Korea, which talks generally about the "fostering of human resources to improve the productivity of resources".[79] The Republic of Korea's framework act on low carbon and green growth is the only legal tool among those reviewed that does not use the term "waste", preferring the term "resource", thus adopting a positive attitude and implying the existence of potential benefits from the conscious management of waste. In other countries, the scope is often limited to only one aspect of waste management, namely recycling.[80]

Not all regulatory examples detail how the training should be organized. Japan is the only example of a country whose legislation provides for a specific entity to which employers and employees can refer in order to learn how to draft and implement a waste management plan in the workplace.[81]

Staff training programmes can be more than just tools to disseminate information about the waste management plans created for their workplaces. They may also have the broader objective of fostering the development of a strong critical conscience among employees with respect to waste, encouraging them to monitor and provide feedback on how waste is being managed in the workplace. An example of this idea can be found in the Waste Reduction and Recycling Act adopted by Queensland in 2011, which allows for the inclusion of a mechanism for the staff of the planning entities to provide feedback about the waste management plan and its implementation.[82]

Laws on waste management generally apply equally to households, offices, shops and other small commercial establishments. Yet some of the provisions discussed in this chapter refer to cases where the sustainable management of waste in workplaces has been regulated separately from that in other settings. Workplaces trigger different

75 North Macedonia, Law on Waste Management of 2004, art. 21.

76 Australia (Queensland), Waste Reduction and Recycling Act No. 31 of 2011, art. 143.

77 Japan, Act on the Promotion of Environmental Conservation Activities through Environmental Education, art. 3.

78 Japan, Waste Recycling Governance Guidelines for Waste Generating Companies, 2004.

79 Republic of Korea, Framework Act on Low Carbon, Green Growth, 2016.

80 United States (Montgomery County, Maryland), Executive Regulation 1-15, 2016.

81 Japan, Waste Management and Public Cleansing Law No. 137 of 1970, art. 13-12.

82 Australia (Queensland), Waste Reduction and Recycling Act No. 31 of 2011, art. 143.

dynamics from private households and other places, owing to (a) their size, which usually makes them large-scale producers and consumers, (b) the special position they occupy in the procurement chain, and (c) the power relations between employers and employees. Employers can therefore play a fundamental role in stimulating and leading the change towards an ecological society through their businesses and organizations. The training of employers and worker representatives is fundamental to the design of waste management plans. Beyond the issue of sustainability, economic savings and reputational gains are strong motivations for organizations to go green.

The legislation adopted by different countries takes a variety of approaches to supporting energy efficiency and the use of renewable energy.

2.4.4 Energy-related workplace measures

Energy is the sector where most regulatory action has been taken in the majority of ILO Member States. There has been a marked trend in recent years towards new and innovative laws promoting energy efficiency, green energy sources and clean technologies across industries in both developed and developing countries. By the end of 2016, at least 176 countries had adopted targets for renewable energy and energy efficiency and conservation, adapted to each country's needs and circumstances and valid across sectors economy-wide.[83]

Our review of the related legislation across the regions reveals a range of different approaches to seeking to achieve energy efficiency and the use of renewable energy. For example, some laws impose restrictions, such as on the purchase of inefficient equipment, whereas others impose labelling requirements or call for awareness-raising programmes on energy use for workers and managers.

Measures affecting workplaces were found in the regulations of 18 countries.[84] The measures vary from country to country and generally address (a) worker/employee participation in energy audit initiatives and (b) worker/employee participation in awareness-raising programmes on energy efficiency and conservation measures. "Energy auditing" is shorthand for the calculation by specialized technical personnel of the energy use of a building.

We also found examples of countries where employees are engaged in monitoring energy consumption at the workplace. Though not yet widespread, this is one important method used to try to stimulate sustainable practices in the workplace.

The 2012 European Union Directive on energy efficiency, for example, makes energy audits mandatory for large undertakings.[85] Following the EU Directive, Austria will only monitor energy efficiency in large enterprises,[86] energy audits remaining optional for SMEs.

83 IRENA, "Renewable Energy Jobs: Status, Prospects and Policies", IRENA Working Paper, 2011, 22.

84 Algeria, Bulgaria, China, Croatia, Ecuador, Eswatini, Hungary, India, Italy, Lebanon, Malta, the Netherlands, Nigeria, Thailand, United Arab Emirates, United Kingdom, United States and Uruguay.

85 European Parliament and Council of the European Union, Directive 2012/27/EU on Energy Efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC, 2012, art. 8(4).

86 United Kingdom, Energy Savings Opportunity Scheme (ESOS) and Regulations, 2014; Austria, Energy Efficiency Act, 2014, art. 8.

In the United Kingdom, the 2014 Energy Savings Opportunity Scheme (ESOS) and Regulations provide an example of how to engage energy consumers – called "stakeholders" – across the workplace, including employees. Thus, "overseeing energy measurement and performance reporting" is one of the options available to engage workers, as is seeking their opinion on where savings could be made and on practices that might help the workplace or enterprise to become more efficient. This piece of legislation, under a subchapter called "Engage with your energy users", invites organizations to "find out how employee behaviour or processes affect energy use" in their organization.

In China, awareness-raising activities about the environment in general are promoted among employees to try to engage them in achieving the energy conservation targets of the enterprises where they work. China's law on energy conservation requires energy-using business units to provide regular training on energy saving for employees throughout their careers.[87]

Areas that have seen specific legal and policy interventions in China are energy conservation and renewable energy sources.[88] Energy management systems have been established, for instance, in retail, wholesale, catering, accommodation and logistics. According to the legislation, businesses must set up a system of responsibility for meeting energy conservation targets, and reward individuals and entities for achievements in energy conservation.

The Croatian energy efficiency plan for 2017–19 had a broader scope, including both formal and informal training programmes, which focused not only on energy efficiency but also on renewable energy sources and sustainable development. The plan specified activities for achieving those objectives.[89]

The US Code of Federal Regulations expresses the hope that employees will transfer to their private lives what they learn from training sessions on how to limit energy consumption in the workplace.[90]

The analysis of legislation and policy documents from regions throughout the world demonstrates an emerging understanding that increased energy efficiency is beneficial to everyone. Through the active engagement of their workers, enterprises can benefit from significant savings and an enhanced reputation, while the employees themselves will feel empowered and have a sense of ownership of the environment in which they work.

Legislation and policy documents from around the world demonstrate an emerging understanding that increased energy efficiency is beneficial to everyone.

87 China, Law of the People's Republic of China on Energy Conservation, Presidential Order No. 77, 2008, Chapter III, section 1, art. 26,

88 China, Energy Conservation Law (revised in 2018), art. 13, stipulates that "The State shall encourage enterprises to establish energy conservation standards that are stricter than the national and industrial standards".

89 Croatia, The Fourth National Energy Efficiency Action Plan for the 2017–2019 Period, 2017, Chapter 3.1.5, 38.

90 United States, Code of Federal Regulations, Energy, Title 10, Chapter II, Part 436, App. C.

Some countries consider the need for renewable energy an opportunity to create new jobs and increase social inclusion, prioritizing people outside the job market, unskilled workers and those who have lost their jobs as a result of the technological transition.[91]

2.4.5 Workers' environment-related rights

The participation of workers in environmental matters is crucial to reducing enterprises' environmental impact and to putting into practice environmental policies. Participatory rights also help to improve working conditions and to safeguard jobs. The ILO *Guidelines for a Just Transition* emphasize the importance of rights at work in the transition towards sustainable economies.

The Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87), and the Right to Organise and Collective Bargaining Convention, 1949 (No. 98), provide guidelines on how to ensure participation in decision-making about environmental and climate change policies affecting the world of work.

The participation of workers in environmental matters is crucial to reducing enterprises' environmental impact and to putting into practice environmental policies.

Academic and policy-oriented literature uses the notion of "environmental rights at work", referring to the importance of workers' participation in environmental decision-making as well as of other rights relating to environmental sustainability. Although this is not a legal term, a number of elements stemming from national legislation are increasingly considered to be part of the concept of workers' environmental or environment-related rights. In other words, in addition to the right to participate in decision-making on workplace environmental conditions, there are other possible environment- and sustainability-related rights at work.[92] These include the right to environmental information, the right to be protected from retaliation for environmental action/reporting – also known as the protection of workplace whistle-blowers – and the right to refuse to perform environmentally harmful activity at work.

Our research on national legislation has also shown that some countries have adopted legislative provisions enshrining the right of employees to notify the employer if a serious risk to public health or to the environment is posed by the enterprise's activities. Depending on the legislation, this will be either a right or an obligation.

Some of the debates about environmental representatives have focused on the need to confer a legal right to time off for these representatives to carry out their environmental activities. To date, union activities covering environmental issues at work have occurred at the enterprise level but have not yet been reflected in any legislation. The following section will analyse examples pertaining to environmental rights at work.

91 According to the regulations on energy efficiency of Algeria, Ecuador, Eswatini, the United Arab Emirates and Uruguay, the enforcement of energy efficiency measures would require new professional categories and would thus be a way to create employment opportunities, increase internal competitiveness and avoid the outsourcing abroad of expertise and know-how in the energy sector. Algeria, Programme National de l'Efficacité Energétique 2016–2030, 2015; Ecuador, National Energy Efficiency Plan 2016–2035, 2016; Eswatini, National Energy Policy, 2003; Uruguay, Declaración de Interés Nacional Proyecto de Inversión Matriz Energética del País, Decreto N° 354/009, 2009; United Arab Emirates, National Climate Change Plan of the United Arab Emirates 2017–2050, 2017, 57.

92 See Tomé Gil and González, 71.

The right to request information from the employer

As the only legally binding global instrument on environmental democracy, the United Nations Economic Commission for Europe Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (the "Aarhus Convention") of 1998 and its Protocol on Pollutant Release and Transfer Registers confer the rights to access information, to participate in decision-making in environmental matters and to seek justice. "Access to information on environmental matters" refers to the right to request information held by public bodies and authorities concerning the environment and natural resources, without having to state any particular interest.

The rights-based approach to accessing environmental information is also found in an increasing number of national legal systems, in particular in laws on freedom of information.

This rights-based approach to accessing environmental information is also found in an increasing number of national legal systems, in particular in laws on freedom of information. However, both these laws and the Aarhus Convention exclude private entities from their scope – that is, they do not always create an obligation for States parties to ensure that individuals within their jurisdiction have access to information held by private entities.

Our research into country-level labour laws has shown that this gap can be closed, given that labour legislation gives workers the right to request information from their employer. Integrating the right to access information into labour legislation adds a new dimension to environmental democracy, since it concerns the right to request information directly from the employer.

France, Georgia and Saint Lucia are countries that have enshrined the right to request information in their domestic labour codes, albeit that each country's legislation phrases this right in a different manner.[93] The labour codes in these countries express the right in terms of an unconditional and direct obligation imposed on employers to provide information to employees on products and processes that pose a risk to the public and the environment. Elsewhere, the right to access information is found in laws relating to protecting the natural environment, as, for example, in Cuba and the United States.[94]

In the United States, this right is encapsulated in the "right to know" present in some federal acts, which affirms the legal principle that employees or communities in general have the right to know the chemicals to which they may be exposed in their workplace and that may constitute a risk to their health and to the natural environment. The present research does not cover the general right to information provided for under OSH regulations and instead focuses on the right to receive environmental information. Many countries already provide for this right in their OSH legislation.[95]

93 France, Code du Travail, 2013, section L4141-1; Georgia, Labour Code, 2013, section 35(2); Saint Lucia, Labour Code, 2006, section 239.1(e).

94 Cuba, Environmental Law No. 81 of 1997, arts 161, 162; United States, Safe Drinking Water and Toxic Enforcement Act, 1986, California Proposition 65, § 25249.6.

95 ILO Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187), Art. 3(3); ILO, *General Survey on the Occupational Safety and Health Instruments Concerning the Promotional Framework, Construction, Mines and Agriculture*, 2017.

The right to notify

Integrating the right to access information into labour legislation or into environmental legislation brings into play other equally important dimensions of environmental rights at work, namely the right to notify the employer of the existence of a risk – for example, in France and the United States[96] – and, where necessary, to notify the public authorities (for example, where internal remedies have been exhausted). In the Bolivarian Republic of Venezuela and in Timor-Leste, any individual has both a right and a duty to notify the competent authorities of any action that may have caused, or threatens to cause, serious or material environmental harm.

French labour legislation requires workers to notify the employer immediately if they consider, in good faith, that the products or manufacturing processes used, or put into use, by the establishment pose a serious risk to public health or the environment.[97] Use of this right is subject to three preconditions: (a) the risk in question must be "serious"; (b) there needs to be a causal link between the product or manufacturing process used, or put into use, by the enterprise and the risk; and (c) the risk must be posed to public health or the environment. The system of notification is internal, taking place at the enterprise level, the employer being the first to be informed. The employer is then obliged to register the notification in writing, to ensure that the process is traceable, and must inform the employee of any measures taken.[98]

The right to refuse to work

The right to refuse to work, or as it is sometimes referred to, the right to remove oneself from danger, is a well-known legal category in OSH legal systems governing work stoppages by employees who refuse to work because of unsafe working conditions.[99] The present research has identified legislation in four countries that grants the right to remove oneself from work when there is a risk to the environment.[100]

According to Georgia's Labour Code of 2013, an employee may refuse to work if such work contravenes the law or if, owing to a lack of OSH standards, such work presents an obvious and substantial danger to, for instance, the safety of the environment.

South African legislation (National Environmental Management Act 107 of 1998) regulates the right of a worker to refuse to perform work if they "in good faith and reasonably believed at the time of the refusal that the performance of the work would result in an imminent and serious threat to the environment". Environmental legislation in Afghanistan and Canada provides for the overall protection of workers who refuse to perform any work that may result in imminent and serious threat to the environment.[101]

Some national legislation already provides for the right of workers to refuse to perform work for OSH reasons, and the ILO Committee of Experts on the Application of Conventions and Recommendations has stated, "the right of workers to remove

96 United States, Energy Reorganization Act (also encompassing the Atomic Energy Act), 42 USC § 5851 1(A).

97 France, Code du Travail, 2013, section 4133.

98 France, Code du Travail, 2013, section 4133-3.

99 ILO Safety and Health in Construction Convention, 1988 (No. 167), Art. 12; ILO, Safety and Health in Mines Convention, 1995 (No. 176), Art. 13; ILO, Safety and Health in Agriculture Convention, 2001 (No. 184), Art. 8(1).

100 Enterprise-level initiatives include BGP Inc., China National Petroleum Corporation, Right to Stop Work Policy.

101 Afghanistan, Environment Act, 2005, art. 7(32); Canada, Environmental Protection Act, 1999, S.C. 1999, art. 4(b), Chapter 33.

themselves from situations when there is a reasonable justification to believe that there is a serious and imminent danger remains an essential foundation for the prevention of occupational accidents and diseases and must not be undermined by any action by the employer".[102]

Hence, it is possible to argue that the general right to remove oneself under OSH legislation can also be used to protect the environment indirectly. For instance, a certain level of air pollution or environmental degradation can pose a risk to the health of the worker.[103]

Protection of environmental whistle-blowers

Research suggests that workplace whistle-blowing reports are an important source of information by which environmental impacts of enterprises may be uncovered.[104] Employees, however, often face a dilemma over whether or not to report an action that poses a serious risk or danger to the environment, for fear of harassment, dismissal and blacklisting, and for fear of repercussions for the enterprise which could potentially lead to job losses.

Despite significant disparities across the globe on the nature and quality of the available protective measures,[105] there is a growing legal trend towards protecting whistle-blowers. The protection often has a legislative basis, either in specific whistle-blower protection acts or in anti-corruption or public service laws.[106] In some countries, the main source of protection is through jurisprudence. In the Netherlands, until 2016,[107] non-binding but highly recommended codes of conduct acted as sources of best practice for employers.[108]

There is also increasing interest in providing legal protection to whistle-blowers who report potential or actual threats to the environment. Some countries, as well as the European Union, have enacted dedicated whistle-blower protection laws containing specific provisions to protect environmental whistle-blowers;[109] other countries have done so on an ad hoc basis through provisions within environmental legislation.[110] Despite this positive development in incorporating the protection of environmental whistle-blowers in legislative provisions, whistle-blowing in relation to the environment is still not mentioned among the most commonly reported categories of corporate misconduct.[111]

Some countries have envisaged the protection of environmental whistle-blowers in laws relating to the management of the natural environment. Only in South Africa do environmental whistle-blowers receive double protection – in both public disclosure legislation and environmental legislation.

102 ILO, *General Survey on the Occupational Safety and Health Instruments*, para. 298.

103 ILO, *Ambient Factors in the Workplace: An ILO Code of Practice*, 2001.

104 Kim Loyens and Wim Vandekerckhove, "Whistleblowing from an International Perspective: A Comparative Analysis of Institutional Arrangements", *Administrative Sciences* 8, No. 3 (2018): 25.

105 OECD, *Committing to Effective Whistle-Blower Protection: Highlights*, 2016.

106 France, Loi Sapin II, 2016, art. 6.

107 Netherlands, Wet Huis voor klokkenluiders ("House for Whistle-Blowers" Act), 2016.

108 Gregor Thüsing and Gerrit Forst, *Whistle-Blowing – A Comparative Study* (Cham: Springer 2016), 7.

109 For example, Australia (Queensland), Canada, Ireland, Japan, New Zealand, Republic of Korea.

110 For example, South Africa, United States, Zambia.

111 The most commonly reported categories being fraud, OSH issues, and industrial relations and labour issues. OECD, *Committing to Effective Whistle-Blower Protection*, 10.

In the United States, whistle-blower protection is enshrined in a "patchwork of more than 60 laws in different states, at different levels, for different sectors (including the private sector) and for different purposes".[112] In its 1977 conference report on the Clean Air Act, Congress recognized the unique position of workers in monitoring and reporting violations of environmental law, noting that "the best source of information about what a company is actually doing or not doing is often its own employees".[113] Congress therefore decided to include whistle-blower protection provisions almost identical to the provisions of the 1989 Whistle-Blower Protection Act in seven major federal environmental acts – on air quality control, on toxic substances, on water pollution, on energy, on resource conservation, on solid waste and on safe drinking water.

Provisions encouraging and protecting both government and private-industry employees who report violations of environmental regulations can be found in dedicated whistle-blowing protection legislation. Although in some countries legislation only affords protection to public sector employees,[114] there is a clear trend towards instituting stand-alone whistle-blowing legislation covering both the public and the private sectors. Legislation in the Netherlands extends this protection to "freelancers, trainees or volunteers".[115] Swedish and South African legislation uses the term "workers" in addition to "employees"; "workers" includes individuals who currently work or have previously worked for the employer and also encompasses those performing work as temporary agency workers.[116]

Although in some countries legislation only protects public sector employees, there is a clear trend towards stand-alone whistle-blowing legislation that covers the public and the private sectors.

An employee's motive for making a disclosure is generally regarded as irrelevant. In Japanese legislation, though, in order to obtain protection the worker must report the wrongdoing with no intention of obtaining any wrongful gain or of causing damage to others, and with no other wrongful purpose.[117] Some countries establish precise procedures that workers should follow when denouncing an illicit act against the environment;[118] others simply state that disclosure may be made by any means at the disposal of the employee;[119] and yet others require a notification procedure to be followed.[120]

112 Kim Loyens and Wim Vandekerckhove, "The Dutch Whistleblowers Authority in an International Perspective: A Comparative Study", Utrecht University and University of Greenwich, 2018, 27.

113 "Legislative History of the Water Pollution Control Act", in Conference Report on Clean Air Act, *United States Code Congressional and Administration News*, 1977, 1077–1404.

114 See, for example, Canada, Public Servants Disclosure Protection Act, 2005; Belgium, Loi relative à la dénonciation d'une atteinte suspectée à l'integrité au sein d'une autorité administrative fédérale par un membre de son personnel, 4 October 2013; Canada (Quebec), The Act to Facilitate the Disclosure of Wrongdoings Relating to Public Bodies, Bill No. 87, 2016.

115 Netherlands, Wet Huis voor klokkenluiders, 2016.

116 Sweden, The Whistleblowing Act on Special Protection for Workers against Reprisals for Whistleblowing Concerning Serious Irregularities, 2016; South Africa, Protected Disclosures Amendment Act 5 of 2017 (Amendments to Protected Disclosures Act of 2000).

117 Japan, Whistleblower Protection Act, 2004, art. 2.

118 Ireland, Protected Disclosures Act No. 14, 2014, "Disclosure of relevant information (whether before or after the date of the passing of this Act) made by a worker in the manner specified in sections 6, 7, 8, 9 or 10", part 25 (1).

119 European Union, Draft Directive Strengthening the Protection of Whistle-Blowers Reporting Breaches of EU Law, 2016, art. 4(3).

120 Zambia, Environmental Management Act, 2011, art. 94.

Legislation in Quebec in Canada encourages individuals to apply to the Quebec Ombudsman to seek information about the procedures to be followed. Private and public entities are encouraged to facilitate the establishment of internal mechanisms for employees to make disclosures.[121]

In the Netherlands, the law does not establish a general obligation to protect whistle-blowers but creates an obligation for enterprises with 50 or more employees to establish an internal whistle-blowing policy. The Netherlands adopted an act that provides for a "house for whistle-blowers" where public and private sector employees can report regulatory violations, health and environmental risks, and threats to the functioning of public services or enterprises. The law prohibits retaliation if an employee has a reasonable belief that the report is accurate.[122]

Environmental whistle-blowing will often not require a specific legal provision, since the general protection of whistle-blower's rights should be sufficient.

Typically, domestic legislation stipulates that individuals reporting environmental misconduct at their workplace are not liable for the act of disclosing such information. Protection also extends to cover disciplinary measures – in particular, unfair and discriminatory dismissal and other forms of employment-related retaliation, including attempts to change the terms of the employment contract.[123] In this vein, the following would be considered null and void: any termination of the employment contract because of whistle-blowing, or loss of opportunity for promotion, transfer of duties, change of location of work, reduction in wages or change in working hours,[124] discriminatory performance evaluation or peer review, or cancellation of education, training or other self-development opportunities.[125]

Ireland's Protected Disclosures Act 2014 and the South African Protected Disclosures Act of 2000 include protection against the mere "threat" of reprisal, a regulation that is specific to these countries and not found in any other legislation we examined.[126]

It is not always the case, however, that when someone blows the whistle the occupational detriment to the whistle-blower is taken into consideration.[127] The new act on whistle-blowing adopted by Sweden in December 2021 provides that whistle-blowers who are subject to reprisals from their employer will be granted compensation for damages.[128] Legislation in South Africa provides for remedies in the event of occupational detriment, including the payment by the employer – jointly with their client,

121 Canada (Quebec), Act to Facilitate the Disclosure of Wrongdoings Relating to Public Bodies, Bill No. 87, 2016.

122 ILO, "Law and Practice on Protecting Whistle-Blowers in the Public and Financial Services Sectors", ILO Working Paper No. 328, 2019, 12.

123 Australia, Public Interest Disclosure Act, 2013, Part 2, Division 2, section 29.

124 Ireland, Protected Disclosures Act No. 14, 2014, art. 3; South Africa, Protected Disclosures Act, 2000, art. 3.

125 Republic of Korea, Act on the Protection of Public Interest Whistleblowers, 2011, art. 2.

126 Ireland, Protected Disclosures Act No. 14, 2014, art. 3; South Africa, Protected Disclosures Act, 2000, art. 3.

127 For example, see the publicized case of Tan Keng Hong. ILO, "Law and Practice on Protecting Whistle-Blowers", 38.

128 Eurofound, *New Developments in the Protection of Whistle-Blowers in the Workplace*, 2016.

if applicable – of compensation, the payment of actual damages, and the remedy of the occupational detriment suffered by the employee.[129]

Attention to environmental issues in the context of whistle-blowing and their integration into legislation is a relatively recent phenomenon. Even in countries that have comprehensive legislation to protect whistle-blowers, some uncertainty remains about its application in practice. It is not surprising that the question of whether employees really benefit from such protection in their day-to-day lives in the enterprise remains; a recent analysis highlighted the persistence of discrepancies between the legal text and the grassroots reality.[130]

In most cases, environmental whistle-blowing will not require a specific legal provision, since the general protection of whistle-blowers' rights – where it exists – should be sufficient. If the applicable law in force allows, whistle-blowers can report actual or potential threats to the environment. Therefore, the structural preconditions necessary for the protection of environmental whistle-blowers include the effective protection of human rights, in particular the freedom of expression of individuals and the rule of law. Employees should not only feel free to speak up and speak out, but also be rewarded for their bravery and civil commitment to society.

2.4.6 Other regulatory tools that have an impact on the greening of workplaces

Sustainable business models

The scale of efforts needed to meet the commitments of the Paris Agreement may prompt businesses to revisit the viability of existing ways of doing business. Indeed, sustainability may become necessary to doing business, given the degradation of the environment and the scarcity of resources. There is a growing discourse on sustainable business models.

In contrast to the "business-as-usual" paradigm, which is based on a purely economic view of enterprises, inputs, outputs and processes,[131] sustainable business models allow enterprises not only to take into consideration social and environmental interests but also to integrate these concerns into their organizational processes and ensure they are represented in the final output of their activities.[132] To create an institutional basis for such an approach to doing business, some countries have promoted sustainable business models such as "benefit corporations" through legislation and regulations.

The concept of a "benefit corporation" is very specific to the United States context, having emerged in response to the doctrine of shareholder primacy. Corporate law

129 South Africa, Protected Disclosures Amendment Act 5 of 2017, art. 10.

130 Eurofound.

131 Thomas Dyllick and Katrin Muff, "What Does Sustainability for Business Really Mean? And When Is a Business Truly Sustainable?", in *Sustainable Business: A One Planet Approach*, ed. S. Jeanrenaud, J.-P. Jeanrenaud and J. Gosling (Chichester: Wiley, 2017), Chapter 13.

132 Over the past few decades, sustainable businesses and social entrepreneurship have assumed a prominent role in society and a comprehensive support infrastructure for these kinds of organizations has been developed. This includes educational programmes, social business clubs, incubators (namely hubs), supporting foundations (including Ashoka, Schwab and Skoll), government programmes (such as the 2011 EU Social Business Initiative), special certification systems for socially oriented enterprises (in other words, B-corporation certifications), and a special legal status for privately owned organizations that prioritize their social and environmental missions. See European Commission, Expert Groups, "Internal Market, Industry, Entrepreneurship and SMEs: Social Enterprises".

did not allow directors of corporations to go beyond the financial interests of their shareholders to include the interests of other stakeholders. However, for the first time, legislation was passed in 2010 in the state of Maryland making a special form of corporation available to for-profit businesses. This legislative movement spread across the United States into another 34 states; Washington, DC[133] and then Puerto Rico and Colombia subsequently adopted similar legislation (see Chapter 3 for more details).

Sustainable business models allow enterprises to ensure that social and environmental interests are represented in the final output of their activities.

Colombia was the first country in Latin America to grant legal recognition to enterprises seeking to redefine the meaning of business success. Through a law adopted in 2018 (Law No. 1901), commercial enterprises wishing to attach importance to collective interests were created (enterprises of *beneficio e interés colectivo* [collective benefit and interest]). These commercial enterprises voluntarily combine the benefits of their commercial and economic activities with specific action to promote the welfare of their workers and contribute to the social equity of the country and to the protection of the environment.

In Europe, Italy was the first country to adopt legislation to allow for the equivalent of a benefit corporation, *società benefit*, the aim being to pursue one or more "common benefits" in addition to an economic activity. In Italy and in other European countries, this type of benefit corporation was created "to promote a completely new model of doing business, which seeks to pursue an economic and a social purpose", thus moving away from the doctrine of shareholder primacy.[134]

Articles 382 and 383 of the Italian law of 2015 on *società benefit* stipulate the requirement for enterprises to submit an annual report and financial statements that must contain a description of the specific objectives, modalities and actions implemented by the enterprise to achieve its specific objectives and any circumstances that have prevented or hindered their fulfilment.

Another European example is Article 61 of the French Government's 2019 Plan d'action pour la croissance et la transformation des entreprises (Action Plan on Business Growth and Transformation – the "PACTE law"), which aims to make businesses more sustainable in line with collective social and environmental interests. The law revises the definition of corporate purpose in the French Civil Code,[135] and Article 61 provides that a corporation must be managed in the interests of the corporation itself while also considering the social and environmental aspects of its activity. According to the law, a corporation may specify in its statutes its *raison d'être* – the principles guiding its business policy and strategic decisions.

The PACTE law also provides for businesses adopting a new corporate form – *société à mission* (a commercial enterprise that is required to pursue non-profit social and

133 Washington, DC, Bill 19-058, 2013.

134 Alissa Petalan and Roberto Randazzo, "The First European Benefit Corporation: Blurring the Lines between 'Social' and 'Business'", 2016.

135 Section 1833 of the French Civil Code stipulates that a *société* (a corporation) "must have a lawful purpose and be created for the common interest of the partners".

Sustainable business model enterprises aim to maintain their commercial legal nature but also to help bring into being an economy in which success is measured by the well-being of people, society and nature.

environmental objectives). Any public or private enterprise can register as a *société à mission* if its statutes provide for such a mission – or social or environmental goal. The enterprise must also form a second board, distinct from its board of directors and including at least one employee from the enterprise, to evaluate whether, and how, it is achieving its mission.

This legal reform provides legal protection to enterprises working in the area of social and environmental innovation and pursuing other non-profit goals.[136] Current corporate law does not protect long-term and responsible policies but this new legal measure could, for example, protect an entrepreneurial aim of developing a new technology for capturing CO_2, if new shareowners should decide they have other priorities. In other words, by "contractually committing the corporation to pursuing social or environmental projects, it provides entrepreneurs with the necessary conditions to secure long-lasting efforts".[137]

In the United Kingdom, the Companies (Audit, Investigations and Community Enterprise) Act of 2004 introduced "community interest companies" and provided for their comprehensive regulation. Although the legislation does not specify what constitutes a "community interest", to qualify as a community interest company an enterprise must pass "the community interest test [of whether] a reasonable person might consider that its activities are being carried on for the benefit of the community".[138] The legislation stipulates that the benefits to the community, and how to reach those objectives, should be specified in a "community interest statement" and requires the directors of the enterprise to submit an annual report.[139]

This legislation served as a model for the "community contribution companies" established in British Columbia, Canada, as a result of amendments in 2012 to the Business Corporations Act of 2002, the purpose of which "includes, without limitation, a purpose of providing health, social, environmental, cultural, educational or other services".[140]

In conclusion, it appears that the objective of providing a regulatory framework for sustainable business models, or "benefit corporations", has been to build a beneficial ecosystem to strengthen enterprises that use market forces to solve social and environmental problems. The idea behind sustainable business model enterprises (or *società benefit*, *sociétés à mission*, benefit corporations or *beneficios e interés colectivos*) is that they would maintain their commercial legal nature – that is, for profit – but help to bring into being an economy in which success is measured by the well-being of people, society and nature.

136 "French Law Revisits Corporate Purpose", *Stanford Social Innovation Review*, 29 November 2018.

137 "French Law Revisits Corporate Purpose".

138 United Kingdom, Companies (Audit, Investigations and Community Enterprise) Act 2004, section 35.

139 United Kingdom, "Setting up a Social Enterprise"; United Kingdom, Companies (Audit, Investigations and Community Enterprise) Act 2004, section 34.

140 Canada (British Columbia), Business Corporations Act, SBC 2002 (as amended in 2012), Chapter 57, part 2.2.

Lessons learned from green public procurement

Although green public procurement concerns the public sector, its laws and policies have the potential to lead to sustainable practices in the workplace. Some such policies specifically commit to promoting circular and sustainable development in MSMEs. Moreover, green public procurement is part of the sustainable policy framework of countries committed to greening. The latest data show that the estimated global value of public procurement is approximately US$11 trillion, representing 12 per cent of global gross domestic product.[141]

"Green public procurement" refers to a process whereby public authorities seek to procure goods, services and works that are less environmentally damaging when one takes into account their whole life cycle and includes environmental factors in the pricing of goods and services.[142] It allows the public sector to incorporate, through its collective purchasing power, sustainability criteria and better labour standards in buying decisions at a scale that can shift markets to produce greener goods and services and improve workers' conditions in supply chains.[143]

First introduced in Japan in the country's 1995 action plan for the greening of government operations,[144] the term "green public procurement" has since begun to appear consistently in policy documents and regional and domestic legislation. Green public procurement is an area in which regulations are recent and continually developing.[145] It is also an area that raises important questions about the integration of the principle of responsible consumption and production into the workplace. In many sectors of the economy, the public sector is a sizeable source of demand for goods and services. It can therefore influence the practice of private enterprises by setting new standards.

Green public procurement: integrating sustainability into the workplace

Integrating environmental criteria into procurement procedures fosters greener modes of production and ensures a greater supply of green goods and services. Through this process, enterprises along the supply chain can also participate in responsible production and the greening of workplaces. For example, Brazilian regulations stipulate that enterprises contracted by the authorities to supply goods and services must adopt a number of sustainability practices.[146] Areas that can be included in such contracts include, as a minimum: (a) the use of environmentally friendly cleaning products;

141 World Bank, Global Public Procurement Database, February 2020.

142 OECD, *Recommendation of the Council on Improving the Environmental Performance of Public Procurement*, 2002; European Commission, *Public Procurement for a Better Environment*, Communication COM(2008) 400, 2008.

143 UNEP, *Sustainable Public Procurement: A Global Review – Final Report*, 2013, 5.

144 Japan, Ministry of the Environment, The Action Plan for Greening Government Operations, 1995.

145 Apart from the 2006 Canadian Policy on Green Procurement and the 2005 US Federal Acquisition Regulation, all the other laws and policies on green public procurement examined in this study were developed in the last decade.

146 Brazil, Instrução Normativa SLTI/MP No. 01/2010, art 6.

(b) workplace measures to avoid wasting treated water; (c) provision of safe equipment for workers; (d) in-service training programmes for employees within three months of starting their contracts on reducing electricity consumption, water consumption and solid waste production in compliance with current environmental regulations; and (e) waste management at the workplace (sorting of recyclable waste, disposal of batteries).

The Swedish 2017 strategy on green public procurement emphasizes the need to build the capacity of contractors through continuous in-service training and retraining to maintain employees' environmental competences.[147]

Mexican legislation on green public procurement lists environmental measures to be targeted through contractors to obtain the best available conditions in terms of energy efficiency, responsible use of water, optimization and sustainable use of resources, and the protection of the environment.[148]

Some green procurement frameworks are also internally focused, both promoting sustainability on the suppliers' side and setting up a baseline for responsible consumption on the demand side, that is, in the public authorities themselves. Ireland's 2012 action plan on green public procurement establishes a code of conduct on sustainability for public employees working in the public sector. The plan addresses workplace consumption by promoting the judicious use of paper, toner and printing materials and fosters an eco-friendly attitude by reducing the operational impacts of information and communications technology equipment.[149] The plan applies the principle that environmentally sound consumption should be a first step in the green public procurement process. It describes how to achieve sustainable workplace behaviour through monitoring and auditing and through facilitating an ecological culture. It refers to facilitating a culture of energy conservation and enforcing a routine of shutting down equipment not in use. The training of employees working in public offices is perceived as an important way to stimulate sustainability in the workplace.

Similarly, the Belgian green public procurement framework stipulates that one pillar of sustainable development in the context of public procurement is to protect the environment and reduce the ecological footprint of public services consumption.[150]

The Colombian framework makes reducing consumption at the workplace a guiding principle of its policy on green public procurement. The principle encourages active questioning of consumption patterns within entities – of whether goods and services are really necessary. It emphasizes that reducing or eliminating unnecessary consumption is strongly associated with environmental benefits and significant savings of economic and natural resources.[151] A similar trend is visible in Japan and China.[152] Article 25 of the Chinese law on promoting the circular economy states that national agencies should use products, equipment and facilities that save energy, water, land and resources and should work to protect the environment.[153]

147 Sweden, National Public Procurement Strategy, 2017, 14.

148 Mexico, Ley de Adquisiciones, Arrendamientos y Servicios del Sector Público, 2000 (revised in 2014), art. 26.

149 Ireland, Green Tenders: An Action Plan on Green Public Procurement, 2012, Chapter 11.

150 Belgium, "Intégration du développement durable, en ce compris les clauses sociales et les mesures favorisant les petites et moyennes entreprises, dans le cadre de marchés publics passés par les autorités adjudicatrices fédérales", Federal Circular, 16 May 2014.

151 Colombia, Plan de Acción Nacional de Compras Públicas Sostenibles 2016–2020, 2016, 16.

152 Japan, Act on Promotion of Procurement of Eco-friendly Goods and Services by the State and Other Entities No. 100, 2000.

153 China, Law on the Promotion of the Circular Economy, Presidential Order of the People's Republic of China No. 4/2008, 2008.

Although the general green public procurement principles also apply to MSMEs, some frameworks expressly include provisions on actively promoting sustainability among MSMEs. In Chile, for example, a decree under the 2014 law on administrative contracts for supplies and services specifically commits to facilitating the inclusion of smaller enterprises in the public procurement system by including MSME status in the criteria for selecting bidders.[154] Similarly, Denmark's green public procurement action plan is committed to actively promoting circular business development in MSMEs.

Green public procurement and workers' rights

The review of 15 frameworks shows that green public procurement falls under the broader concept of sustainable public procurement, which means that the overall aim of the public sector should be to strike a balance between economic, social and environmental dimensions when making a procurement choice.[155]

Although research into these frameworks does not allow us to infer a specific relationship between green public procurement practices and workplace sustainability, the approaches taken by these various frameworks do create a strong interdependence between environmental and social concerns. The social considerations include: (a) an assurance of decent work; (b) compliance with social and labour rights, including the right to fair remuneration; and (c) the social inclusion of workers who risk being left behind in terms of the job market, equal opportunities and accessibility for all.

Some green public procurement frameworks promote social inclusion and poverty reduction, which entails improving the pay and conditions of workers delivering public sector contracts, including in relation to the right to fair remuneration and to associated economic benefits, pensions and social security contributions.[156] By upholding labour standards in general, and the value of salaries in particular, green public procurement aims to prevent not only the exploitation of workers but also the practice of social dumping.[157] Some provisions go beyond that. Public procurement should guarantee more than decent or "acceptable" remunerative conditions and aim for the best possible conditions,[158] because public authority purchases have the potential to set an example and the baseline for the entire market.

Together with the guarantee of a fair salary and payment of the social security contributions provided for in the law, the aim of some green public procurement provisions is to make the job market more accessible to certain categories of vulnerable workers – people with disabilities, the long-term unemployed, young people and the

154 Chile, Decree No. 1410 amending Supreme Decree No. 250 of 2004 approving the Regulation of the Law No. 19886 on Administrative Contracts for Supplies and Services, 2014.

155 Argentina, Decree No. 893 Regulation of the Procurement Regime of the National Public Administration, 2012, art. 194; Brazil, Normative Instruction SLTI/MP nº 01/2010, 2010, art. 1; Canada, Policy on Green Procurement, 2006, art. 7; Chile, Decree No. 1410, 2014, art. 15; Ethiopia, Public Procurement Directive, 2010, art. 9.1; Indonesia, Presidential Decree 16/2018 on Government Public Procurement, 2018; Lebanon, Sustainable Consumption and Production Action Plan for the Industrial Sector, 2015; Malaysia, Eleventh Malaysia Plan 2016–2020, 2015; Mexico, Special Sustainable Consumption and Production Programme 2014–2018, 2014; Paraguay, Resolution DNCP No. 1675/2010 approving the Sustainable Public Procurement Policy, 2010; Peru, Law No. 30225 on Public Procurement, 2014, art. 2.h; Uruguay, Law No. 18 834 on the Approval of Accountability and Balance of the Budget Execution, 2011, art. 23; United States, Federal Acquisition Regulation (FAR), Part 23.

156 Belgium, "Intégration du développement durable", para. 4.1; Czechia, Public Procurement Act No. 134, 2016, sections 74 and 113; Italy, Piano d'Azione nazionale sul GPP, 2017; Sweden, National Public Procurement Strategy, 2017.

157 Albert Sanchez-Graells, "Regulatory Substitution between Labour and Public Procurement Law: The EU's Shifting Approach to Enforcing Labour Standards in Public Contracts", *European Public Law* 24, No. 2 (2018): 231.

158 Chile, Decree No. 1410, 2014.

low-skilled labour force.[159] Contractors may be required to support skills training and apprenticeships for disadvantaged groups, and other measures may be implemented, such as special conditions and/or quotas for job market access, which often overlap with specific social integration and on-the-job-training initiatives.

Sustainable public procurement choices can be used not only to transform people working in public offices and throughout the supply chain into agents of change towards a more pro-environmental society but also to establish favourable working and remunerative conditions, thus upholding labour standards. They can also provide examples of workplace sustainability that can inspire enterprise-level action.

Legal instruments can provide the basis to improve social equity and economic development and reduce environmental risks and ecological scarcities.

2.5 Conclusion

This chapter has highlighted the provisions that promote resource efficiency and sustainable consumption and production at the workplace. It has also highlighted how legal instruments can provide the basis to improve social equity and economic development and reduce environmental risks and ecological scarcities. Finally, the chapter has examined laws and policies that deviate from a business-as-usual scenario to demonstrate innovative approaches that are driving forwards the development agenda – new policy approaches, regulatory methods and legislative provisions, which, if properly implemented, will promote a transition to an environmentally sustainable economy.

How sustainability is achieved – and what costs it may generate for MSMEs in particular – is a legitimate, and often essential, question. It would be difficult to conduct a traditional cost–benefit analysis for the environment in terms of the long-term effects of action taken today, since the final cost of various decarbonization and resource-management pathways will be context specific and depend on decisions being made to promote behavioural change and to foster innovation. The costs of sustainability in the long run will depend on the decisions and action we take today and in the future, and thus a "common understanding that a managed low-carbon transition is both imperative and affordable is the most effective way to induce a rapid transition at least cost".[160]

MSMEs can gradually introduce sustainability practices that are adapted to their needs. Most legislative frameworks tend to focus on promotion and encouragement and in providing options for MSMEs to take steps towards greening their workplaces. Many innovative mechanisms and solutions may contribute to delivering sustainability through business models, from maximizing material and energy efficiency, to creating value from waste and substituting with renewables and natural processes.[161]

159 Sweden, National Public Procurement Strategy, 2017; Belgium, "Intégration du développement durable", Chapter 3; Czechia, Public Procurement Act No. 134, 2016, sections 38 and 113; France, Decree No. 360 Concerning Public Procurement , 2016, 1.3.

160 Paul Ekins and Dimitri Zenghelis, "The Costs and Benefits of Environmental Sustainability", *Sustainability Science* 16 (2021): 949–965.

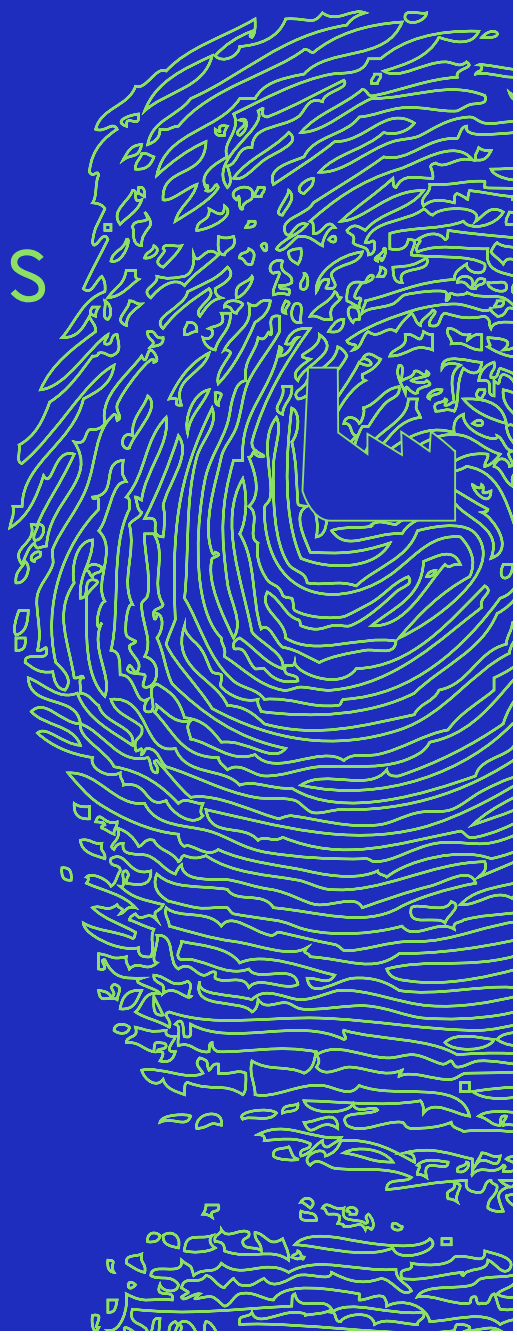
161 N.M.P. Bocken et al., "A Literature and Practice Review to Develop Sustainable Business Model Archetypes", *Journal of Cleaner Production* 65 (2014): 42–56.

Numerous countries have begun instigating legislative initiatives to promote sustainability through the workplace. The examples from our research show that it is possible for sustainable workplaces to become ingrained in the law and, further, that a legal approach is necessary to provide the normative and organizational underpinnings of a just transition to sustainability. Dialogue and cooperation between governments, employers and workers in formulating these initiatives will ensure greater cooperation and stronger awareness and participation in matters relating to workplaces. Ultimately, the implications of these legal initiatives are that the workplace can be the most direct and effective forum for change and transition to an environmentally sustainable economy.

III

Green enterprises

Characteristics, greening actions and trends in employment



Key findings

In 2021, nine out of ten enterprises surveyed in the Eurobarometer data reported taking action towards a green transition. Countries with a higher Environmental Performance Index tend to have a higher share of green enterprises. Larger firms, and firms selling to public administrations, are more likely to take resource efficiency action.

Two thirds of firms reported that resource efficiency action had lowered or had no impact on their production costs. Among firms that had taken resource efficiency action, minimizing waste and saving energy were the measures most commonly implemented, and most businesses relied on their own financial resources and technical expertise. Some firms faced barriers such as the complexity of administrative and legal procedures, the lack of supply of the required materials or the cost of environmental action. Nearly half of the companies that needed support responded that grants and subsidies would be helpful.

In European Union countries, EU candidate countries and the United States, 10 per cent of the companies took no action towards green transition. Policies such as grants and subsidies could enable half of these enterprises to engage in environmental sustainability action. However, among a sample of 39 countries covering a broader geographical area and a larger range of income levels, the share of formal businesses that took no action towards green transition appears to be higher (28 per cent).

When one controls for the firms' characteristics, the implementation of greening processes does not appear to have had a significant impact on employment except in lower-middle-income countries, where greening processes brought about a decrease in employment. This impact could arise from several factors, including productivity gains made through investment in greening processes in contexts where labour productivity is low. On the other hand, enterprises that adopted more greening processes were more likely to provide training to their full-time employees. Enterprises offering green products and services had relatively more green jobs than enterprises implementing resource efficiency action.

3.1 Introduction

From the perspective of enterprises, the greening of business implies the adoption of green products and services (greening of outputs) and/or green processes and technologies (greening of process) (ITC-ILO 2016; OECD 2018). Enterprises need a stable, predictable and healthy environment in which to operate their business and engage in the green transition. The context in which businesses evolve may significantly influence their engagement with the aim of an environmentally sustainable economy. This context will include the legal framework (Chapter 2).

The present chapter discusses in turn the operationalization of the green transition at the firm level, which is likely to be facilitated by specific characteristics of companies and may also have consequences for the firms' structure. For example, because of the resources and capacity available to them, bigger firms may be more likely to take green action than smaller firms. From a labour market perspective, adopting green technologies and processes may have significant impacts on employment and training.

The first analysis uses mainly the data from Flash Eurobarometer 498 to provide an overview of the characteristics of enterprises that take action towards a green transition (see the appendix). Such action entails either resource efficiency action, or the offering of green products and services, or the combination of those two approaches. A typology of firms is created to distinguish four categories of enterprises: (a) firms implementing resource efficiency action (greening processes), (b) firms offering green products or services (greening outputs), (c) firms implementing resource efficiency action and offering green products or services (greening processes and outputs) and (d) firms not engaging in the green transition. After analysing the characteristics of these categories of firms, the chapter focuses on the types of resource efficiency measures taken by enterprises, the reasons for taking them, the barriers faced when implementing them, support for green business initiatives, and the impact of markets and revenues.

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The Green Economy module from the World Bank Enterprise Surveys is then used to analyse whether enterprises taking action towards the green transition are sustainable in terms of employment levels. The analysis, therefore, focuses on the trends in employment in firms that adopt greening processes. Whenever possible, results are broken down by countries' level of development to consider different labour market environments and their environment-related challenges.

The chapter is organized in the following way. The first section, mainly based on Eurobarometer data, reviews the practices and characteristics of enterprises taking action towards a green transition, including the drivers, barriers and support experienced by businesses. The second section uses the World Bank Enterprise Survey to explore the relationship between the implementation of green processes, on one hand, and employment and training at the enterprise level. The conclusion summarizes the main findings. The appendix provides detailed information on the two sets of micro-data used, including the variables and the geographical coverage.

3.2 Enterprises taking action towards a green transition: Review of practices and characteristics

3.2.1 Firm classification

The "greening of business" implies the greening of output and/or the greening of process. The greening of products and services belongs to "output", while efforts to reduce energy and raw material fall under "process". Enterprises in sectors that do not provide green products or services can contribute to the green transition by implementing strategies that reduce their environmental footprint. Enterprises can also choose to use environmentally friendly materials and renewable energy as "inputs" or to take "marketing" action that steers consumer behaviour towards more sustainable consumption. "Green enterprises" therefore can be defined as those that have successfully introduced any of these measures into their business strategy and operation. Examples of action to make businesses greener, encompassing both green products and green processes, are detailed in Chapter 1.

In order to give an overview of characteristics that typify enterprises that take action towards green transition, the present report uses information from the Flash Eurobarometer 498 database to create a typology of firms that categorizes enterprises according to their adoption of greening processes or greening outputs.[1] The following four categories are defined:

1. **Firms implementing resource efficiency action (greening processes).** Using answers from the question "What action is your company undertaking to be

1 The Flash Eurobarometer data provide a snapshot of enterprises' greening of their processes and outputs at various points in time (2012, 2013, 2015, 2017, 2021). However, the survey does not allow the same enterprises to be followed over time; this limits any assessment of the dynamic features of innovation and strategies within firms. The creation of a longitudinal survey would therefore be useful.

more resource efficient?" (for which multiple answers are allowed),[2] enterprises are defined as greening their processes if they said they have implemented at least one resource efficiency action. It is worth noting that the concept of environmental sustainability measures discussed in Chapter 2 appears to be broader than the definition of resource efficiency action used here,[3] since, for instance, it also includes measures to make workplaces greener.

2. **Firms offering green products or services (greening outputs).** On the basis of answers from the question "Does your company offer green products or services?" only businesses that answer "yes" are defined as firms offering green products or services. Firms that said they are planning to do so in the next two years are classified with firms not planning to offer green products or services.
3. **Firms implementing resource efficiency action and offering green products or services (greening processes *and* greening outputs).** Using the classification described in points 1 and 2 above, enterprises are classified as greening their processes and outputs if they said that they have implemented at least one resource efficiency action and that they also offer green products or services.
4. **Firms not engaging in the green transition.** Firms that are not engaging in the green transition are defined as those that have not yet implemented any resource efficiency action and are not offering green products or services. This category includes businesses that are planning to implement resource efficiency actions or to sell green products or services in the next two years.

In 2021, self-reported answers to Flash Eurobarometer 498 suggested that a majority of firms had taken environmental action (figure 3.1). Some 90 per cent of the enterprises surveyed reported they had taken steps towards a green transition, by implementing resource efficiency actions, by offering green products and services or by a combination of these two approaches.

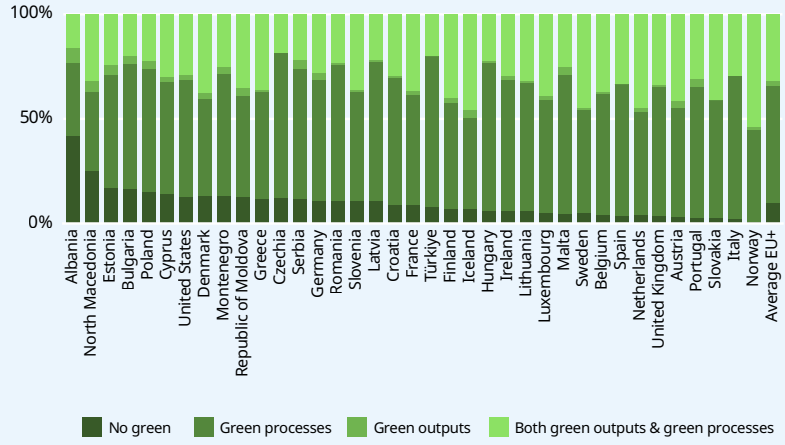
Figure 3.1 also shows that in 2021 the share of enterprises that had taken steps towards green transition varied greatly by country. For example, whereas in Albania 42 per cent of enterprises surveyed reported they had not taken any green measures, in Italy and Norway only 2 and 1 per cent of respondents, respectively, reported not taking action. However, in a sample of 39 countries covering a broader geographical area and a larger range of income levels,

90 per cent of the enterprises surveyed reported taking measures towards a green transition.

2 Available responses to this question are as follows: (1) "Saving water"; (2) "Saving energy"; (3) "Using predominantly renewable energy (including producing your own energy through solar panels, etc)"; (4) "Saving materials"; (5) "Switching to greener suppliers of materials"; (6) "Minimising waste"; (7) "Selling your scrap material to another company"; (8) "Recycling, by reusing material or waste within the company"; (9) "Designing products that are easier to maintain, repair or reuse"; (10) "Other"; and (11) "None".

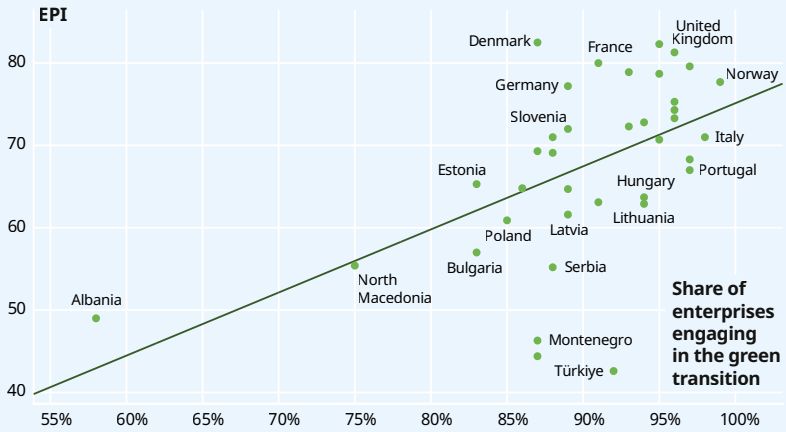
3 Although resource efficiency action includes only initiatives that have direct impact on resources used in the production process, environmental sustainability actions can include other actions such as ones that contribute to greener workplaces. For instance, support for the use of bicycles for commuting has no impact on resource efficiency but is considered an environmental sustainability action as defined in Chapter 2.

Figure 3.1 Share of enterprises that have taken steps towards a green transition, by country, 2021



Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

Figure 3.2 Correlation between the EPI and the share of enterprises engaging in the green transition, by country



Source: 2020 EPI; Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

between 2015 and 2020, 72 per cent of businesses had implemented at least one measure to green their processes (figure 3.11).

Is there a link, at the country level, between the share of enterprises engaged in the green transition and the vitality of environmental health and the ecosystem? As a preliminary indication, the Environmental Performance Index (EPI), a composite measure of environmental health, does positively correlate with the share of enterprises engaging in the green transition (figure 3.2).

3.2.2 Do firm size, revenue, industry and market orientation matter?

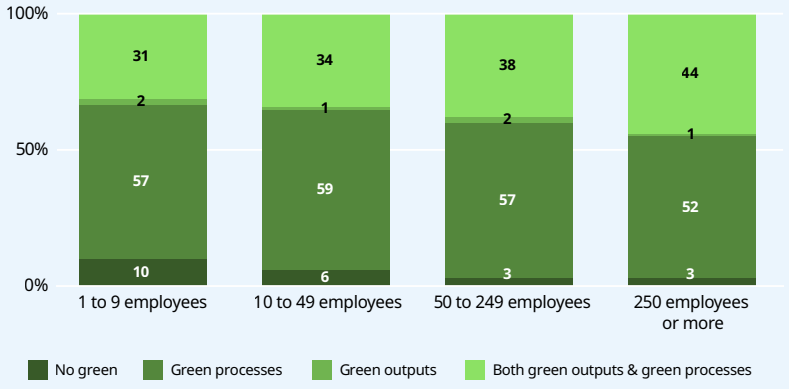
How do firms' characteristics affect the probability that the firms will implement green processes and offer green products or services? Do firms taking green initiatives have a higher proportion of "green jobs" – that is, jobs that contribute to green processes or green outputs?[4]

Size

Enterprises are classified as micro, small, medium-sized and large – defined as having, respectively, less than 10, less than 50, less than 250 and over 250 employees. Figure 3.3 shows that larger firms are more likely to take green action than are smaller firms. Among microenterprises, 10 per cent report they are taking no green measures; the percentage decreases to 6 per cent among small enterprises, 3 per cent among medium-sized and large enterprises.

Evidence suggests that larger enterprises are also more likely to combine green process action with efforts to offer green products and services. These findings may reflect the fact that some factors – such as limited access to finance, limited human resources, weak regulation enforcement, and lack of knowledge about innovation and new technology – may prevent some MSMEs from adopting environmental measures.

Figure 3.3 Share of enterprises taking action towards a green transition, by size, 2021



Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

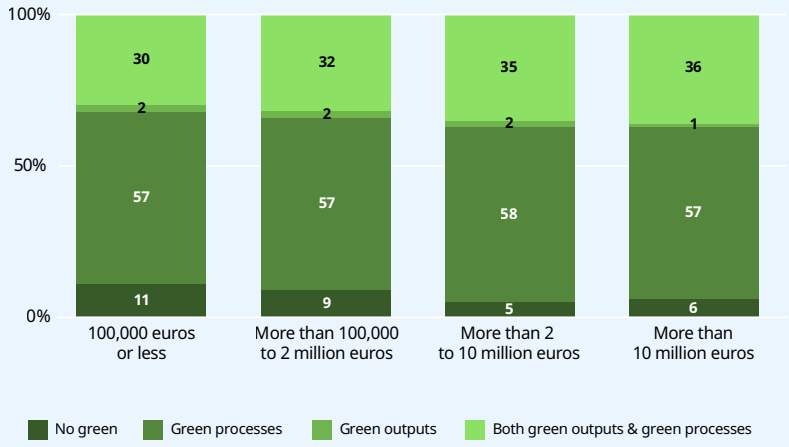
4 Flash Eurobarometer 498 (European Commission 2022) defines a "green job" as one that directly deals with information, technologies or materials that preserve or restore environmental quality. This requires specialized skills, knowledge, training or experience (such as verifying compliance with environmental legislation, monitoring resource efficiency in the company, promoting and selling green products and services). This definition differs from that used by the ILO, which requires that "green jobs" also meet the requirements of decent work.

Revenue

Similar results arise when one looks at the firms' revenue. Enterprises with higher annual revenue appear more likely to take green measures as well as to combine measures targeting processes and outputs (figure 3.4). Whereas 11 per cent of firms with an annual revenue of €100,000 or less are not engaged in the green transition, only 6 per cent of firms with an annual revenue above €10 million are not engaged.

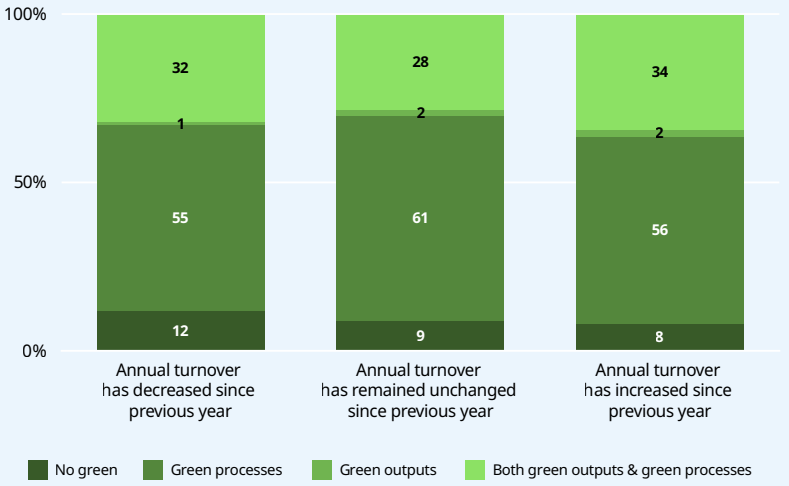
Growth in revenue also seems to matter. Figure 3.5 shows that firms whose revenue had decreased since the previous year were less likely to engage in greening initiatives than firms that remained stable or firms whose revenue had increased.

Figure 3.4 Share of enterprises taking action towards a green transition, by revenue, 2021



Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

Figure 3.5 Share of enterprises taking action towards a green transition, by revenue growth, 2021



Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

Industry

Figure 3.6 shows how the share of enterprises engaged in the green transition varies across industries. Firms in accommodation and food services, manufacturing, and electricity, gas, steam and air conditioning supply seem to be more likely to adopt green initiatives than firms in transportation and storage, information and communication, and real estate.

Close to half of the firms in the accommodation and food services sector are combining measures to make both their processes and outputs greener. Using data from ILOSTAT, figure 3.6 shows the share of employment generated by each industry. It can be seen that, together, manufacturing, retail trade and construction account for more than half of the total employment generated by the sectors covered in figure 3.6.

Firms are also attentive to consumers' expectations. Firms selling to public administrations are more likely to adopt green initiatives than are other firms (figure 3.7). This is in line with findings from Chapter 2 indicating that public administrations can incentivize enterprises to adopt green initiatives by means of public procurements.

In order to analyse the impact of these various characteristics on a firm's decision to introduce green measures, controlling for country and industry, two econometric probit models are used to assess how they affect the firm's probability of implementing green processes and of offering green products or services. The results of these models are shown in table 3.1.

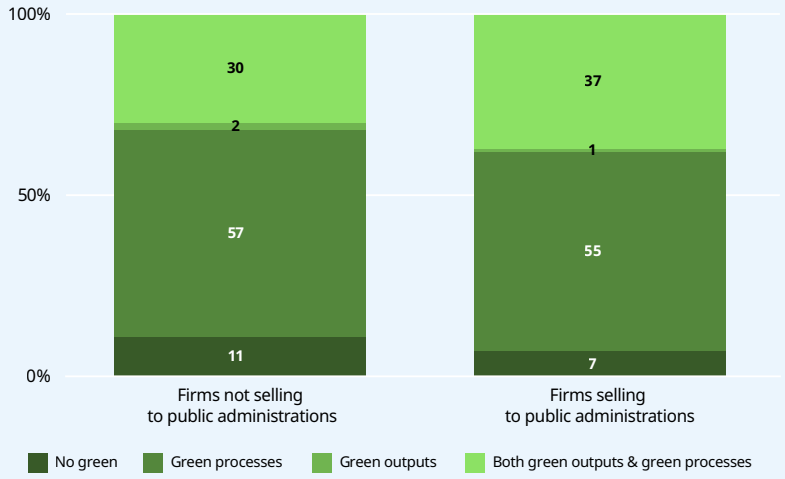
The findings seem to confirm the relationships suggested in the figures cited above. For instance, when one looks at the probability of a firm adopting green processes, it can be observed that bigger firms with higher annual revenue (more than €10 million) and selling to public administrations are more likely to do so. When one looks at the probability a firm will offer green products or services, larger companies with increasing revenue and selling to public administrations seem more likely to offer green products and services.

Figure 3.6 Share of enterprises taking action towards a green transition, by industry, 2021

	No green	Green processes	Green outputs	Both green outputs & green processes	Share of employment
H – Transportation and storage	16%	62%	3%	19%	9%
J – Information and communication	14%	63%	1%	21%	6%
L – Real estate activities	14%	69%	1%	16%	2%
K – Financial and insurance activities	13%	61%	1%	25%	6%
M – Professional, scientific and technical activities	12%	61%	2%	26%	9%
E – Water supply, sewerage, waste management and remediation activities	12%	49%	0%	39%	1%
G – Wholesale and retail trade, repair of motor vehicles and motorcycles	9%	51%	3%	37%	22%
F – Construction	9%	56%	2%	34%	12%
B – Mining and quarrying	8%	60%	1%	32%	1%
D – Electricity, gas, steam and air conditioning supply	8%	52%	5%	35%	1%
C – Manufacturing	5%	59%	3%	34%	23%
I – Accommodation and food service activities	4%	51%	2%	43%	8%

Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5); and ILOSTAT for the shares of employment.

Figure 3.7 Share of enterprises taking action towards a green transition, by market orientation, 2021



Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

Table 3.1 A firm's probability of taking green action according to its characteristics (results from two probit models)

Variables		Green processes	Green outputs
Age	Less than 1 year (omitted)	–	–
	1 to 4 years	0.18702177	0.06648133
	5 to 9 years	0.18057828	0.00872934
	10 to 19 years	0.17241443	–0.02481869
	20 to 49 years	0.2262737	–0.0338167
	50 years or more	0.36581402	0.00118308
Size	1 to 9 employees (omitted)	–	–
	10 to 49 employees	0.21057159***	0.02638946
	50 to 249 employees	0.38124725***	0.10701102**
	250 employees or more	0.30363544**	0.2566239***
Revenue	Less than €100,000 (omitted)	–	–
	€100,000 to €2 million	0.04607852	–0.0230228
	€2 million to €10 million	0.11344976	–0.03540166
	More than €10 million	0.24143412**	0.08335175
Revenue growth over past two years	Increased revenue (omitted)	–	–
	Unchanged revenue	–0.0520366	–0.1472927***
	Decreased revenue	–0.01436286	–0.05519654*
Market orientation	Firms not selling to public administrations (omitted)	–	–
	Firms selling to public administrations	0.13076221***	0.14051058***

Note: The two regressions control for countries' and industries' fixed effects. Asterisks indicate results that are statistically different from zero at, respectively, 10 per cent (*), 5 per cent (**) and 1 per cent levels of significance (***)

Source: ILO calculation based on Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

Share of green jobs

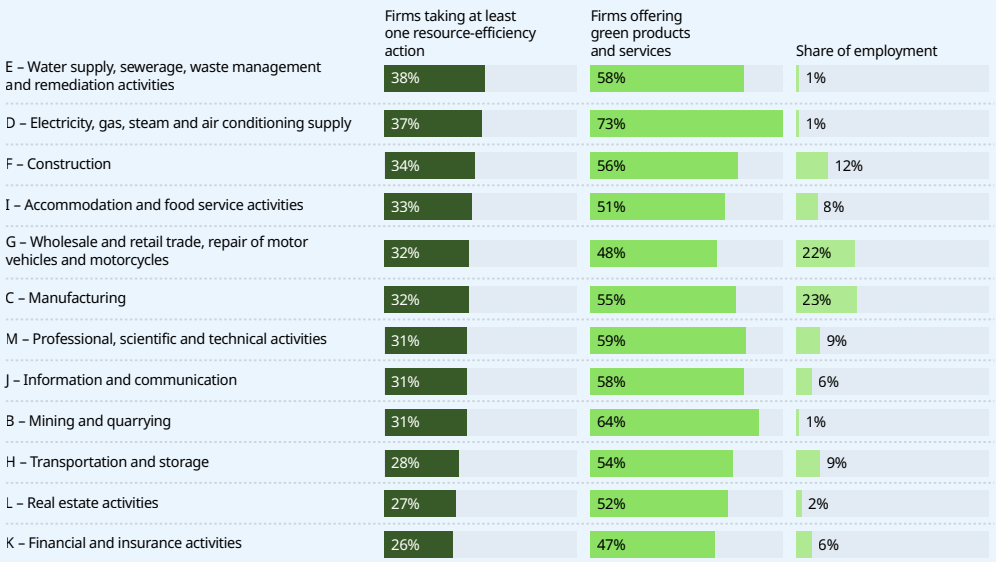
Using answers to the question "In your company, how many of your full-time employees, including yourself, work in green jobs some or all of the time?" figure 3.8 highlights the average share of green jobs within enterprises by industry for (1) enterprises that have adopted at least one resource efficiency measure and (2) enterprises that offer green products and services. In the Eurobarometer data, a "green job" is defined as one that deals directly with information, technology or materials that preserve or restore environmental quality.

The results suggest, firstly, that, across all sectors of activity, enterprises that have introduced at least one resource efficiency measure offer relatively fewer green jobs than do enterprises that offer green products and services. This is not surprising, since firms that combine the production of green products and services with the implementation of resource efficiency actions are likely to be more engaged in the transition and therefore to provide more green jobs than are firms that are only implementing resource efficiency measures.

Secondly, firms operating in water supply, sewerage, waste management, and electricity, gas, steam, and air conditioning supply tend to offer relatively more green jobs than do firms engaged in financial and insurance activities or in real estate. In industries that account for a large share of total employment, such as the retail trade and manufacturing, green jobs account for approximately 32 per cent of employment in firms that have implemented green processes and 50 per cent in firms offering green products or services.

In each industry, the actual share of green jobs may be overestimated, however, since the definition used here does not take into account the working conditions of the employees. For instance, a survey carried out recently in Mongolia shows that the number of green jobs is significantly reduced when only "decent jobs" are considered, as defined by the ILO (see box 3.1).

Figure 3.8 Average share of green jobs among total employment, by industry, 2021



Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5); and ILOSTAT for the share of employment.

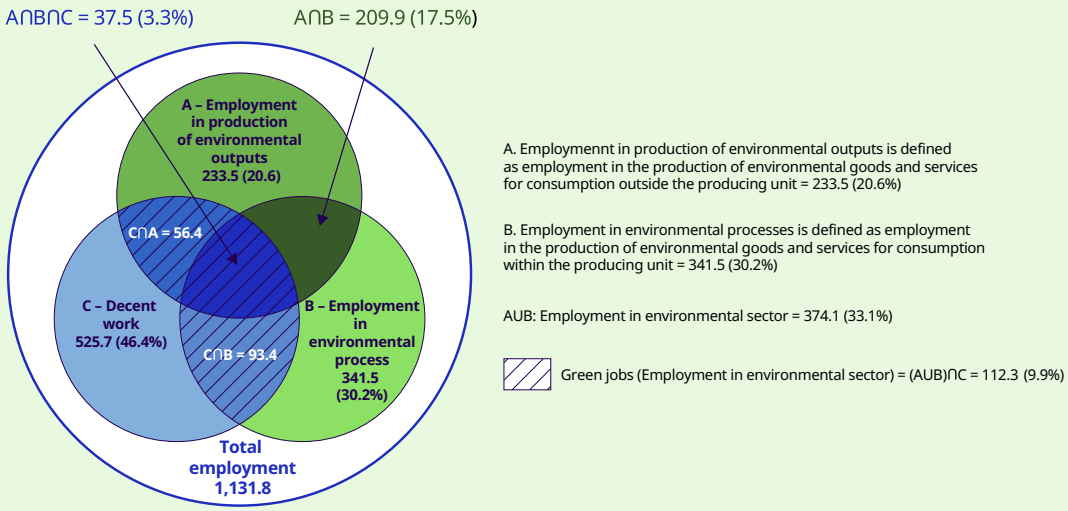
Box 3.1 Estimating the number of green jobs in Mongolia

Data on the green economy in Mongolia were gathered with the assistance of the ILO through questionnaires attached to the regular labour force survey of the fourth quarter of 2014 and the annual enterprise survey of the first and second quarters of 2016.

Based on the information collected, figure 3.9 maps the wage employees located in the environmental sector, that is, in economic units involved in producing green goods and services (circle A) or in activities that make the establishment's processes greener by reducing or eliminating pressures on the environment or making more efficient use of natural resources (circle B). Figure 3.9 also represents the jobs that can be considered "decent" (circle C) in the sense that the people employed are covered by social security schemes.

Of the 374,100 jobs in the environmental sector in the second quarter of 2016, only 112,000 can be considered "green", because only these employees are covered by social security schemes. Therefore, of all jobs in Mongolia in the second quarter of 2016 (1,131,900), 9.9 per cent are green, in being both decent and environmentally friendly.

Figure 3.9 Employment in the environmental sector and green jobs in Mongolia (thousand jobs)



Source: National Statistics Office of Mongolia 2017.

3.2.3 Firms implementing resource efficiency measures (green processes)

Focusing only on the sample of firms that have implemented at least one resource efficiency measure to green their production processes, the present section clarifies the following questions:

- What types of resource efficiency measures are the most used?
- What impact do they have on production costs?
- What support do enterprises receive to put them in place?
- What are the major difficulties encountered in implementing them?
- What could help firms to implement such measures?

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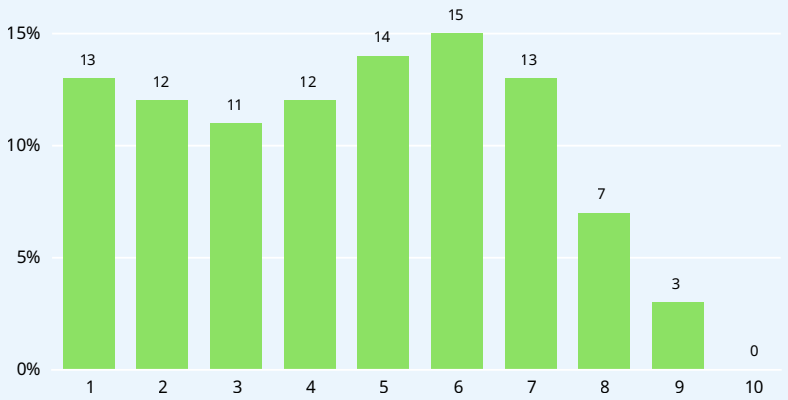
It should be noted that enterprises that are implementing resource efficiency measures are not all engaging in the green transition to the same extent. Whereas some adopt only one measure, others introduce multiple measures (figure 3.10). The findings show that whereas only 13 per cent of enterprises engaged in the green transition have implemented just one resource efficiency measure, 87 per cent are implementing more than one at the same time. Half of the enterprises have introduced five or more.

Evidence suggests that a firm's characteristics influence the amount of action taken. Larger firms tend to implement a larger number of measures than do smaller firms

Figure 3.10 Distribution of enterprises taking resource efficiency action by number of measures taken, 2021



Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

Table 3.2 Relationships between firms' characteristics and the number of resource efficiency measures taken

Variables		Estimated coefficient
Age	Less than 1 year (omitted)	–
	1 to 4 years	0.42734137
	5 to 9 years	0.46021539
	10 to 19 years	0.40674588
	20 to 49 years	0.44780508
	50 years or more	0.64661281
Size	1 to 9 employees (omitted)	–
	10 to 49 employees	0.23291683***
	50 to 249 employees	0.51594017***
	250 employees or more	0.84754986***
Revenue	Less than €100,000 (omitted)	–
	€100,000 to €2 million	0.05908848
	€2 million to €10 million	0.15765629*
	More than €10 million	0.4669991***
Market orientation	Firms not selling to public administrations (omitted)	–
	Firms selling to public administrations	0.34737152***

Note: Results from the ordinary least squares regression presented here demonstrate the relationships between a firm's characteristics and the number of resource efficiency measures taken. The regression controls for countries' and industries' fixed effects.

Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5)

(table 3.2). Although age does not seem to matter, bigger, richer firms and firms selling to public administrations tend to implement a larger number of resource efficiency measures.

Green public procurement, identified in Chapter 2 as a major regulatory tool in the greening of enterprises and workplaces, appears to contribute substantially to changing the way businesses operate. That small enterprises implement a smaller number of greening processes could owe to a number of factors, such as simpler production processes, lack of skills, or difficulties in accessing support measures.

However, the fact that enterprises with higher revenue implement more greening processes, irrespective of sector, size or country, suggests that financial assistance could help firms to become greener, or that it is profitable to go green.

The Green Economy module of the World Bank Enterprise Surveys enables further characterization of firms that have adopted a larger number of greening processes, especially relating to investment and human resource policies and the environment in which they operate (see the appendix for more information about these surveys). According to the data, such enterprises are associated with a greater propensity to develop innovative processes and products. This could reflect their tendency to invest more often in research and development than do other enterprises (box 3.2).

The adoption of greening processes also seems to be partly induced by the context: firms with a larger number of greening processes tend to be more exposed to extreme weather events and subject to environmental regulation than are other firms.

Box 3.2 Firms implementing more greening processes: Further characterization based on the World Bank Enterprise Surveys

Complementing the information from Flash Eurobarometer 498, the World Bank Enterprise Survey data allow us to fine-tune across several dimensions the characterization of formal firms that have implemented a larger number of greening processes (see the appendix for a description of the data and related methodological aspects).

Across the countries surveyed, 41 per cent of the establishments implemented three or more greening processes between 2015 and 2020 (figure 3.11). One out of three establishments in this category went even further in greening their activities, reporting the implementation of at least six processes.

Most of these greening processes concerned energy saving; more than two thirds of the establishments reported at least one process in this category (figure 3.12). Next come anti-pollution measures (39 per cent on average), followed by water management (15 per cent). In high-income countries, the shares of establishments reporting implementing an energy-saving process and an anti-pollution measure are higher (77 per cent and 54 per cent, respectively).

Figure 3.11 Number of greening processes implemented in establishments over the three years preceding the survey (2015–20)

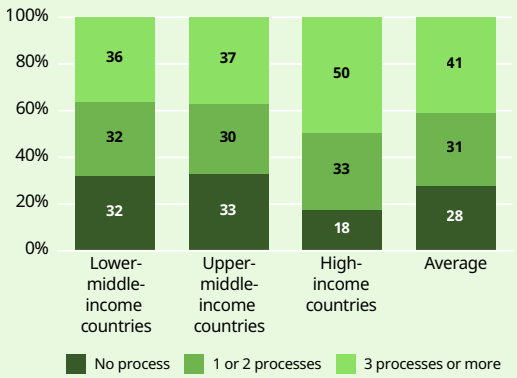
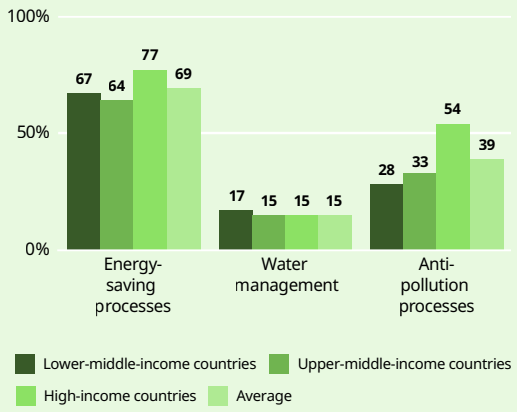


Figure 3.12 Share of establishments that have implemented energy-saving, water management and anti-pollution processes

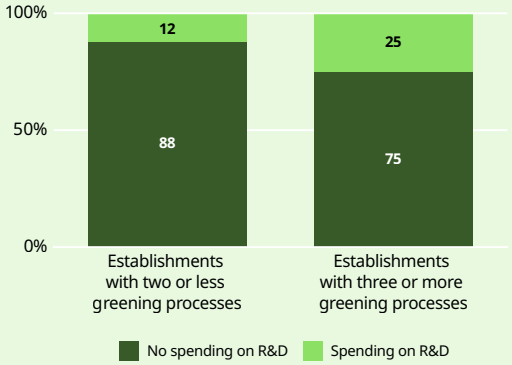


Note: Based on the data from 39 countries surveyed between 2018 and 2010 (see appendix). Energy-saving processes include items (a), (b) (c), (d), (h) and (i) from the list presented in the appendix. Water management processes include item (g). Anti-pollution processes include items (e), (f) and (j).

Source: Enterprise Surveys, World Bank, http://www.enterprisesurveys.org; ILO calculations.

With regard to types of activity carried out by firms, the results of a survey question on the allocation of resources to research and development, for instance, confirms that enterprises that adopt more greening processes seem to be more oriented than other firms towards developing new processes and products. On average, across the 39 countries covered by the data, 25 per cent of establishments that have implemented at least three greening processes have invested in research and development, whereas only 12 per cent of the other establishments have done so (figure 3.13).

Figure 3.13 Distributions of establishments according to their spending on research and development



Source: Enterprise Surveys, World Bank, http://www.enterprisesurveys.org; ILO calculations.

Box 3.2 (cont'd)

Establishments that have implemented at least three greening processes do not appear to employ more highly qualified staff members – as measured by the proportion of university graduates in the workforce – than do the other establishments (figure 3.14). Various factors can shape the educational structure of a company, including its sector of activity and the type and quality of the goods produced. For instance, according to the survey data, the share of establishments in which university graduates account for less than 10 per cent of the workforce is higher in the manufacturing sector (39 per cent) than in other industries (33 per cent). In transport, storage and communication, at least 40 per cent of the workforce are graduates in 32 per cent of establishments, versus 25 per cent of establishments in other sectors.

The adoption of greening processes within establishments does not seem to correlate with the gender of the top manager; greener establishments are female run in the same proportion as other establishments – that is, nearly one in five (figure 3.15).

Figure 3.14 Distribution of establishments according to the proportion of graduates in their workforce

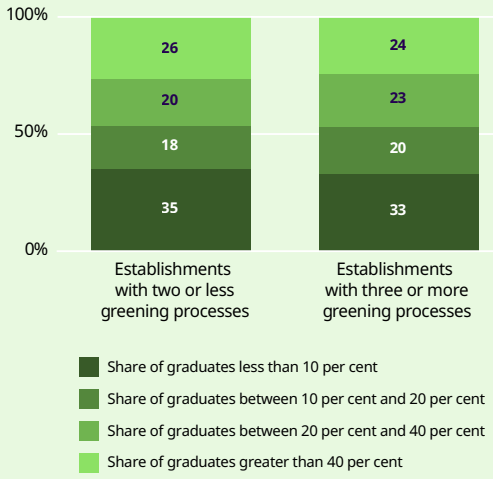
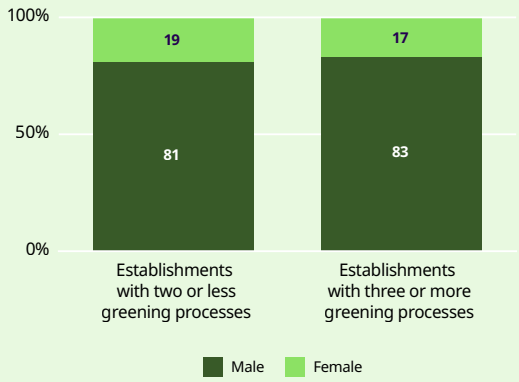


Figure 3.15 Distribution of establishments according to the gender of their top manager



Source: Enterprise Surveys, World Bank, http://www.enterprisesurveys.org; ILO calculations.

The implementation of greening processes also depends on the context in which firms evolve. Environmental policies influence companies' environmental behaviour. For instance, one in three establishments that have implemented three or more greening processes report being subject to an environmental regulation (energy tax/levy or energy performance standard). But this is the case for only one in five establishments that have implemented two or less greening processes (figure 3.16).

Exposure to specific climatic conditions may, too, encourage enterprises to adopt greening processes; it appears that establishments that have implemented three or more greening processes are twice as likely as establishments that have implemented two or less such processes to have experienced monetary losses because of extreme weather events during the three years preceding the survey (figure 3.17). This result may reflect enterprises' attempts to save energy in regions exposed to extreme temperatures; 85 per cent of establishments reporting monetary losses because of extreme weather events have implemented an energy-saving process (such as heating or cooling improvements, more climate-friendly energy generation on site, machinery and equipment upgrades, energy management, vehicle upgrading, or improvements to lighting systems), versus 66 per cent among establishments that have not reported such losses.

Box 3.2 (concl.)

Figure 3.16 Distribution of establishments according to their liability to environmental regulations

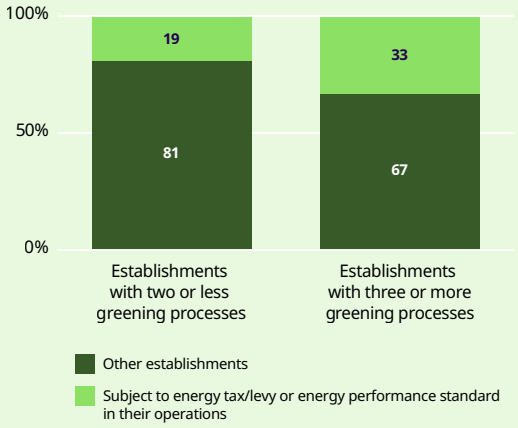
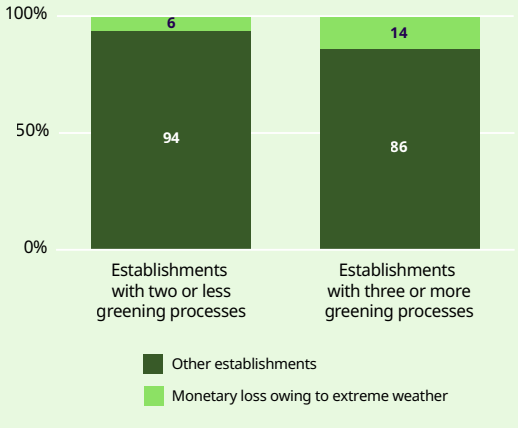


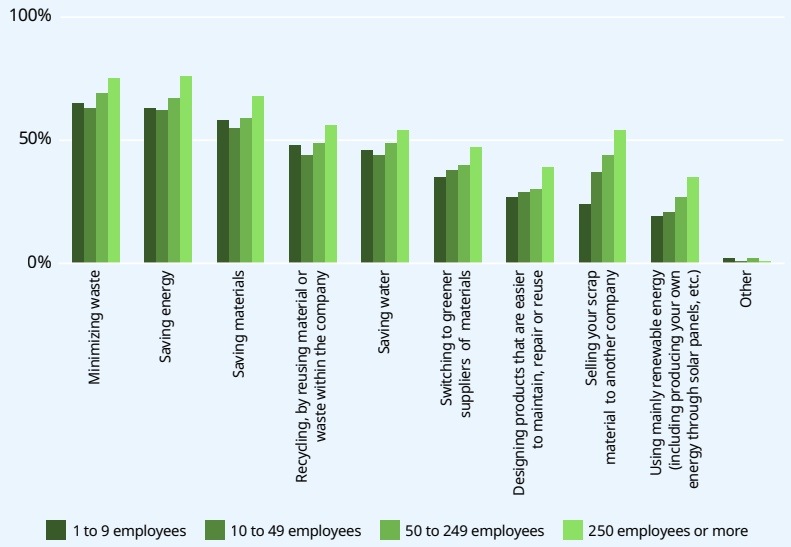
Figure 3.17 Distribution of establishments according to their exposure to extreme weather events



Source: Enterprise Surveys, World Bank, http://www.enterprisesurveys.org; ILO calculations.

With regard to the type of resource efficiency action most commonly introduced, figure 3.18, based on data from Flash Eurobarometer 498, shows that, across all firm sizes, waste minimization and energy saving appear to be the priorities. This confirms that waste management and energy efficiency are at the heart of the green transition. The use of renewable energy remains the least implemented measure, which highlights the fact that major barriers still prevent firms from obtaining energy from renewable sources.

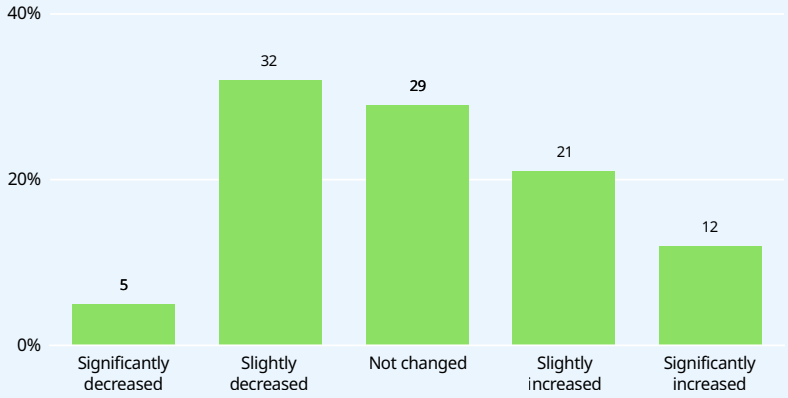
Figure 3.18 Shares of enterprises taking particular resource efficiency actions, 2021



Note: The sums of the percentages exceed 100 per cent because multiple answers were allowed.

Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

Figure 3.19 Distribution of enterprises that have taken resource efficiency measures by the impact on production costs, 2021



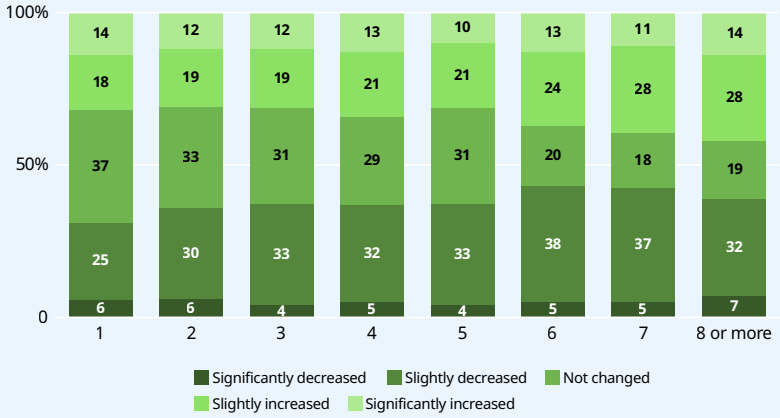
Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

37 per cent of firms reported that their resource efficiency action had lowered their production costs.

Although resource efficiency action enables enterprises to comply with current environmental regulation, anticipate future policy developments and manage their environmental footprint, it can have a significant impact on production costs. How exactly do resource efficiency measures affect production costs? Data from Flash Eurobarometer 498 provide some insights from responses to the question "What impact have the undertaken resource efficiency actions had on the production costs over the past two years?" Among the firms that have taken initiatives to green their processes, 37 per cent report that their resource efficiency action has reduced their production costs, 29 per cent responded that it had no impact on production costs and 33 per cent report that it has led to an increase in production costs (figure 3.19). It is worth noting that, since Flash Eurobarometer 456 (2017, wave 4), the proportion of enterprises reporting an increase in production costs as a result of resource efficiency action has significantly increased (European Commission 2022).[5] This difference may have arisen partly from the context of the COVID-19 pandemic. For instance, some enterprises that have taken green initiatives may have simultaneously experienced an increase in their unit production costs as a consequence of the crisis (Bank of England 2021).

5 In line with results from the European Commission (2022), estimates based on the same methodology as in the present report but using data from the previous wave of the Flash Eurobarometer (in 2017) show that 56 per cent of firms taking initiatives to make their processes greener reported that their resource efficiency action has reduced their production costs, 26 per cent responded that it has had no impact on their production costs, and 23 per cent reported that it has resulted in an increase in production costs.

Figure 3.20 Distribution of enterprises that have taken resource efficiency measures by the impact on production costs, disaggregated by the number of measures taken, 2021



Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

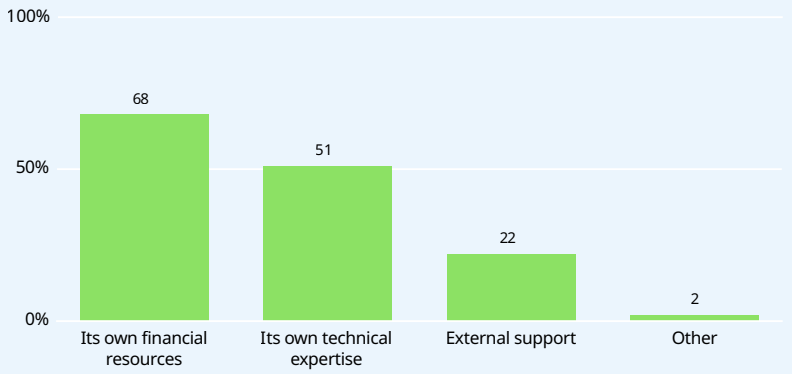
Figure 3.21 Distribution of enterprises that have taken resource efficiency measures by their impact on production costs, disaggregated by size, 2021

Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

Interestingly, figure 3.20 shows that the share of enterprises reporting a decrease in production costs increases with the number of resource efficiency measures taken. While 31 per cent of firms that have implemented only one green initiative report a decrease in production costs, 39 per cent of firms that have implemented simultaneously eight, nine or ten resource efficiency measures report a decrease in production costs.

Figure 3.21 reveals that the share of firms experiencing a decrease in production costs owing to the implementation of green measures is higher among larger firms. While 37 per cent of micro firms experienced a decrease in production costs, among large companies the proportion was 46 per cent.

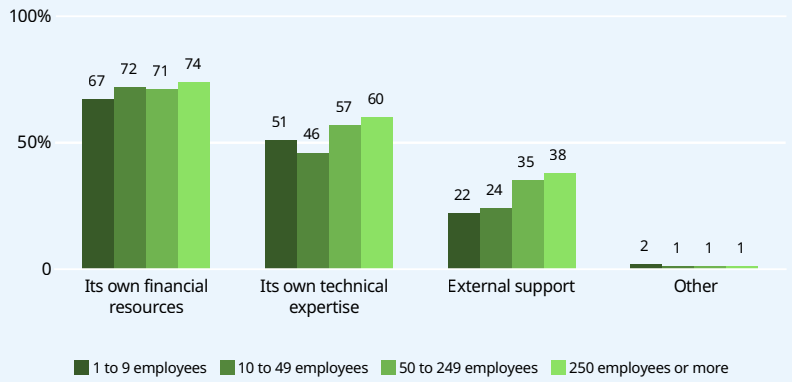
Figure 3.22 Shares of enterprises relying on each type of support when taking resource efficiency action, 2021



Note: The sum of the percentages exceeds 100 per cent because multiple answers were allowed.

Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

Figure 3.23 Shares of enterprises relying on each type of support when taking resource efficiency action, by size, 2021



Note: The sums of the percentages exceed 100 per cent because multiple answers were allowed.

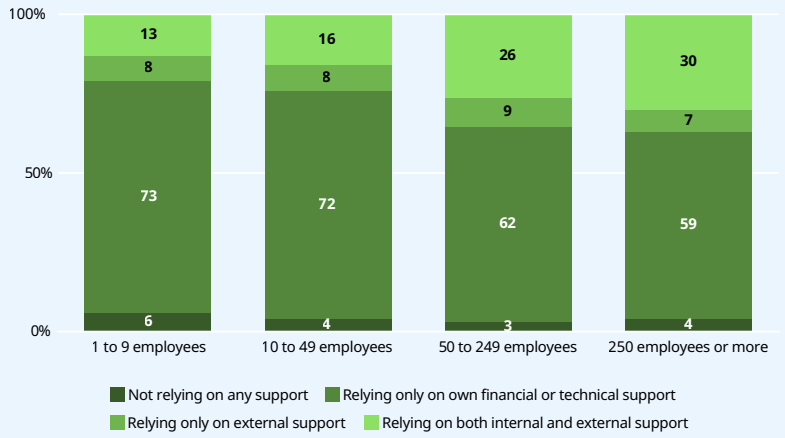
Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

With respect to the support on which companies rely when trying to be more resource efficient, figure 3.22 shows that 68 per cent said they relied on their own financial resources and 51 per cent said they relied on their own technical expertise.

Some 22 per cent of companies that have implemented resource efficiency measures received external support. Figure 3.23 shows that larger companies are significantly more likely to rely on external support than are smaller businesses. Moreover, the share of businesses relying on a combination of internal and external support seems to increase with the size of the company (figure 3.24).

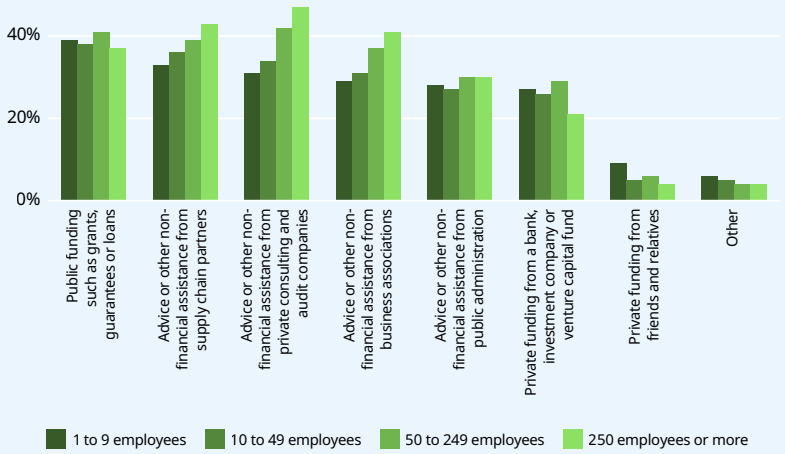
When one examines closely the type of external support received, it can be seen that among micro and small enterprises the most common support is public funding such as grants, guarantees or loans. Among medium-sized and large enterprises it

Figure 3.24 Distribution of enterprises by the type of support they rely on when taking resource efficiency action, by size, 2021



Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

Figure 3.25 Shares of enterprises relying on different types of external support when taking resource efficiency action, by size, 2021

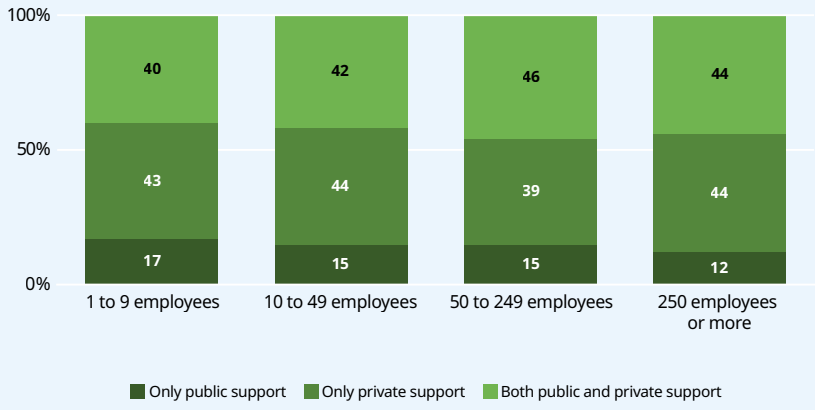


Note: The sums of the percentages exceed 100 per cent because multiple answers were allowed.

Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

is advice from private consulting and audit companies (figure 3.25). Larger firms rely more frequently than smaller enterprises on advice from private consulting, business associations and supply chain partners. Regardless of the size, more than half of the enterprises rely on public support when taking resource efficiency action. However, larger firms tend to combine public and private support more often than do smaller enterprises (figure 3.26).

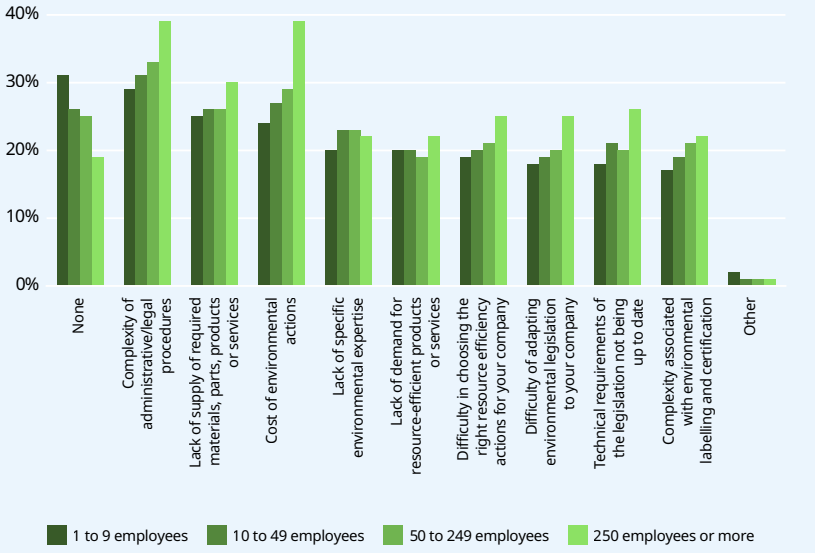
Figure 3.26 Distribution of enterprises by the type of external support they rely on when taking resource efficiency action, by size, 2021



Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

Despite receiving support from the public and the private sectors, most of the firms have faced barriers and difficulties when initiating resource efficiency action. The most common difficulties include the complexity of administrative and legal procedures, the lack of supply of required materials, and the cost of environmental actions. However, a significant share of enterprises reported that they faced no difficulties in implementing green processes. It is surprising to see that, despite their receiving less external support, a larger share of smaller firms reported that they faced no major difficulties in implementing resource efficiency measures. Some 31 per cent of microenterprises reported that they had no major difficulties, compared with approximately 19 per cent of large companies (figure 3.27).

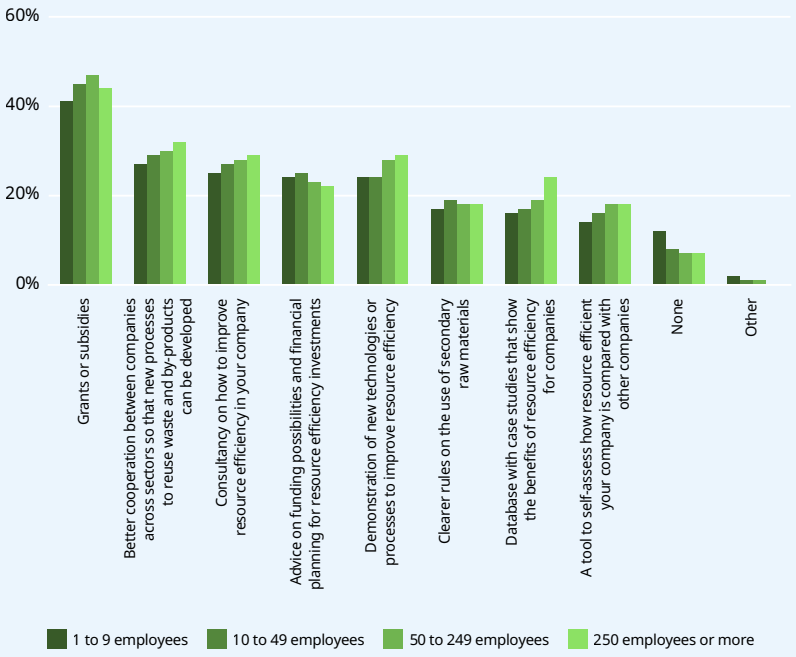
Figure 3.27 Shares of enterprises reporting the types of difficulties encountered when taking resource efficiency action, by size, 2021



Note: The sums of the percentages exceed 100 per cent because multiple answers were allowed.

Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

Figure 3.28 Shares of enterprises reporting the types of measures that would help them the most to be more resource efficient, by size, 2021



Note: The sums of the percentages exceed 100 per cent because multiple answers were allowed.

Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

When asked what would help them the most to be more resource efficient, most companies said grants and subsidies. Other measures they said would provide good support included better cooperation between companies across sectors, the demonstration of new technologies and processes, and consultancy on how to improve

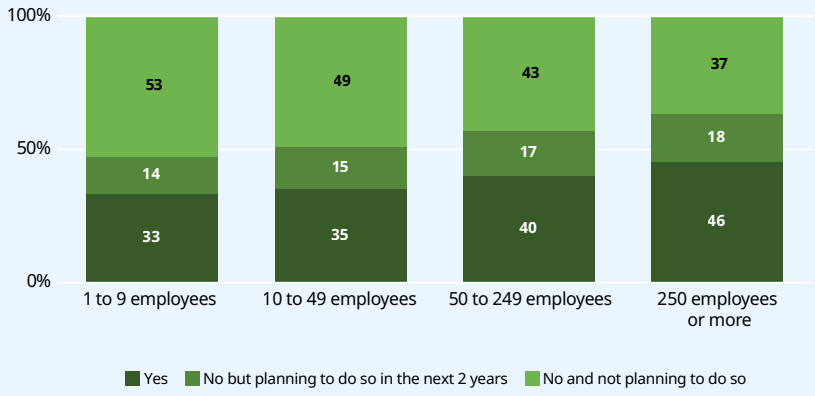
3.2.4 Firms offering green products or services (green outputs)

Firms' offering of green products and services is a key driver of the green transition. Outputs of the firms surveyed include recycled plastic bottles, electricity produced through renewable energy, electric cars, and a consultancy providing green training. Not only do these enterprises contribute substantially to increasing the proportion of green jobs (see figure 3.8); they also represent the future of the green economy. This observation accords with previous analysis highlighting that "green product and service innovation is primarily relevant to the creation of green jobs" (Cecere and Mazzanti 2017, 86–98).

Whereas the previous section focused on the sample of firms that had implemented at least one resource efficiency measure, the analysis will now focus on firms offering green products or services. It is worth noting, however, that almost all the firms falling into this category are also engaged in greening their processes. In 2021, only 6 per cent of such firms were taking no resource efficiency action.

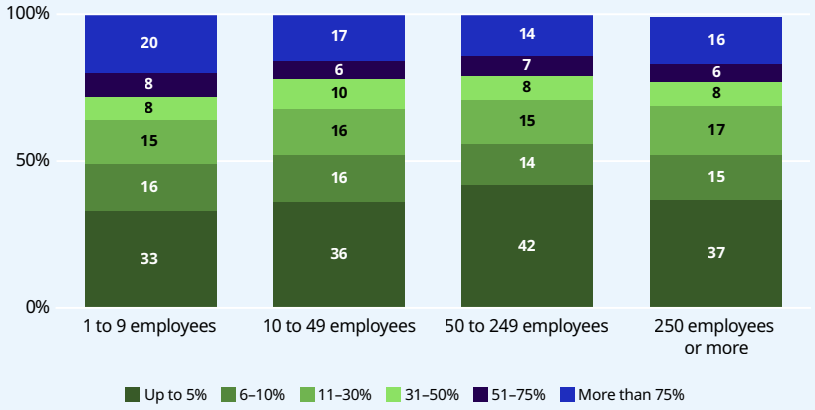
The section will look at the share of revenue generated by green products and services, the geographical market in which these are sold, the types of support received

Figure 3.29 Shares of enterprises offering green products and services or planning to do so in the next two years, by size, 2021



Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

Figure 3.30 Distribution of enterprises according to the proportion of total annual revenue generated by green products and services, by size, 2021



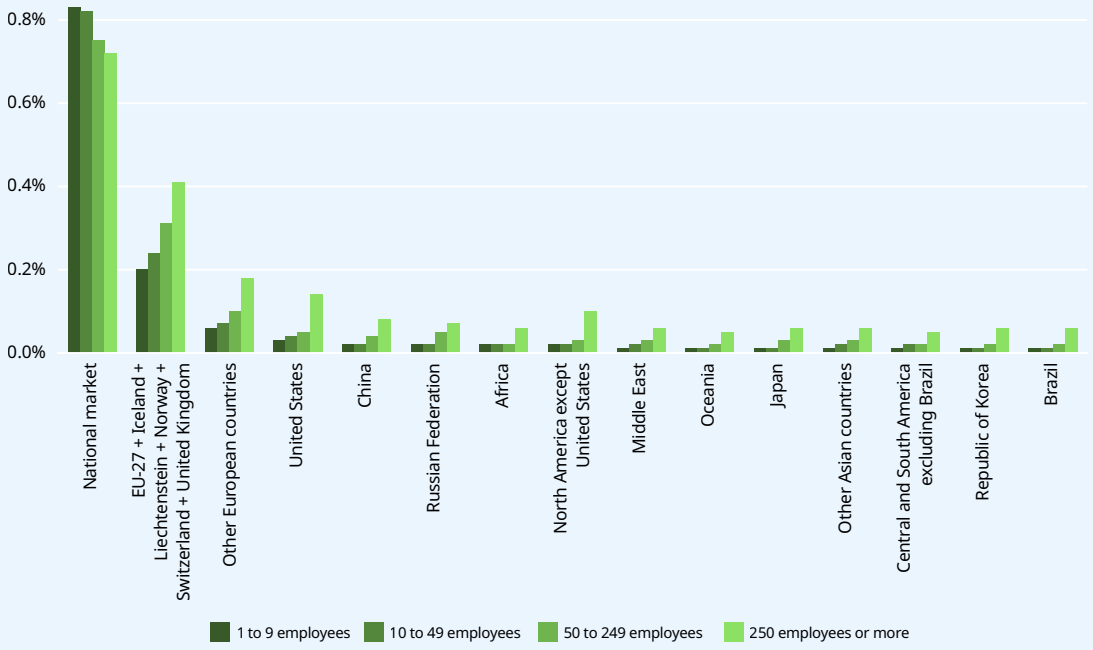
Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

and needed to help launch them, and measures that would help firms expand their range of these products and services.

Despite the fact that bigger firms more frequently offer green products or services (figure 3.29), the share of enterprises that in 2021 were planning to offer green products by 2023 appears to increase only slightly with firm size (from 14 to 18 per cent).

Figure 3.30 shows that a slightly larger percentage of microenterprises than of larger companies were relying mainly on revenue from green outputs. Indeed, 20 per cent of microenterprises generated more than 75 per cent of their revenue from green outputs, whereas the figure in SMEs ranges between 14 and 17 per cent. This suggests that, although a higher percentage of larger companies were engaged in greening their outputs (figure 3.29), their level of commitment to offering green products and services does not appear to be higher than that of microenterprises.

Figure 3.31 Shares of enterprises reporting different main markets (countries/geographical regions) for their green products or services, by size, 2021



Note: The sums of the percentages exceed 100 per cent because multiple answers were allowed.

Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

For a large majority of enterprises, the national market was one of the main markets in which they sold their green products and services (figure 3.31). However, larger firms more commonly than smaller ones identified the European Union as one of their main markets for green products or services. Whereas 41 per cent of large enterprises identified the European Union as one of their main markets, only 20 per cent of microenterprises did so.

As Chapter 1 has shown, various factors influence enterprises' decisions to take environmental action, including demand in and access to international markets. The opportunities that larger firms can have to access international markets may contribute to the finding that they are more likely than smaller firms to offer green products and services. The share of enterprises offering green products or services could also be influenced by other factors linked to the demand side. For instance, a 2019 survey shows that only a small proportion of consumers reporting a positive attitude towards eco-friendly products follow through by purchasing such goods. Narrowing this "intention–action" gap could help to increase the proportion of enterprises that offer green products (White, Hardisty and Habib 2019).

38 per cent of microenterprises offering green products received public support.

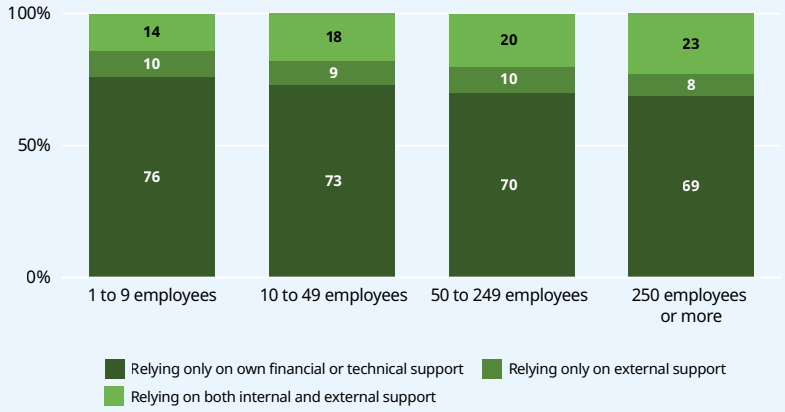
As has been observed among enterprises that have implemented resource efficiency action, larger

Figure 3.32 Shares of enterprises relying on different types of support for the production of green products or services, by size, 2021

Note: The sums of the percentages exceed 100 per cent because multiple answers were allowed.

Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

Figure 3.33 Distribution of enterprises by the type of support on which they rely for the production of green products or services, by size, 2021

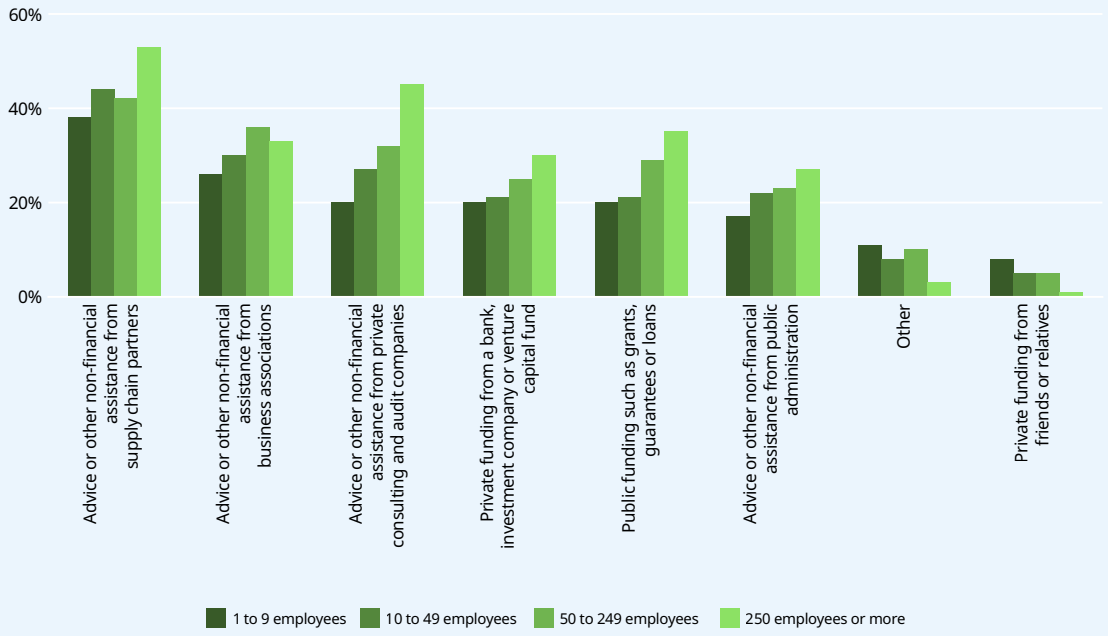


Note: The sums of the percentages exceed 100 per cent because multiple answers were allowed.

Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

companies are more likely to rely on external support to produce their green products and services (figure 3.32). The share of businesses that rely on a combination of internal and external support seems to increase with the size of the company (figure 3.33). The share of businesses relying exclusively on external support appears to vary little with firm size. Figure 3.34 shows that, although all enterprises rely mostly on advice from supply chain partners, large companies are twice as likely as microenterprises

Figure 3.34 Shares of enterprises receiving different types of external support for the production of green products or services, by size, 2021



Note: The sums of the percentages exceed 100 per cent because multiple answers were allowed.

Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

Figure 3.35 Distribution of enterprises by the type of external support received for the production of green products or services, by size, 2021

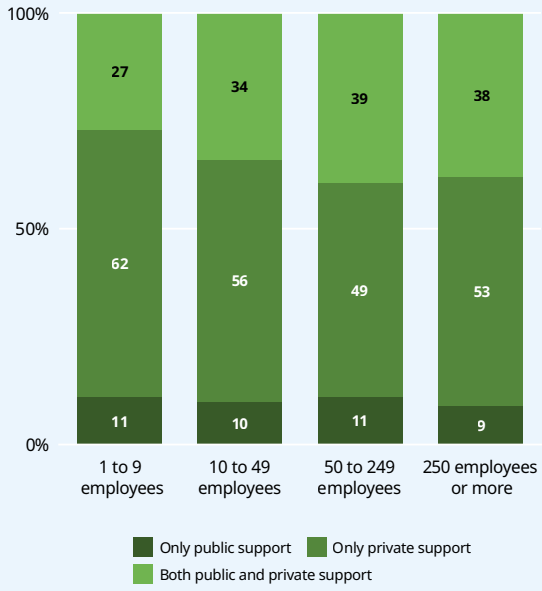
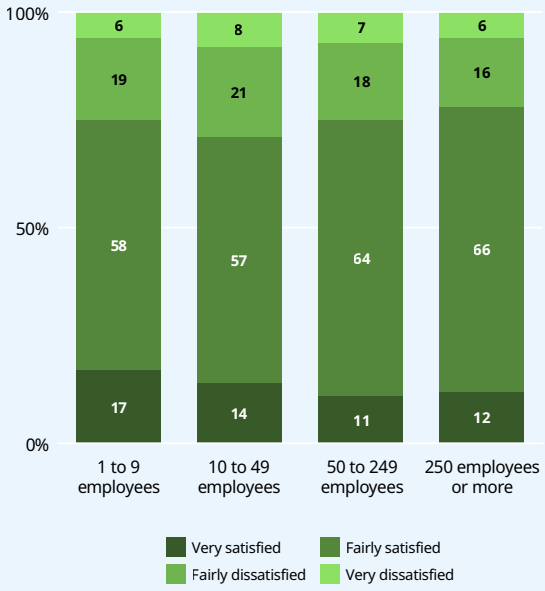


Figure 3.36 Distribution of enterprises according to their satisfaction with the level of public support they receive for the production of green products or services, by size, 2021



Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

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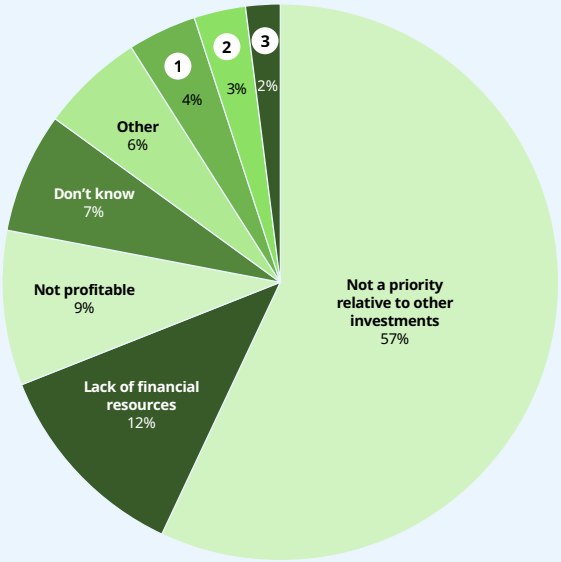
to receive advice from private consulting and audit companies. This may be explained by the smaller financial capacities of the smaller firms. In contrast, a larger share of MSMEs than of large enterprises receive external support from friends or relatives. The shares of micro and small enterprises that receive public support are 38 and 44 per cent, respectively, while 50 and 47 per cent, respectively, of medium-sized and large companies receive some kind of public support (figure 3.35). Despite receiving less support, microenterprises do not seem to be particularly less satisfied than larger enterprises with the level of public support they receive (figure 3.36).

3.2.5 Firms not engaging in the green transition

According to the Flash Eurobarometer 498 data, 10 per cent of the companies have not taken any action towards green transition. The analysis that follows shows that adopting measures to promote resource efficiency action could enable about half of these enterprises to contribute to environmental sustainability. The corollary is that for approximately half of these enterprises green investments will not be a priority compared with other investments, owing in part perhaps to the types of activity carried out by these firms. Following the information provided in the previous sections on firms' implementation of resource efficiency actions ("greening processes") and firms' offering green products or services ("greening outputs"), the present section concludes this typology by focusing on firms that are not engaging in the green transition. The aim here is to better understand the reasons why these enterprises are not engaging in the green transition and the measures that might be needed for that to change.

Unfortunately, data are scarce when it comes to these types of firms. However, the World Bank data include a question about the main reason that no measures have been adopted to enhance energy efficiency. Figure 3.37 presents the responses to this question. As can be observed, a majority of enterprises (57 per cent) reported

Figure 3.37 Main reason no measures were adopted to enhance energy efficiency



1 Uncertainty about regulation 2 Uncertainty about future prices 3 Operational and/or technical risks

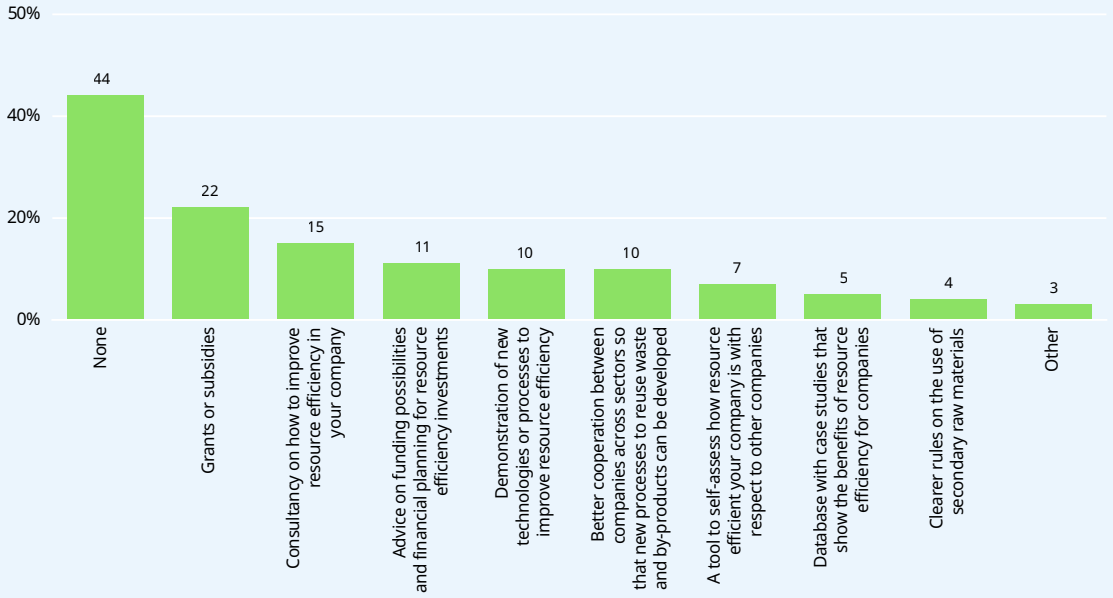
Source: Enterprise Surveys, World Bank, http://www.enterprisesurveys.org; ILO calculations.

that green investments were not a priority relative to other investments. In addition, 12 per cent of firms reported that lack of financial resources was the main reason no measures to enhance energy efficiency had been adopted. Another 9 per cent responded that such measures would not be profitable. When we compared the sample of firms that identified lack of profitability or lack of financial resources as the main rationale with the sample of firms that reported other reasons, we observed that firms operating in the manufacturing sector are slightly overrepresented among firms that specified lack of profitability or lack of financial resources. A greater proportion of large enterprises responded that they did not know why no measures to enhance energy efficiency had been adopted; this may just be because the individual respondents within these large companies didn't know the reasons.

The Eurobarometer data included a question on the measures that would most help the company to be more resource efficient. Luckily, this question was

22 per cent of the firms not engaged in the green transition reported that grants and subsidies would help them the most.

Figure 3.38 Measures that would most help the company to be more resource efficient, 2021



Note: The sums of the percentages exceed 100 per cent because multiple answers were allowed.

Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5).

directed not only to firms that were already taking resource efficiency action but also to firms that were not yet engaging in green transition.

Responses from the sample of firms not engaging in the green transition provide insight into the measures needed to encourage more enterprises to implement green initiatives. Figure 3.38 shows that around half (44 per cent) of the firms not engaged in green transition report that no measure would help them to be more resource efficient. The corollary is that, for the other 56 per cent, measures such as grants, subsidies or advice might facilitate the adoption of resource efficiency measures (figure 3.38). Of the firms not engaged in green transition, 22 per cent reported that grants and subsidies would help them the most. Between 10 and 15 per cent responded that advice, consultancy, demonstration or better cooperation would be helpful. Given the substantial share of enterprises that identify lack of profitability and lack of financial resources as the main reasons for not taking any energy efficiency measures (figure 3.37), it is not surprising to see that grants and subsidies are the means most frequently identified as likely to help them implement green measures (figure 3.38).

3.3 Greening processes and trends in employment

3.3.1 Existing empirical evidence for the effects of greening processes on employment

Do enterprises that introduce greening processes into their production process become more sustainable? Do they create more employment? The answers to these questions are not straightforward, since new processes and innovation are often introduced together with other changes in the organization of work which could influence both employment and productivity.

From a theoretical point of view, the economic literature on innovations shows that the adoption of environmental processes can have mixed effects on employment at the firm level. In greening processes, a distinction should be made between "end-of-pipe" and "cleaner" technologies (Horbach 2020; Horbach and Rennings 2012). End-of-pipe technology is an approach to pollution control which concentrates upon treatment or filtration prior to discharge into the environment, as opposed to making changes to reduce the amount of waste.[6] An increase in productivity brought about by introducing cleaner technologies can strengthen the competitiveness of firms and thus may lead to positive effects on employment. On the other hand, resource efficiency actions can induce higher capital efficiency and entail a substitution of labour by capital, thus reducing employment. The net impact of cleaner technologies on employment is therefore case specific. Like end-of-pipe innovations, their installation may require additional staff and hence bring positive employment effects. However, end-of-pipe technologies entail higher costs, thereby reducing a firm's competitiveness and possibly reducing employment.

Previous literature on technological and organizational change at the firm level also indicates that innovations can be "skill biased" and produce especially adverse effects on the employment levels of some categories of workers (see, for instance, Vivarelli 2014; Piva, Santarelli and Vivarelli 2003; Bauer and Bender 2002).

Overall, specific empirical evidence for the employment impact of greening processes at the firm level is rather scarce. The few available papers tend to identify a small positive effect of greener products and the use of cleaner technologies on employment (Horbach and Rammer 2020; Horbach and Rennings 2012; Triguero, Cuerva and Álvarez-Aledo 2017). The effects of introducing cleaner process technologies, in particular, seem to be more beneficial for employment that those of introducing end-of-pipe technologies (Horbach and Rennings 2012).

Mainly because of data scarcity and limitations, further evidence of the relationship between greening processes and employment at the firm level is still lacking. For emerging and developing economies, empirical evidence on the relationship between environmental products and processes and employment at the firm level is particularly needed. Very few quantitative analyses of environmental processes and innovations have been carried out so far in these countries, and those that have been done have rarely concerned issues specifically linked to the world of work. For instance, studies have identified a positive effect of eco-innovation on dimensions of business performance (Yurdakul and Kazan 2020; de Oliveira Brasil et al. 2016). Anecdotal evidence, however, suggests that the scale of the impact could be different from that in developed countries,

6 See https://www.eea.europa.eu/help/glossary/gemet-environmental-thesaurus/end-of-pipe-technology.

owing to external factors and the fact that emerging countries may require more resources to implement change linked to eco-innovations (Santos et al. 2019).

Environmental processes can potentially be adopted by a wide range of enterprises, including ones based in developing countries. This is why this section also analyses the adoption of greening processes formal in enterprises in diverse development contexts. Relying on the data collected through the World Bank Enterprise Surveys for a sample of 26 lower- and higher-middle-income countries and 13 high-income countries, the section focuses on the employment effects of the green processes implemented by firms.

Although, the section focuses mainly on employment, it is worth noting that a just transition towards an environmentally sustainable economy should help to improve working conditions and create more green and decent jobs that offer decent wages, improved safety and health and adequate social protection.

3.3.2 Higher employment growth in enterprises that have implemented greening processes

Being part of the World Bank Enterprise Survey, which seeks insight on how to promote investment, productivity and economic growth, the Green Economy module includes information about green measures implemented by enterprises in their production processes for 39 countries from Europe, Central Asia, the Middle East and North Africa (see appendix for more information about the data). Most of these enterprises were surveyed during 2019.[7]

The Green Economy module questionnaire collected information on greening process measures that had been implemented, including measures to save energy and minimize carbon dioxide emissions, manage water usage and control the release of pollutants. These measures were then counted to obtain the total number of green processes implemented by each establishment surveyed.

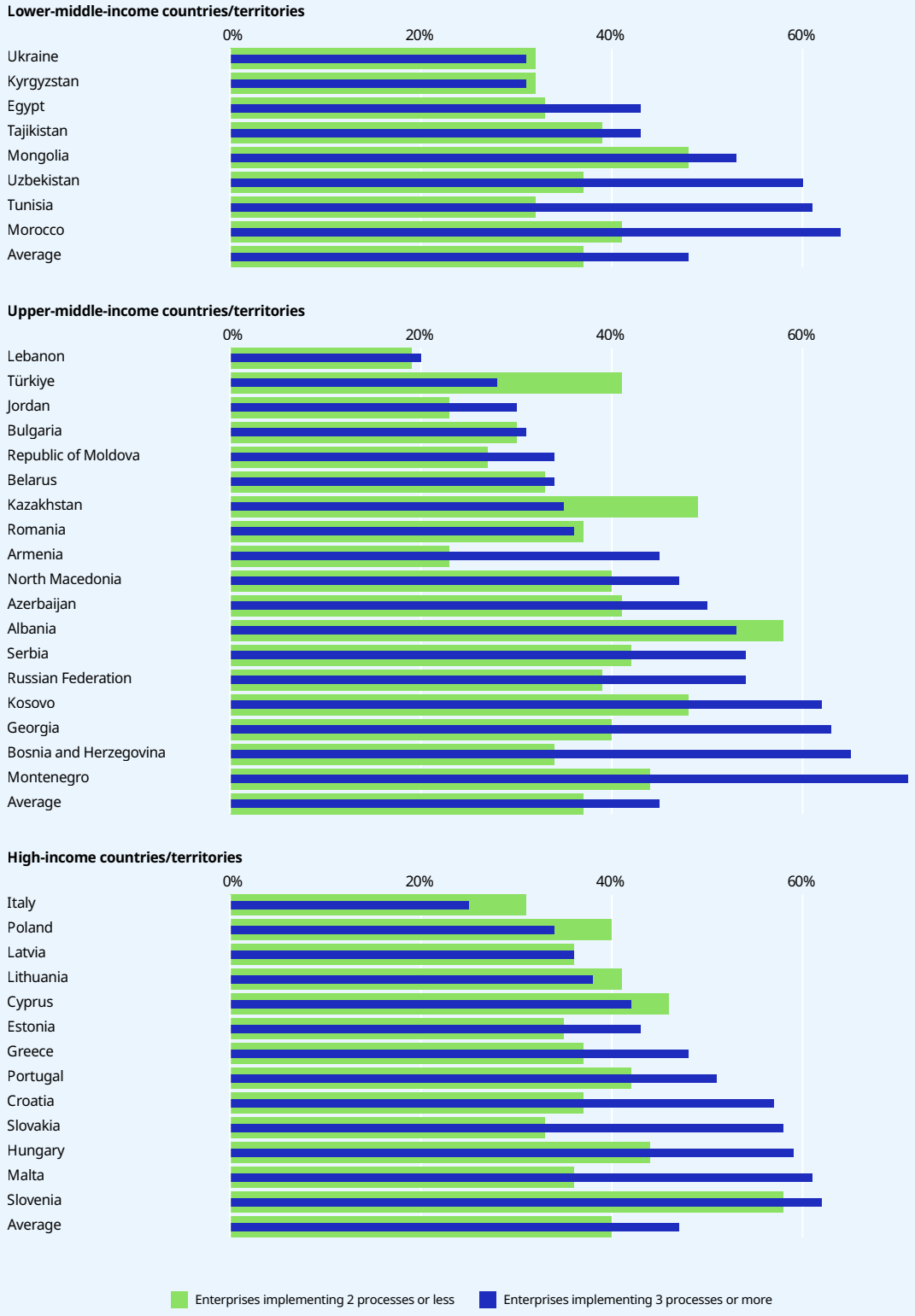
On average across the 39 countries, which include middle- and high-income countries, it appears that nearly three out of four enterprises had implemented at least one greening process listed in the questionnaire, and 41 per cent had implemented three processes or more. Differences are noticeable between countries: firms in higher-income countries implemented greening processes more often than did firms in middle-income countries (see figure 3.11). With a view to capturing the extent to which firms have engaged in greening their processes, in the remainder of this subsection establishments will be considered to be "greener" if they implement at least three processes – that is, more than the average number of processes (2.5) implemented by establishments across the 39 economies.

In a separate section of the questionnaire, establishments were also asked to state the number of full-time permanent employees in the last fiscal year (*t*) and two years before that (*t – 2*), to facilitate a comparison between the trends in employment levels among this category of workers during these two years and the implementation of greening processes.

Such analysis shows that employment grows more in greener establishments. In three out of four of the countries and territories studied, establishments that had implemented at least three green processes were more likely than other establishments to have experienced a growth in employment between fiscal year *t – 2* and fiscal year *t* (figure 3.39). Regardless of the multiple factors that could explain this – not necessarily

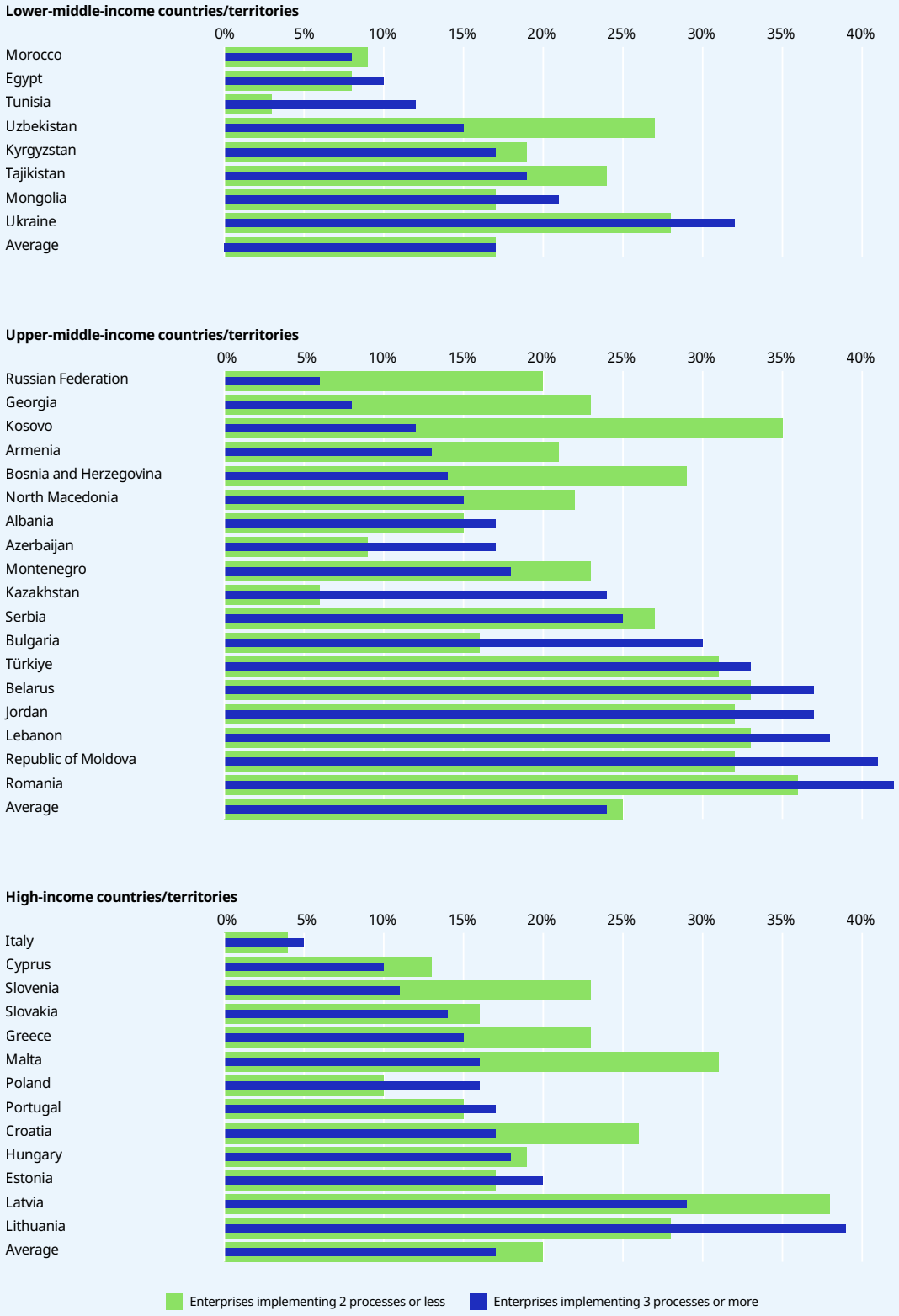
7 Depending on the country considered, some establishments were also surveyed in 2018 or 2020.

Figure 3.39 Share of establishments where employment increased between fiscal years *t – 2* and *t*



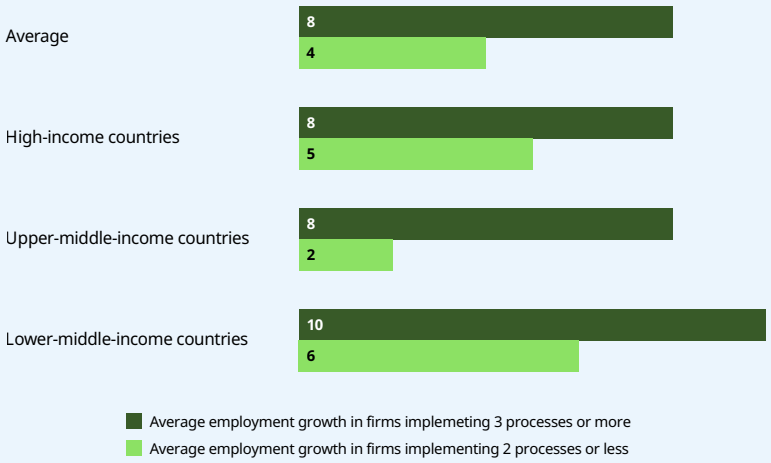
Source: Enterprise Surveys, World Bank, http://www.enterprisesurveys.org; ILO calculations.

Figure 3.40 Share of establishments where employment decreased between fiscal years *t – 2* and *t*



Source: Enterprise Surveys, World Bank, http://www.enterprisesurveys.org; ILO calculations.

Figure 3.41 Estimated employment growth within firms between fiscal years *t – 2* and *t*



Source: Enterprise Surveys, World Bank, http://www.enterprisesurveys.org; ILO calculations.

linked to the firms' environmental behaviour – the trend does not seem to reflect the level of development of the country, since it is fairly similar across the income groups of countries. On the other hand, employment reduction at the establishment level does not appear to be linked to any specific behaviour in relation to implementing green processes. Between fiscal years *t – 2* and *t*, employment decreased more frequently in greener establishments in half of the countries and territories studied (figure 3.40).

A comparison of employment growth rates confirms that employment increased at a higher pace in greener firms, regardless of the country's income level (figure 3.41). On average across economies, the employment growth rate over the two fiscal years preceding the survey was 10 per cent in greener establishments versus 5 per cent in establishments that had implemented two or less processes.

3.3.3 Characteristics of green firms may partly explain trends in employment

The above statistics describe the trends in employment without considering companies' characteristics other than the number of greening processes adopted. However, firms that undertake eco-innovation tend to have certain characteristics – notably in terms of size, sector, and research and development. Since these characteristics may shape the employment dynamics in the firm, it is essential to control for them using an adequate econometric model when one wishes to assess the effect of implementing greening processes upon employment.

The growth of employment in greener firms could be explained by their broader structural characteristics rather than by the effect of green processes on labour demand. Evidence from cross-country data shows that the relative contribution of large firms to net employment creation varies according to the business cycle (Moscarini and Postel-Vinay 2012) and that small firms in developing and emerging

economies could be more sensitive than bigger firms to economic cycles (Cravo 2017). In Europe, firms' expenditure on research and development is labour-friendly, especially in the advanced-technology sectors (Piva and Vivarelli 2017).

3.3.4 In lower-middle-income countries, the use of greening processes can negatively impact on employment at the establishment level

To disentangle the various factors that could explain the trends in employment at the firm level, the econometric model of ordinary least squares (OLS) is used to estimate the effect of each dimension on the employment trends within establishments.[8] The dimension of interest is the establishment's policy on greening processes, that is, whether or not it has implemented three or more green processes (and is therefore a "greener" establishment).

Beyond the observed dimensions considered in the model, greener firms may also have unobserved characteristics that could explain their behaviour in relation to employment creation without any direct connection to green processes. To account for this possibility, a two-stage least squares (2SLS) model is estimated in addition to the simpler OLS model (details of the full methodology to estimate the impacts of green processes on net employment growth are given in box 3.3).

Box 3.3 Estimating the employment impact of implementing greening processes at the establishment level

To study the link between the implementation of green processes and employment growth, a standard econometric OLS model is used as a first approach. In this framework, employment growth in establishments is explained according to the following equation:

$$EmpGrowth = \alpha + Greendummy\delta + X\beta + \epsilon \quad (1)$$

In equation (1), *EmpGrowth* is the difference between the logarithms of the establishment's employment levels at fiscal year *t* and fiscal year *t – 2*, *Greendummy* indicates whether the establishment is "greener" (see appendix) and X is a set of control variables characterizing the establishment: its size (less than 10 permanent full-time employees, between 10 and 50, between 50 and 250, or more than 250), its activity code (two digits) according to the International Standard Classification of Economic Activities (ISIC), its age and a dummy indicating whether it is partially owned by the State.

Beyond these "classical" controls, X also includes variables capturing the policy of the establishment in terms of research and development and its possible acquisition of external knowledge, since these dimensions may influence both the adoption of green processes and the establishment's employment trends (Triguero, Cuerva and Álvarez-Aledo 2017). In practice, these dimensions are taken into account by means of dummy variables indicating whether there has been any investment in research and development or any acquisition of external knowledge over the last three years. Finally, dummies indicating the geographical orientation of the establishment (exportation of goods/services or domestic sales over the last fiscal year) and whether it is

8 Employment growth is measured here by the difference between the logarithms of the establishment's employment levels at year *t* and year *t – 2*.

Box 3.3 (cont'd)

owned by a group and whether it receives public support (in the form of a grant) are similarly included in the control variables.

The estimated model also controls for the degree of competition faced by the establishment, since a competitive environment can push firms to expand their employment (see, for instance, Maggi and Felix 2019) and affect their decision to innovate. For this purpose, a dummy indicating whether the establishment has more than ten competitors for its main product is introduced. Furthermore, following Horbach and Rennings (2012) and Horbach and Rammer (2020), the model accounts for the technological capability of the firm, since this could foster growth through increased competitiveness and enable the implementation of new methods such as green processes. This technological capability is proxied by the share of workers with a university degree. Finally, as the estimations are carried out on pooled country surveys, the model controls for countries' fixed effects.

Although the standard model presented above enables correlations to be brought to light between employment and greening processes adopted by firms, it may not be appropriate to identify any causal relationship between employment and the implementation of green processes. Greening processes may trigger employment growth as a result of a firm's increased competitiveness, but on the other hand a growing workforce may be characteristic of firms that have the capacity to accomplish such innovation. Beyond the measurable dimensions listed above, the production processes of greener firms involve many unobserved characteristics that may conceivably explain the firms' employment growth. If these unobserved characteristics are not considered, the estimates obtained with the OLS model are biased and imprecise.

To deal with this issue, a 2SLS model similar to the one implemented by Triguero, Cuerva and Álvarez-Aledo (2017) is considered. This model improves the standard model by considering additional information ("instrumental variables") that could explain the green behaviour of firms without directly explaining their employment trends.

In this framework, the endogenous variable(s) (*Greendummy*) is first modelled by a set of instruments (here labelled Z) that could explain the implementation of eco-innovation without direct relation to employment growth:

$$Greendummy = \pi + Z\gamma + X\beta + u \qquad (2)$$

where X corresponds to the set of control variables used for the standard model (1).

In the second stage, the employment growth is explained by its predicted values, obtained from equation (2) ($\widehat{Greendummy} = \hat{\pi} + Z\hat{\gamma} + X\hat{\beta}$):

$$EmpGrowth = \alpha + \widehat{Greendummy}\delta + X\beta + \epsilon \qquad (3)$$

As instruments Z, two variables relating to the liability of firms to environmental regulations and energy-saving standards are used, respectively indicating whether the establishment was subject to an energy tax or levy during the fiscal year preceding the survey and whether its operations were subject to an energy performance standard over the same period. Such factors can push an establishment to adopt cleaner processes through energy-saving measures without there being any direct impact on its employment levels.

The parameters of the OLS and 2SLS models are estimated for the pooled 39 country surveys and separately for the three country income groups (8 lower-middle-income countries, 18 upper-middle-income countries and 13 high-income countries). The results are reported in table 3.3.

Table 3.3 Impact of being a greener establishment on employment trends, results from OLS and 2SLS estimates

	All countries		Lower-middle-income countries		Upper-middle-income countries		High-income countries	
Method	**OLS**	**2SLS**	**OLS**	**2SLS**	**OLS**	**2SLS**	**OLS**	**2SLS**
Greener establishment (implementing three or more greening processes)	–0.008 (0.012)	–0.063 (0.038)	–0.009 (0.016)	**–0.249**** (0.126)	0.010 (0.017)	–0.033 (0.032)	–0.014 (0.017)	–0.032 (0.083)
Number of establishments	24,088		7,239		9,997		6,852	

Note: Standard errors are in parentheses. ** The result is statistically different from zero at the 5% level of significance.

Source: Enterprise Surveys, World Bank, http://www.enterprisesurveys.org; ILO calculations.

The estimates, presented in table 3.3, show that a greater number of green processes in use in the establishment significatively decreases the level of employment only in countries with lower income per capita (lower-middle-income countries). There is no significant impact in upper-middle-income and high-income countries. These results appear to be consistent with the existing literature based on empirical data from developed economies, which generally suggests that eco-innovations have only small effects on employment (Horbach 2020).

In lower-middle-income countries, the implementation of three or more greening processes is associated with a decrease in employment at the establishment level, all other characteristics being equal (fifth column of table 3.3). This result seems to be in line with previous analyses highlighting a differentiated impact of eco-innovations on firms' outcomes in industrialized and emerging economies (see, for example, Santos et al. 2019).

The detrimental impact on employment in lower-middle-income countries could owe to several factors, including productivity gains made through investment in greening processes in contexts where labour productivity is low. For instance, the implementation of greening processes, such as ones intended to save energy through machinery and equipment upgrades, could translate into a substitution of labour by capital because of greater capital efficiency. This effect may be all the more visible in lower-middle-income countries if the impact is larger for industries that are more widespread in these economies.[9]

The implementation of greening processes may also require some basic skills, leading to redundancies especially in regions where a large proportion of the workforce may be unacquainted with environmental competencies (ILO 2019).

In general, the estimate of the employment effect of greening processes in lower-middle-income countries appears to be congruent with studies showing that jobs in developing countries may be more susceptible to automation than in developed countries and hence more at risk of being negatively affected by new technologies.[10]

Along with rationales relating to skills and labour productivity, the differing results may partly be explained by the fact that mechanisms that can compensate for innovations' negative effects on employment may be limited in developing countries. For example, the mechanism through which a decrease in prices resulting from

9 Overall, the manufacturing sector's share in the sample of establishments from lower-middle-income countries is higher than for upper-middle-income and high-income countries (34 per cent versus 27 per cent and 28 per cent, respectively).

10 See Wilkinson and Dundon (2021) for a review of studies tackling this issue.

higher productivity stimulates demand for products and creates employment may be hindered in developing countries by a low level of competition in local markets (Vivarelli 2014).

Although further research is needed to improve understanding of how green innovations and employment levels are connected in lower-income countries, these findings highlight the need to monitor more closely the greening of production processes at the firm level in developing and emerging economies. Additional research is also needed to assess the quality of the jobs created in enterprises that adopt greening processes and products, covering the various dimensions of decent work such as wages, working hours and occupational safety and health.

As this subsection has focused on the employment impacts of eco-innovations at the firm level, it has not tackled the possible change and spillover that the greening of products and processes can induce in the general equilibrium of the economy. Complementary studies on this specific issue could be part of a subsequent research agenda.

These findings only concern the use of cleaner processes and their impact on employment at the company level. They do not cover anything related to environmental products, including the possible impacts on employment that the implementation of such products could have at the company level or economywide. Previous studies carried out by the ILO have, for instance, highlighted that the transition to a green economy will inevitably cause job losses in certain sectors as carbon- and resource-intensive industries are scaled down, but that the losses will be more than offset by new job opportunities (a net increase of approximately 18 million jobs).[11]

Complementary analysis is also necessary to identify the long-term impact of greening processes in various economic contexts. The World Bank Enterprise Survey data enable us to compare the employment levels within establishments with those observed two years before. But adjustments in employment can happen over a longer time span. For instance, the recruitment of workers with skills in green technologies could offset any negative short-term impact on employment stemming from the implementation of new processes. Reskilling and upskilling within companies will also allow companies to retain their workforce in a changing technological environment.

The employment impact, at the firm level, of action intended to make business greener should be articulated to effects arising at the sectoral and macro levels of economies in order to see the net impact of the green transition. For instance, studies with a macroeconomic perspective generally forecast an overall positive impact (ILO 2018; ILO and IDB 2020; ILO and UNECE 2020) driven by new job opportunities arising in the industries that will lead the greening of economies.

Though the underlying models explaining these results provide a clear picture of the linkages across industries and sectors affected by the green transition, they often ignore some adjustment effects, including with regard to the technological changes adopted by enterprises. If, for example, technological change drives down the cost of a specific green technology and the technology matures, the labour requirements could diminish, reducing the employment benefits of the adoption of this technology (ILO 2018). A combination of various analytical angles – including macro- and micro-economic perspectives – will therefore provide a clearer picture of all the possible impacts of the green transition on employment.

11 For predictions of job creation and job destruction in the transition to a green economy, see ILO (2018).

3.3.5 Training of employees in enterprises implementing greening processes

Skills development is a key component of a just transition towards an environmentally sustainable economy. It can facilitate a smooth reallocation of labour and minimize any negative impact on employment. It will also accelerate the transition to a green economy through the promotion of green jobs that in themselves may help to catalyse a just transition (ILO 2018). To help their employees keep up with newly implemented greening processes and technologies, enterprises can offer them training. Developing the green capacities of workers can help to prevent unnecessary redundancies.

Table 3.4 Probability of establishments offering formal training programmes to their full-time permanent employees (results from a logistic regression)

	All	Lower-middle-income countries	Upper-middle-income countries	High-income countries
Adoption of greening processes				
Greener establishment (implementing three greening processes or more)	0.6***	0.6***	0.3**	0.6***
Other establishments (omitted)	–	–	–	–
Number of employees				
Less than 10	–0.6***	–1.1***	–0.6***	–0.5**
Between 10 and 50 (omitted)	–	–	–	–
Between 50 and 250	0.7***	0.5**	0.3*	1.1***
More than 250	0.6*	0.9***	1.4***	0.5
Age of the establishment				
Less than 10 years	0.1	0.5***	0	0.1
Between 10 and 20 years	0.1	0	–0.1	0.2
More than 20 years (omitted)	–	–	–	–
Ownership				
Partially owned by the Government/State	–0.4	–0.4	0	–2***
Other establishments (omitted)	–	–	–	–
Industry				
Manufacturing (omitted)	–	–	–	–
Construction	0.8***	0.4*	0	1***
Wholesale and retail trade; repair of motor vehicles, motorcycles; personal and household goods	0.3**	0.8***	0.2*	0.3
Hotels and restaurants	0	0.4	0.2	0

Additional 2 rows not shown.

Note: ***, ** and * indicate that the result is statistically different from zero at, respectively, 1 per cent, 5 per cent and 10 per cent levels of significance.

Source: Enterprise Surveys, World Bank, http://www.enterprisesurveys.org/; ILO calculations.

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Using the World Bank Enterprise Survey, estimates from an econometric model (logit) that controls for firms' characteristics show that establishments that implement a larger number of greening processes are more likely than other firms to offer formal training to their employees (first row of table 3.4). This appears to be the case across income groups of countries (columns 3, 4 and 5 in table 3.4).

Other dimensions besides the adoption of greening processes do influence the likelihood an establishment will implement formal training. On average, small establishments (10 to 50 employees) are more likely than microenterprises to carry out formal training, but less likely to do so than establishments of 50 employees or more. The sector of activity also seems to have an impact; establishments in the construction, retail trade and real estate sectors are more likely to provide formal training to their employees than firms in other sectors.

Overall, 56 per cent of establishments offering formal training have implemented three or more greening processes, whereas only 35 per cent of other firms have done so.[12]

Establishments implementing a larger number of greening processes are more likely to offer formal training to their employees.

12 In lower-middle-income, upper-middle-income and high-income countries, these proportions are, respectively, 50 per cent versus 30 per cent, 52 per cent versus 31 per cent, and 63 per cent versus 43 per cent.

3.4 Conclusion

Enterprises committed to the green transition take action such as providing green products and services (greening outputs) and/or implementing resource efficiency measures and green technologies (greening processes).

Although a majority of firms are taking environmental measures, the share of enterprises engaged in the green transition varies between industries. Firms in accommodation and food services, manufacturing, and electricity, gas, steam and air conditioning supply seem to be more likely to adopt green initiatives than are firms in transportation and storage, information and communication, and real estate. Moreover, firms that invest in research and development are more likely than others to implement green measures.

Probably owing in part to their greater capacity to implement such changes, bigger firms with higher annual revenue seem to be more likely than others to undertake green initiatives.

Overall, these results point to an existing scope for support targeted upon the enterprises that are least engaged in green transition. One in five enterprises not engaging in resource efficiency action report that this is because of lack of resources or the lack of profitability of such measures. Approximately half of the firms not engaging in green transition would welcome measures that would enable them to take resource efficiency action.

Firms that adopt more greening processes tend to be more subject to environmental regulations than are other firms. And firms that sell to public administrations more often adopt greening processes or produce green outputs than do those selling to other customers, which highlights the role possibly played by clients in the transformation of enterprises. In addition, countries with a higher EPI have a higher proportion of enterprises engaging in the green transition, which may reflect the ways that enterprises interact with their environment to undertake green transition.

Firms greening their production processes should not expect any major disruptions in their production costs and employment trends. Two out of three firms that have taken initiatives to green their processes report that their production costs were not negatively affected by their resource efficiency action or even that such action decreased their production costs.

Moreover, for a given sector of activity and establishment size and age, the implementation of greening processes does not appear to have a significant impact on employment except in the lower-middle-income countries. In these, firms that adopt more greening processes experience a decrease in employment. Although several factors may explain this finding, it alerts us to possible risks in contexts of low labour productivity, including the substitution of labour by capital and a mismatch of skills to deal with the changes implemented. It also underscores the need for better monitoring and evaluation of effects on employment of the green transition at the enterprise level in developing countries.

Although firms' implementation of greening processes has a limited impact on employment levels in the short term, it may nonetheless be associated with substantial developments for both the enterprise and its workforce. The greater propensity of enterprises implementing more greening processes to build the capacities of their employees points to some of the advances that may accompany green transition at the enterprise level.

References

B

Bank of England. 2021. "How Has Covid Affected Firms' Costs and Prices?" https://www.bankofengland.co.uk/bank-overground/2021/how-has-covid-affected-firms-costs-and-prices.

Bauer, Thomas, and Stefan Bender. 2002. "Technological Change, Organizational Change, and Job Turnover", IZA Discussion Paper No. 570.

C

Cecere, Grazia, and Massimiliano Mazzanti. 2017. "Green Jobs and Eco-innovations in European SMEs". *Resource and Energy Economics* 49: 86–98.

Cravo, Tulio A. 2017. "Firm Size and Business Cycles". *IZA World of Labor*. https://doi.org/10.15185/izawol.371.

D

De Oliveira Brasil, Marcus Vinicius, Mônica Cavalcanti Sá de Abreu, José Carlos Lázaro da Silva Filho, and Aurio Lucio Leocádio. 2016. "Relationship between Eco-innovations and the Impact on Business Performance: An Empirical Survey Research on the Brazilian Textile Industry". *Revista de Administração* 51 (3): 276–287.

E

European Commission. 2022. *Flash Eurobarometer 498: SMEs, Green Markets and Resource Efficiency*.

H

Horbach, Jens. 2020. "Impacts of Regulation on Eco-innovation and Job Creation". *IZA World of Labor*.

Horbach, Jens, and Christian Rammer. 2020. "Circular Economy Innovations, Growth and Employment at the Firm Level: Empirical Evidence from Germany". *Journal of Industrial Ecology* 24 (3): 615–625.

Horbach, Jens, and Klaus Rennings. 2012. "Environmental Innovation and Employment Dynamics in Different Technology Fields – An Analysis Based on the German Community Innovation Survey 2009", ZEW (Centre for European Economic Research) Discussion Paper No. 12-006.

I

ILO. 2018. *World Employment and Social Outlook 2018: Greening with Jobs*.

———. 2019. *Skills for a Greener Future: A Global View*.

ILO and IDB (Inter-American Development Bank). 2020. *Jobs in a Net-Zero Emissions Future in Latin America and the Caribbean*. https://www.ilo.org/wcmsp5/groups/public/---americas/---ro-lima/documents/publication/wcms_752069.pdf.

ILO and UNECE (United Nations Economic Commission for Europe). 2020. *Jobs in Green and Healthy Transport: Making the Green Shift*.

ITC-ILO (International Training Centre of the ILO). 2016. *Greening Economies, Enterprises and Jobs*.

M

Maggi, Chiara, and Sonià Felix. 2019. *What Is the Impact of Increased Business Competition?* IMF.

Moscarini, Giuseppe, and Fabien Postel-Vinay. 2012. "The Contribution of Large and Small Employers to Job Creation in Times of High and Low Unemployment". *American Economic Review* 102 (6): 2509–2539.

N

National Statistics Office of Mongolia. 2017. *Employment in the Environmental Sector and Green Jobs in Mongolia*. https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---gjp/documents/publication/wcms_612880.pdf.

O

OECD (Organisation for Economic Co-operation and Development). 2018. *SMEs: Key Drivers of Green and Inclusive Growth*.

P

Piva, Mariacristina, Enrico Santarelli, and Marco Vivarelli. 2003. "The Skill Bias Effect of Technological and Organisational Change: Evidence and Policy Implications", IZA Discussion Paper No. 934.

Piva, Mariacristina, and Marco Vivarelli. 2017. "Is R&D Good for Employment? Microeconometric Evidence from the EU", IZA Discussion Paper No. 10581.

S

Santos, Lopes, David Ferreira, Maitê D.V. Rezende, and Leonardo F.C. Basso. 2019. "Eco-innovation and Business Performance in Emerging and Developed Economies". *Journal of Cleaner Production* 237 (2): 117674.

T

Triguero, Ángela, María Cuerva, and Carlos Álvarez-Aledo. 2017. "Environmental Innovation and Employment: Drivers and Synergies". *Sustainability* 9 (11): 2057.

V

Vivarelli, Marco. 2014. "Innovation, Employment and Skills in Advanced and Developing Countries: A Survey of Economic Literature". *Journal of Economic Issues* 48 (1): 123–154.

W

White, Katherine, David J. Hardisty, and Rishad Habib. 2019. "The Elusive Green Consumer". *Harvard Business Review*, July–August 2019.

Wilkinson, Adrian, and Tony Dundon. 2021. *Contemporary Human Resource Management: Text and Cases*, 6th ed. Thousand Oaks, CA: SAGE.

Y

Yurdakul, Melek, and Halim Kazan. 2020. "Effects of Eco-innovation on Economic and Environmental Performance: Evidence from Turkey's Manufacturing Companies". *Sustainability* 12 (8): 3167.

Appendix: Data description

The Flash Eurobarometer: SMEs, Resource Efficiency and Green Markets survey and the Green Economy module of the World Bank Enterprise Surveys

The data from Flash Eurobarometer 498: SMEs, Resource Efficiency and Green Markets

The Flash Eurobarometer: SMEs, Resource Efficiency and Green Markets survey is part of the Flash Eurobarometer survey series. These surveys were launched by the European Commission and are conducted in all EU Member States at times, occasionally reducing or increasing the number of countries covered as a function of specific topics. The interviews are usually conducted by phone in the respective national language. The Flash Eurobarometer survey series includes special topics as well as polls of special target groups, especially company managers in relation to enterprise-related topics. In particular, Flash Eurobarometer: SMEs, Resource Efficiency and Green Markets is a cross-sectional survey carried out in 2012, 2013, 2015, 2017 and 2021. The 2021 survey includes information from 27 Member States of the European Union along with Albania, Iceland, North Macedonia, Montenegro, Norway, the Republic of Moldova, Serbia, Türkiye, the United Kingdom and the United States. As can be seen in table 3.A1, there were in most countries approximately 500–600 respondents. The exceptions were Luxemburg, Cyprus, Malta, Türkiye, Iceland, Norway, North Macedonia, Montenegro, Albania and the Republic of Moldova, where the numbers of observations are much smaller.

The data provide information on current levels of resource efficiency action and whether enterprises offer green products or services, as well as a range of information about the companies, such as the number of employees, the year the company was established, the development of turnover, the total turnover, and market orientation (to final consumers, other companies or public administrations). Table 3.A2 summarizes some of the characteristics of the 17,662 enterprises that responded to the survey in 2021. The enterprises range from ones employing 1 person to large businesses of more than 250 employees. Based on the number of employees, the categories distinguish micro, small, medium-sized and large enterprises, defined as firms with, respectively, less than 10, less than 50, less than 250 and more than 250 employees. The sample includes firms operating in industries such as mining, manufacturing, construction, utilities, retail, transportation and services. The firms range from businesses generating an annual revenue of less than €100,000 to ones generating an annual revenue of more than €50 million. They include firms that have been in business for less than 1 year to firms that have been active for more than 50 years.

▶ **Table 3.A1 Numbers of observations by country**

Country	*N*	%	Country	*N*	%	Country	*N*	%	Country	*N*	%	Country	*N*	%
Belgium	604	3.42	Italy	601	3.4	Cyprus	252	1.43	Romania	611	3.46	North Macedonia	515	2.92
Denmark	501	2.84	Luxemburg	256	1.45	Czechia	601	3.4	Slovakia	500	2.83	Montenegro	101	0.57
Germany	600	3.4	Netherlands	605	3.43	Estonia	507	2.87	Slovenia	561	3.18	Serbia	507	2.87
Greece	602	3.41	Austria	514	2.91	Hungary	534	3.02	Türkiye	505	2.86	Albania	107	0.61
Spain	600	3.4	Portugal	601	3.4	Latvia	504	2.85	Iceland	267	1.51	Republic of Moldova	114	0.65
Finland	501	2.84	Sweden	601	3.4	Lithuania	502	2.84	Croatia	553	3.13			
France	615	3.48	United Kingdom	511	2.89	Malta	255	1.44	Norway	302	1.71			
Ireland	507	2.87	Bulgaria	518	2.93	Poland	609	3.45	United States	518	2.93			

Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5) .

The Green Economy module of the World Bank Enterprise Surveys

A World Bank Enterprise Survey is a firm-level survey of a representative sample of an economy's private sector. Enterprise surveys are carried out following a standard methodology in which firms respond to questions covering a broad range of business environment topics, including finance access, corruption, infrastructure, crime, competition and performance measures. Formal (registered) companies with five or more employees are targeted for interview.

In collaboration with the European Bank for Reconstruction and Development (EBRD) and the European Investment Bank (EIB), the World Bank conducted in 2018, 2019 and 2020 a series of surveys of 39 economies from EBRD regions in Europe, Central Asia, the Middle East and North Africa (see table 3.A3 for the list of economies).

The Green Economy module of the World Bank–EBRD–EIB Enterprise Survey includes a set of questions relating to the environment, further subdivided into four main sections (exposure to environmental impacts, management and the environment, environmental policy and regulation, and environmental impact of the establishment). In the section dedicated to management and the environment, a subset of questions covers the establishment's energy and water consumption, release of carbon dioxide and pollutants, and strategies to minimize such consumption and waste.

One survey question asks whether the establishment has implemented each of the following ten measures over the last three years (yes/no questions referenced as BMGc.23 in the questionnaire):

(a) heating and cooling improvements

(b) more climate-friendly energy generation on site

(c) machinery and equipment upgrades

(d) energy management

Table 3.A2 Descriptive statistics of the sample

Size	*N*	%	Revenue	*N*	%	Age	*N*	%	Industry	*N*	%	Industry	*N*	%
1 to 9 employees	6,990	39.58	€100,000 or less	3,640	20.61	Less than 2 years	102	0.58	Mining and quarrying	196	1.11	Transportation and storage	1,341	8
10 to 49 employees	6,384	36.15	€100,000 to €500,000	3,197	18.1	1 to 4 years	1,436	8.13	Manufacturing	3,631	21	Accommodation and food services	1,217	7
50 to 249 employees	3,140	17.78	€500,000 to €2 million	3,065	17.35	5 to 9 years	2,229	12.62	Electricity, gas, steam and air conditioning	380	2	Information and communication	873	5
250 employees or more	1,119	6.34	€2 million to €10 million	2,916	16.51	10 to 19 years	4,047	22.91	Water supply, sewerage, waste management	301	2	Financial and insurance activities	565	3
N/A	29	0.16	€10 million to €50 million	1,327	7.51	19 to 50 years	6,937	39.28	Construction	2,982	17	Real estate activities	377	2.13
			More than €50 million	572	3.24	More than 50 years	2,911	16.48	Wholesale, retail trade, repair of motor vehicles	4,875	28	Professional, scientific and technical services	924	5.23
			N/A	2,945	16.67									
Totals	**17,662**	**100**		**17,662**	**100**		**17,662**	**100**					**17,662**	**100**

Source: Flash Eurobarometer 498 (SMEs, Resource Efficiency and Green Markets, wave 5) .

(e) waste minimization, recycling and waste management

(f) air pollution control measures

(g) water management

(h) upgrades of vehicles

(i) improvements to lighting systems

(j) other pollution control measures

In a separate question, establishments are also asked about the adoption of any measure to enhance energy efficiency (BMGc.25).

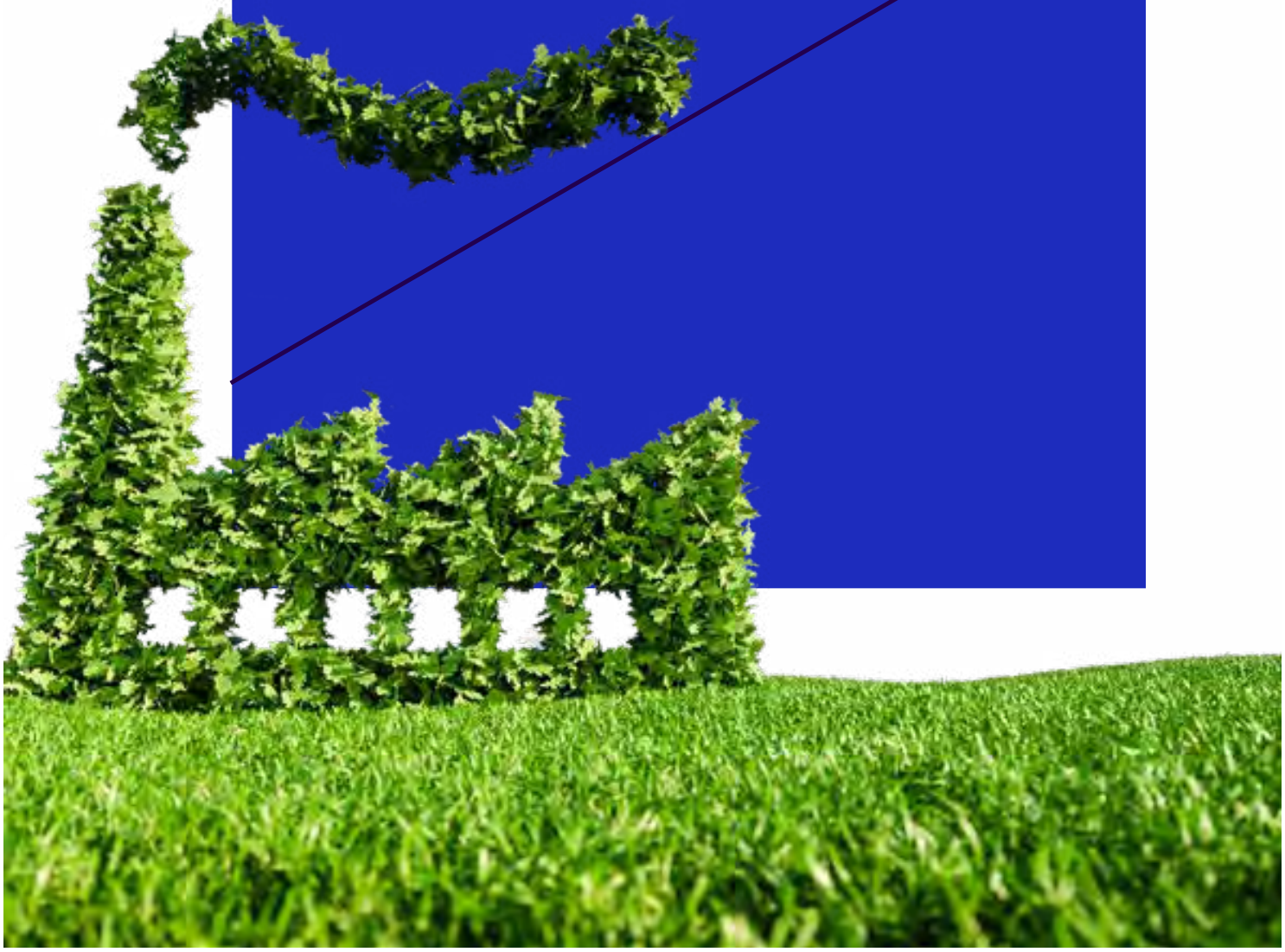
On average across the 39 countries, establishments implement 2.5 of the greening processes listed above.[13] For analysis based on the World Bank Enterprise Survey data, an establishment is therefore considered to be "greener" if it has implemented more than this average number of greening processes – that is, three processes or more.

▶ Table 3.A3 Economies covered by the World Bank Enterprise Survey according to income per capita

Lower-middle-income economies		Upper-middle-income economies				High-income economies			
Country/ territory	*N*	Country/ territory	*N*	Country/ territory	*N*	Country/ territory	*N*	Country/ territory	*N*
Egypt	3,075	Albania	377	Kosovo	271	Croatia	404	Poland	1,369
Kyrgyzstan	360	Armenia	546	Lebanon	532	Cyprus	240	Portugal	1,062
Mongolia	360	Azerbaijan	225	Montenegro	150	Estonia	360	Slovakia	429
Morocco	667	Belarus	600	North Macedonia	360	Greece	600	Slovenia	409
Tajikistan	352	Bosnia and Herzegovina	362	Republic of Moldova	360	Hungary	805		
Tunisia	615	Bulgaria	772	Romania	814	Italy	760		
Ukraine	1,337	Georgia	581	Russian Federation	1,323	Latvia	359		
Uzbekistan	1,239	Jordan	601	Serbia	361	Lithuania	358		
		Kazakhstan	1,446	Türkiye	1,663	Malta	242		

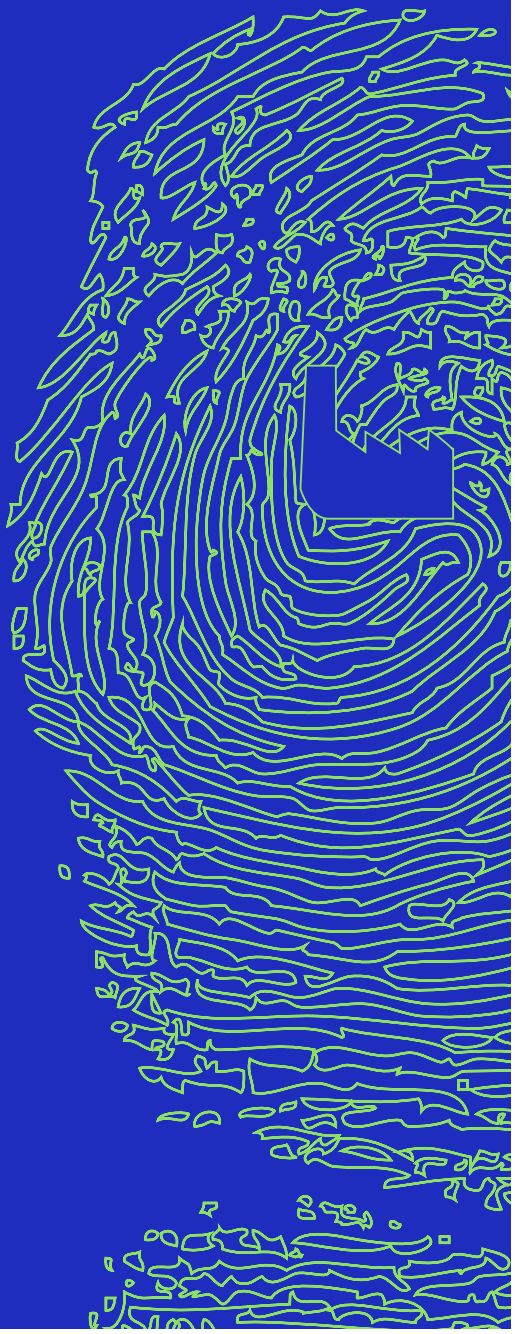
13 If the company reports that it has not implemented any process to save energy – that is, gives a negative answer to items (a), (b), (c), (d), (h) and (i) under question BMGc.23 – but gives a positive answer to BMGc.25, then it is regarded as having implemented one of those items.

IV



Regulating sustainable enterprises

Country case studies



Key findings

No one size fits all. If rationalization of the use of resources, particularly energy, is a common tool to encourage the greening of enterprises, there is great diversity among countries in the ways enterprises have become more central in the legal framework to transforming economies into sustainable ones. Countries have adopted specific approaches identified in Chapter 2, framing them in law or policies to create an enabling environment for green enterprises (for example: Colombia – sustainable business models; South Africa – a just transition and workers' rights). Legislative action is increasingly being taken in the transport and waste sectors.

South Africa has developed the transformation of enterprises towards sustainability using the principles of a just transition and strengthening workers' rights.

In the Republic of Korea, a just transition and a bottom-up approach based on regional development with multi-stakeholder involvement and some implication of social partners have driven enterprises towards sustainability with a focus on climate adaptation.

In China, resource efficiency has been one of the primary drivers of the integration of sustainability in the workplace, with a more limited role for labour legislation, centred mainly on rules regulating occupational safety and health.

In Kyrgyzstan, a systematic inventory of legislation aiming to identify and eliminate existing inconsistencies, duplications and gaps in legislation, including at the level of by-laws, is a welcome initiative that could help clarify the role of sustainability principles at work.

In the United Arab Emirates, concrete results of the transition debate have been focused on education and awareness-raising, including with respect to the greening of enterprises and workplaces, with additional initiatives at the sectoral level.

Colombia adopted legislation in 2018 offering enterprises a legal framework in which they can operate with both economic and also social and/or environmental goals. Although MSMEs, notably microenterprises, are the prime beneficiaries of this innovative legislation, it is too soon to see the bigger picture of its influence on enterprise development.

No single country reviewed in this chapter has taken action in all the eight practice areas discussed in Chapter 2. Some countries have used enterprises as a vehicle to deliver on climate and environmental policies, while others have used broad-based policies to lay the foundation for the greening of enterprises through a systematic approach to responsible consumption in the whole of society.

4.1 Introduction

In this chapter we will examine the legal contexts relating to the greening of workplaces and enterprises in six countries representing different regions and levels of economic development (China, Colombia, Kyrgyzstan, the Republic of Korea, South Africa and the United Arab Emirates). The case studies are based on legal reviews in each of the countries, which helps us to get a more complete picture of the legal framework in these countries, and particularly to understand the intention of the legislator regarding enterprises. For four of these countries – Colombia, Kyrgyzstan, the Republic of Korea and South Africa – the survey of MSMEs in Chapter 5 will complement our review and reveal the perception of the legislation by entrepreneurs.

The initiatives and legal frameworks in the different jurisdictions covered in this chapter represent different contexts and challenges and adopt various approaches to the greening of workplaces. For example, in Colombia the greening of workplaces and enterprises can best be analysed through the prism of the law on sustainable business models, whereas the Republic of Korea example shows how the second generation of legislative approaches to tackling climate change acknowledges the need to integrate a just transition. Kyrgyzstan provides an example where legislation comprehensively protects the environment. That country's next step is to further develop the implications of these environmental measures in the world of work.

Chapter 3 clearly demonstrated that there is no single regulatory and policy framework that solely deals with promoting sustainability through workplaces. Yet, many countries have legal frameworks that envisage the encouragement of workplace and enterprise sustainability. Although each legal landscape is generally context specific, similar challenges such as environmental degradation, climate change and scarcity of resources are faced by workplaces across the globe.

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In South Africa, just transition policies have also become a vehicle to advance measures for making workplaces greener and more sustainable.

4.2 South Africa

South Africa is an example of a country that has reached a significant milestone in integrating the concept of just transition in its major legal and policy framework addressing climate change, environmental degradation and sustainable development. The need for a just transition and its guiding principles traverse energy legislation, the waste management policy framework and also transportation. In South Africa, just transition policies have also become a vehicle to advance the greening of workplaces and to promote sustainability in them. Another salient feature of South African legislation is the protection and promotion of environmental rights at work, which the country's legislation considers one of its "national environmental management principles".

4.2.1 Just transition as a framing principle of environment and the world of work

South Africa's energy policy framework envisions an energy sector that is both socially equitable "through expanded access to energy at affordable tariffs" and environmentally sustainable through reduced pollution.[1] In the path towards these goals for South Africa's coal power plants, the country's policy makes reference to the ILO *Guidelines for a Just Transition* and has set an objective, in line with the guidelines, to pursue coherent policy development in support of a just transition plan. In a similar vein, the South African National Development Plan 2030: Our Future – Make It Work proclaims that to "manage a just transition to a low-carbon economy, it is essential that there is policy alignment at all levels of government in relation to priorities and considerations when investing in infrastructure that has long-term consequences for the environment and national mitigation targets".

Box 4.1 Excerpt from the South African Economic Reconstruction and Recovery Plan of 2020

SMMEs, cooperatives and start-ups also have an important role to play in facilitating economic transformation and empowerment. Providing a supportive ecosystem to SMMEs, cooperatives and start-ups is among the critical enablers for recovery and reconstruction. Accordingly, the following will be undertaken to support SMMEs, cooperatives and start-ups:

- Reviewing and integrating government support for formal and informal SMMEs, start-ups and cooperatives, including removing red tape and reducing timeframes for relevant licenses and permits to improve the ease of doing business; and
- Designing more appropriate financing products, such as microfinance, gap housing products and blended financing including for emerging farmers.
- The support to SMMEs to participate in the localization opportunities.

Source: South African Economic Reconstruction and Recovery Plan of 2020.

The South African Economic Reconstruction and Recovery Plan, a plan to respond to the COVID-19 crisis, adopted on 15 October 2020, strives to achieve a just transition and in this respect recognizes and promotes the special role of SMMEs (small, medium and micro enterprises) (box 4.1). Thus, the critical interventions include support for SMMEs and cooperatives to take advantage of opportunities in the green economy, and support for small-grower farmers through public–private partnerships in forestry, including in State plantations.

The Green Transport Strategy for South Africa (2018–2050) and the National Waste Management Strategy of 2020 likewise promote a just transition. The National Waste Management Strategy stipulates that "A circular economy redefines economic growth

1 South Africa, Integrated Resource Plan (IRP) of 2019.

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by moving away from a take-make-waste industrial model to one that decouples economic activity from the environment and supports a just transition to renewable energy sources". The strategy addresses awareness-raising in workers by providing that "trade unions have an important role to play in ensuring employers comply with regulations and norms and standards around waste, as well as in raising worker's awareness ... in terms of workplace issues around waste, or more general awareness around waste".[2]

4.2.2 Promoting sustainability through workers' rights

South African legislation incorporated workers' environmental rights as early as 1998. Thus, the National Environmental Management Act 107 of 1998 proclaims that "the right of workers to refuse work that is harmful to human health or the environment and to be informed of dangers must be respected and protected".[3] The legislation further clarifies that this is one of the principles that apply to all action of the State that affects the environment and serves as a general framework within which environmental management and implementation plans must be formulated.

The National Environmental Management Act 107 also obligates employers to inform and educate employees about the environmental risks of their work and the manner in which their tasks must be performed in order to avoid causing significant pollution or degradation of the environment.[4] Special provisions are made for the duty to inform at the workplace in the event of emergency incidents that lead to potentially serious pollution of or detriment to the environment, whether immediate or delayed.[5]

2 South Africa, National Waste Management Strategy of 2020, 56.

3 South Africa, National Environmental Management Act 107 of 1998, Section 2 (4) (j).

4 South Africa, National Environmental Management Act 107 of 1998, Section 28(3)(b).

5 South Africa, National Environmental Management Act 107 of 1998, Section 30.

The legislation further protects the right of workers to refuse to do environmentally hazardous work. It stipulates in particular that, notwithstanding the provisions of any other law, no person is civilly or criminally liable or may be dismissed, disciplined, prejudiced or harassed on account of having refused to perform any work if the person in good faith and reasonably believed at the time of the refusal that the performance of the work would result in an imminent and serious threat to the environment. Thus, an employee who has refused to perform work must as soon thereafter as is reasonably practicable notify the employer either personally or through a representative that he or she has refused to perform work and give the reason for the refusal.[6]

Another piece of legislation, adopted in 2017, introduces amendments to the Protected Disclosures Act of 2000, which introduces the protection of workers in cases of disclosure of information (regarding any conduct of an employer, or of an employee or a worker of that employer) that shows or tends to show that the environment has been, is being or is likely to be damaged. The legal framework also requires that "No employee may be subjected to any occupational detriment by his or her employer on account, or partly on account, of having made a protected disclosure".[7]

Together, these pieces of legislation set out a single framework to protect and promote the right of workers to be informed about any environmental risks of their work, and the right to refuse to work when that would result in damage to the environment.

4.3 Strengthening the support for MSMEs' green transition through climate change laws: The case of the Republic of Korea[8]

4.3.1 The Republic of Korea's commitment to achieving carbon neutrality

The Republic of Korea has adopted a number of legal instruments in support of the international community's efforts to cope with climate change and has prepared comprehensive national plans. One of these is the Framework Act on Low Carbon Green Growth ("old act"), enacted in 2010. The act comprehensively covers areas related to green growth, such as climate change response, energy efficiency, renewable energy, green technology and green industry development, and land. The act says the purpose is to promote the development of the national economy by laying the foundation necessary for low-carbon, green growth and by utilizing green technology and green industries.

In 2021, the Republic of Korea scaled up its efforts to reduce carbon emissions and achieve carbon neutrality by 2050, and enacted an improved legal basis for the Carbon Neutrality Act ("new act") in August 2021. The new act provides a legal basis for the

6 South Africa, National Environmental Management Act 107 of 1998, Section 29(2).

7 South Africa, Protected Disclosures Amendment Act 5 of 2017 (Amendments to Protected Disclosures Act of 2000), 2017, para. 3.

8 This section is entirely based on J.H. Kim, "Analysis on Legal Instrument for Environmental Sustainability in South Korea", ILO, November 2021.

objective of carbon neutrality by 2050, including a periodic stocktaking process and more challenging mid-term targets such as a more than 35 per cent reduction of emissions by 2030 from their 2018 level. The new act strengthens the foundation for green growth and a just transition that was established by the Framework Act on Low Carbon Green Growth Act, which provided the legal basis for GHG regulations such as an emissions-trading scheme (K-ETS) and a target management system (TMS). The new act emphasizes these two regulations as the country's main tools to achieve the enhanced emissions reduction targets and carbon neutrality by 2050. It also broadens the legal scope to include the concept of a just transition, which was hardly mentioned in the old act.

The 2021 act specifies the promotion of green growth, while expanding and re-organizing the existing presidential advisory body of the Green Growth Committee to become the Carbon Neutral Green Growth Committee. Under the supervision of this committee, the act aims to establish comprehensive national climate crisis legal frameworks in four major areas: (a) GHG reduction, (b) climate crisis adaptation, (c) green growth promotion and (d) a just transition to mitigate the impact of the impending climate crisis. The act introduced the concept of a just transition and provides a legal basis for operationalizing the just transition that is envisioned as a pillar of the Republic of Korea's path to carbon neutrality by 2050.

4.3.2 Special focus on small and medium-sized enterprises

The Republic of Korea's legal framework on climate change recognized the challenges of MSMEs early on. The 2010 Framework Act on Low Carbon Green Growth provided for special support for MSMEs on the path towards the objective of a low-carbon economy by envisaging measures that the Government would take to support the greening of MSMEs.

Article 33 of the 2010 act provides that the Government may enforce various policy measures to facilitate green technology and green management of MSMEs. It emphasizes cooperation between large enterprises and MSMEs in order to promote the green management of MSMEs and to develop the human resources required by green technology and green industries. "Green management" here is understood to include enterprises' broad environmental activities such as the conversion of production systems to make them environmentally friendly, efficient use of energy and resources, reduction of GHG emissions, creation of forests, conservation of the natural environment and providing information about sustainable development.

According to the legal framework, MSMEs are to receive, among other things, support in undertaking green management. There is also a provision on the disclosure of enterprises' achievements in green management.

4.3.3 Just transition as a framework for achieving a low-carbon society

The Republic of Korea has declared a "vision" for 2050 carbon neutrality that involves new economic and social development strategies rather than focusing solely on GHG reduction. This more positive vision intends to promote the establishment of a new economic and social structure system capable of sustainable economic growth and improving the quality of life despite the transition to a carbon-neutral society.

The country has established a "3+1" implementation strategy for 2050 carbon neutrality. This strategy focuses on three carbon-neutral pillars of adaptation, opportunity and fairness; the "+1" indicates the improvement of institutional foundations in order to achieve the three pillars. The 3+1 strategy will focus on (1) "adaptation" to promote low carbon emissions in all areas of the economy, (2) "opportunity" to develop newly introduced low-carbon industries, (3) "just transition" to guide all the people to participate in the carbon neutrality process, and (+1) the improvement of the institutional basis for carbon neutrality.

In a separate 2050 carbon neutrality scenario paper,[9] the Government announced that it planned to promote a bottom-up approach led by the regions (within the Republic of Korea) and the private sector, based on a consensus across the country, ensuring that no groups of the population and no industries would be marginalized in the process of just transition to a carbon-neutral society.[10] The scenario describes the actions for the just transition as follows:

1. Strengthen regional carbon-neutral capabilities, such as designating a just transition specific for the district, and establishing a support centre and preparing a just transition promotion system at the national level.
2. Conduct an employment impact assessment to strengthen employment stability, and implement support measures such as improving working conditions, creating new jobs and expanding labour conversion education.
3. Establish a social safety net for the vulnerable and help them to deal with new risk factors caused by the climate crisis.
4. Establish a social communication system that guarantees stakeholders' participation in the entire carbon neutrality process so that all members of society can share responsibilities within it.

The 2021 Framework Act requires the Government to identify the marginalized groups, regions and industries where social and economic inequality is intensifying, for example through job losses and regional economic impact, and to takes measures to strengthen disaster response capabilities. To minimize the social damage caused by business transition and structural unemployment, the Government should regularly investigate the impact on employment, such as occurrences of unemployment, and prepare measures to support re-education and re-employment (Article 47).

The Korean Government has planned a bottom-up approach to ensuring a just transition for all to a carbon-neutral society, based on a countrywide consensus.

In the transition to a carbon-neutral society, the Government can designate areas where the social and economic environment is expected to change significantly owing to rapid job losses, regional economic downturn, or industrial restructuring. For areas designated as special districts, the Government should establish and implement measures including (a) stabilizing and promoting employment in companies and small businesses as well as as supporting MSMEs' domestic sales and exports, (b) preventing unemployment and facilitating re-employment, (c) fostering new industries and attracting investment and (d) supporting tax measures (Article 48).

9 Republic of Korea, 2050 Carbon Neutral Committee, "The South Korea 2050 Carbon Neutrality Scenario", 2020.

10 See Chapter 5 on the joint cooperation of social partners at the regional level for the purposes of developing regional plans for the greening of workplaces.

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The Government may also support small and medium-sized businesses, in industries that may be affected by the process of responding to the climate crisis and transitioning to a carbon-neutral society, if they request business transition to green sectors of industry (Article 49).

4.3.4 Specific rules integrating sustainability in the workplace

The energy sector is one of the areas where enterprises have been encouraged to promote sustainability and responsible consumption. In the Republic of Korea, the Government has mandated an energy "diagnosis" to enable companies to use energy more efficiently. Such energy diagnoses have been long in place, even before the major international climate agreements; the legal basis for them is found in Article 32 of the Energy Use Rationalization Act adopted in 1980. According to the regulations, companies have to conduct a mandatory diagnosis every three to five years, depending on their annual energy consumption. Violations of the regulations may result in fines.

For MSMEs, the Government operates a programme that supports mandatory energy diagnosis costs; the State covers 30 per cent of the total diagnosis costs. The target and scale of support for energy diagnosis costs are limited to MSMEs with an annual energy consumption of less than 10,000 tonnes of oil equivalent (toe). The level of support for diagnosis costs for the current year is determined and publicly announced by the Minister of Trade, Industry and Energy. In addition, since support for diagnosis costs is made upon application, companies wishing to receive support must state that they are MSMEs and attach in their application supporting documents to prove this.

The Government has been actively promoting regulations and policies to reduce emissions from transport as well as to improve energy efficiency and reduce GHG emissions in the industrial sector. In the transport sector, the goal was to reduce

▶ **Table 4.1 Pollution-free car conversion 100 programme (K-EV100) of 2021: Terms of participation**[11]

Open declaration	**Declaration to fulfil one or more of the following in 30 years:**	
	Essential	‣ Replacing a vehicle owned or leased by a company with an electric or hydrogen vehicle
	Optional	‣ Replacing the company CEO's business vehicle first with an electric or hydrogen vehicle ‣ Installing charging infrastructure at all workplaces to support employees using electric vehicles ‣ Installing charging infrastructure in all workplaces to support customers' use of electric vehicles ‣ Requesting the use of electric vehicles during a service contract (taxi etc.)
Regular report	**Regularly submit pollution-free vehicle conversion plans and performance to the Ministry of Environment:**	
	Mid-to-long-term road map	‣ Mid-to-long-term transition plan by 2030 (within one month of subscription)
	Conversion plan	‣ Plan for purchase and lease of pollution-free vehicles for the current year (before the start of the fiscal year)
	Performance report	‣ Fulfilment of purchase and lease for the current year (within one month after the end of the fiscal year)
Applications	‣ By separately allocating subsidy budgets for corporations and institutions (more than 40 per cent of the rental volume), priority and support are given to companies participating in K-EV100. ‣ The K-EV100 budget is allocated separately to give priority to participating companies to support the installation of charging infrastructure in workplaces.	

emissions by 37.8 per cent by 2030 relative to their level in 2018, and by more than 90 per cent by 2050. The K-EV100 programme was recently introduced to achieve this goal. This is a programme of government incentives to replace vehicles owned or leased by Korean companies with eco-friendly vehicles such as 100 per cent electric vehicles and hydrogen vehicles (table 4.1). Companies are recommended to transition completely to electric or hydrogen cars by 2050. Companies with a minimum of 50 corporate vehicles or more can apply for the programme. The legal basis for the programme is the Air Quality Conservation Act adopted in 1990.[11]

The Government recently enacted laws and regulations to promote recycling and resource saving through the management of the waste sector. The aim is to contribute to the preservation of the environment and the sound development of the national economy by suppressing waste generation and promoting recycling. Since July 2021, the Republic of Korea has been implementing guidelines for reducing the use of disposable products (box 4.2). The goal is to contribute to the goal of carbon neutrality by 2050 through decreasing the use of disposable goods and plastic products. The use of disposable goods will be restricted in the offices of government ministries, local governments and other public institutions.

According to the practical guidelines, the use of disposable cups and plastic bags will be restricted in public institutions (including parks and palaces) and in meetings and events hosted by public institutions. Funeral halls operated by public institutions

11 On 1 February 2021, the Ministry of Environment of the Republic of Korea announced the 2021 Work Plan for the Ministry of Environment, which contains ten tasks in three areas under the vision of "Tangible Achievements for People, Carbon Neutrality for the Future". One of these tasks is the car conversion programme. Furthermore, on 26 May 2021, a Declaration on 2030 Korean Pollution-Free Conversion 100 (K-EV100) was adopted to invite voluntary conversion to zero emission vehicles and strive for carbon neutrality.

should try not to sell disposable goods. When signing contracts with businesses that will operate shops, restaurants and coffee shops in rented buildings, public institutions should recommend they refrain from providing disposable items and plastic packaging.

People working in public institutions should increase the use of eco-friendly supplies. Multi-use cups, shopping baskets, drinking fountains and the like should be used; multi-use containers or plates should be used when food is eaten at government offices, meetings and events or is provided to others. The targets are 28,000 central administrative agencies, affiliated organizations, local governments, local corporations, kindergartens and elementary, middle and high schools.

The Republic of Korea has been making efforts to enact legal foundations to reduce GHG emissions and promote green growth since 2010. When the country declared a 2050 carbon neutrality goal in 2020 with a strong willingness to respond to climate change, it also enacted an additional renewed framework on carbon neutrality and green growth with a special focus on a just transition.

Box 4.2 *Guidelines for Reducing the Use of Disposable Items* (2021)

Article 4 (Use of multi-use items, etc.)

1. Those who work in public institutions should try to use products other than disposable items, such as multi-use cups, shopping baskets, drinking fountains, and umbrella rainwater removers.

2. Anyone working in a public institution shall endeavour to use multi-use dishes and utensils when eating food or providing food to others in a government building or at an event venue; or alternatively go to a restaurant.

3. Public institutions may seek to avoid single-use plastics when making purchases, and if the goods can be delivered using multi-use packaging materials they may ask the seller to ship them in that way.

4. Public institutions should strive to save resources, for example by setting up paper-free meetings and avoiding colour printing if paper printing is required.

Source: Adapted from *Guidelines for Reducing the Use of Disposable Items* of 2021.

In 2010 and 2015, respectively, it implemented GHG emission regulations for enterprises by means of a trading scheme (K-ETS) and a target management system (TMS). These GHG emission regulations are expected to be extended to regions and systematized in detail through the enactment of the 2021 Carbon Neutral Green Growth Framework Act, updating commitments made under the Framework Act on Low Carbon Green Growth. Furthermore, both the old and new acts stipulate provisions to support green management of enterprises, including small and medium-sized companies.

The Republic of Korea has committed itself to minimizing environmental risks from economic growth by laying the institutional foundation for encouraging SMEs, large companies and public institutions to reduce GHG emissions. It is difficult to determine at this stage how the law will affect companies' conduct. However, the enactment of the basic law aiming to accomplish carbon neutrality has led to the perception in society that GHG reduction is now essential.

4.4 Promoting a comprehensive principle of responsible consumption and production: The case of China[12]

4.4.1 Overview of Chinese laws and regulations relating to the greening of enterprises and workplaces

China's sustainable development is centred on the principle of "ecological civilization", which was recognized as a constitutional principle through the revision of the Constitution in 2018.[13] Two factors have become crucial to the goal of accelerating China's construction of an ecological civilization: first, an overall improvement of the quality of eco-friendly environments; and, secondly, higher efficiency in the use of resources has guided the formulation of practices to green workplaces.

Higher efficiency in the use of resources has guided the formulation of practices to green workplaces.

These principles, as well as changes in the international policy landscape, have led China to adopt legislative reforms and new policy initiatives to encourage and guide both private and public entities to integrate the concept of sustainable development into all their operations. Environmental legislation has been a primary driver of integrating sustainability into the workplace, with a major focus on energy conservation – and the conservation of resources more broadly. Labour legislation, in contrast, has been used to only a limited extent in the greening of workplaces, focusing primarily on rules to ensure occupational safety and health.

Various laws and regulations regulate the workplace environment from different angles, directly or indirectly, to green the workplace. Another of the tools used in the greening of enterprises and workplaces is the concept of the corporate social responsibility of public enterprises. Thus, Article 11 of Guiding Opinions on the Fulfilling of Corporate Social Responsibility by Centrally Administered Enterprises stipulates that centrally administered enterprises should take measures to strengthen resource conservation and environmental protection, as well as take the lead in energy conservation and emissions reduction.[14]

These enterprises must also develop business activities and products conducive to saving energy, actively participate in and promote a circular economy, and improve the efficiency of responsible and exhaustive use of resources. They must increase environmental protection investment, improve process flow, reduce pollutant emissions, implement clean production and adhere to the development path of low input, low consumption, low emissions and high efficiency.

12 This overview is based on Q. Ma, "Report on China's Legal Framework on Greening Workplaces", ILO, April 2020.

13 China, Constitution of the People's Republic of China, 2018, preamble, para. 3.

14 China, Guiding Opinions on the Fulfilling of Corporate Social Responsibility by Centrally Administered Enterprises, Promulgation Authorities: State-Owned Assets Supervision and Administration Commission of the State Council, 29 December 2007, Guo Zi Fa Yan Jiu [2008] No. 1.

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A series of laws relating to environmental protection have also been revised, including the Environmental Protection Law of the People's Republic of China (amended in 2014)[15] and the Law of the People's Republic of China on the Prevention and Control of Environmental Pollution Caused by Solid Wastes. To help integrate the concept of sustainability into the workplace, there are also laws regulating energy conservation (revised in 2018)[16] and the promotion of a circular economy, according to which the central and local governments have formulated corresponding local regulations and policies that govern different entities and enterprises from the perspectives of saving energy, saving water, waste reduction, sustainable procurement, etc.

4.4.2 Greening workplaces through energy laws and regulations

One area that has seen dedicated legal and policy interventions – including through revision of existing ones – is energy conservation and renewable energy. Article 13 of the Energy Conservation Law (revised in 2018) stipulates that "The State shall encourage enterprises to establish energy conservation standards that are stricter than the national and industrial standards". In the service of energy conservation in the

15 China, Environmental Protection Law of the People's Republic of China, adopted at the 11th Session of the Standing Committee of the Seventh National People's Congress on 26 December 1989, amended at the 8th Session of the Standing Committee of the Twelfth National People's Congress on 24 April 2014.

16 China, Energy Conservation Law, adopted on 1 November 1997, revised on 28 October 2007, amended further on 2 July 2016 and 26 October 2018.

business and trading sector, energy management systems should be established in retail, wholesale, catering, accommodation, logistics and other areas.[17] Also according to the Energy Conservation Law, businesses must establish a responsibility system for energy conservation targets and reward those individuals and entities that excel in energy conservation.

Businesses should conduct energy conservation education and on-the-job training and establish energy-saving and low-carbon processes in their facilities and eliminate outdated equipment that consumes a large amount of energy.[18] These energy conservation goals should include the transformation of lighting, cooling and heating systems.

Energy conservation and the reduction of emissions have a significant place in the political sphere and have received much attention. The Standing Committee of the National People's Congress revised the Energy Conservation Law in 2018 in order to promote energy conservation throughout Chinese society, improving the efficiency of energy usage, protecting and improving the environment and advancing a balanced and sustainable development of China's economy and society.

In 2008, the State Council promulgated the Regulation on Public Institutions' Energy Conservation.[19] The regulation was revised in 2017, adding detailed measures for public institutions.[20] Since 2008, over 35 provincial cities have been required to abide by the local rules of energy conservation and take the leading role in energy conservation. The scope of energy conservation measures includes office temperature control according to season, prioritization of public transport, increasing the use of telecommunications in work, reducing paper use, adopting a green policy and promoting the use of renewable energy.

The Renewable Energy Law of the People's Republic of China was adopted on 2005. Article 17 of the law stipulates that the Government should encourage workplaces and individuals to install and use systems such as solar energy systems, solar water-heating systems, solar heating and cooling systems and solar photovoltaic systems.

The Law of the People's Republic of China on Promotion of Sustainable Economy, adopted in 2008, set the task of promoting a sustainable economy, raising the efficiency of resource usage, protecting and improving the environment, and advancing sustainable development.[21]

4.4.3 From collective to individual responsibility

Although there is no specific law and regulation for employees or dedicated to workplaces, the Ministry of Ecology and Environment, the Central Civilization Office, the Ministry of Education, the Communist Youth League Central Committee and the All-China Women's Federation jointly issued the Civil Eco-environmental Behaviour Code (Trial), which was adopted on 4 June 2018 and remains in force. With a view to

17 Using an energy consumption metering device to calculate and track energy consumption.

18 China, Energy Conservation Law of the People's Republic of China, arts 25–27.

19 China, The State Council, Regulation on Public Institutions' Energy Conservation, promulgated under Decree No. 531 of the State Council of the People's Republic of China on 1 August 2008 and revised according to the Decision of the State Council on Revision and Abolition of Some Administrative Regulations on 1 March 2017.

20 "Public institutions" refers to the State authorities and organizations that are wholly or partly funded by fiscal revenue.

21 China, Law of the People's Republic of China on the Promotion of Sustainable Economies, 29 August 2008, amended on 26 October 2018.

inculcating environmental values and awareness of the need to protect nature, the code advises citizens to pay attention to the natural environment.

Article 2 states that the "Energy- and resources-saving civilian should choose a sensible temperature for air conditioning, which is not lower than 26°C in summer and not higher than 20°C in winter, turn off the power of electrical appliances when not required, take the stairs instead of using the lift, turn off the lights when people go out, make multiple use of water, use less toilet paper, order on demand and avoid waste".

In the light of the legal and policy framework of China, there has been a tremendous improvement in green workplace construction over the last five years. From a limited focus on climate change and exploiting sustainable resources to encouraging more sustainable lifestyles, the Government has enhanced environmental standards in general. For enterprises to comply with the new standards and policies, they must improve their production techniques, prioritize renewable energy and make use of energy-saving techniques. At a policy level, the Government is encouraging individuals to change their transportation habits, to look at their consumption behaviour and to become more aware of their indirect contribution to greening the workplace.

4.5 Regulating sustainability at the workplace: The case of Kyrgyzstan[22]

4.5.1 Current state of the law on the greening of workplaces

Kyrgyzstan's legal framework has prolific regulations in the sphere of environmental protection. Recent decades have seen elaborate environmental law-making. More than 70 legal instruments cover issues such as production and consumption of waste, technical regulations to ensure environmental safety, protection of the air, ecological expertise, protection and use of flora, protection of animals, water, land, biosphere territories, the hunting economy, radiation safety, protected natural areas, and dumps and mountain dumps. In 2009, in order to improve legislation and the consistency of legal norms on the environment, an attempt was made to draft an Environmental Code that would codify all the regulations in this area. However, to date, this legal reform has not yet taken place.

A review of the Kyrgyz Labour Code of 2004 reveals that there are no special provisions on sustainable development. The code does, however, give a legal basis that could potentially and partially affect the integration of sustainability at the workplace and more broadly serve as a basis for enterprises to enact sustainability measures.

Article 42 of the Labour Code establishes that a collective agreement may include mutual obligations of employees and the employer on matters of healthy and safe working conditions, improving health protection, guarantees of health insurance for employees, and environmental protection.

22 This section is based on K. Kanimetov, "Legal Framework Governing Greening Workplaces in Kyrgyzstan", ILO, December 2021.

The Kyrgyz Labour Code stipulates that a collective agreement may include mutual obligations of employees and the employer in relation to healthy and safe working conditions, health protection, health insurance and environmental protection.

At this stage, a sufficient development of standards in the greening of workplaces may require amendments of the existing legal framework, including ones to strengthen the comprehensive regulation of economy and environment. Strengthening existing norms of support that allow enterprises to implement sustainability initiatives should help to stimulate enterprises and ensure that the legal framework provides sufficient mechanisms of motivation. Furthermore, the Presidential Decree "On measures to ensure environmental safety and climate sustainability" entrusts to State bodies, local self-government, business entities, and public and other organizations, as well as citizens, the task of finding effective ways to improve the state of the environment, ensuring the careful use of natural resources and minimizing the negative impacts of climate change. Workplaces and enterprises have therefore been tasked with taking measures to ensure the responsible use of natural resources as a basis for more specific measures to integrate sustainability.

4.5.2 The way forward

The Kyrgyz legal and policy landscape is still evolving as regards the integration of sustainability into the world of work in general and, more specifically, into labour regulation. This is partly because of the changing political climate and institutional challenges. To accelerate this process, in 2021 the country launched an initiative to compile an inventory of all legal instruments – by the Presidential Decree (No. 26) "On conducting an inventory of the legislation of the Kyrgyz Republic", dated 8 February 2021.

The initiative has led to the formation of an interdepartmental expert group consisting of representatives of Parliament, the Supreme Court, the General Prosecutor's Office, executive authorities, local self-government bodies, business structures, non-governmental organizations and independent experts. It includes a subgroup tasked with the inventory of laws on environmental protection.

This interdepartmental expert group was instructed to carry out a complete inventory of the country's laws, including strategies and programmes assigned to each of branch of law, in order to examine their compliance with: (a) the Constitution and the principles of social justice and partnership; (b) necessity, feasibility and effectiveness; (c) the sufficiency of regulation of the subject; and (d) the elimination of contradictions, conflicts and gaps in the law. Based on the results of such an analysis, the expert group was instructed to make proposals by 31 December 2021 that would remove the inconsistencies identified.

Changes may also be forthcoming because of the COVID-19 pandemic over the past two years. An example is the regulation of telecommuting. Although the Labour Code provides for the general regulation of "homeworkers" (without using the concept of remote work or teleworking), the primary objective of the law as it exists is not to reduce the environmental footprint of enterprises or to reduce the pollution caused by congested transportation. The pandemic has prompted the Ministry of Labour, Social Security and Migration to initiate appropriate amendments to the legislation to regulate remote work for different categories of workers.

At the regulatory level, the greening of workplaces would benefit from the introduction of appropriate incentives and support measures to stimulate the implementation

of the provisions to advance sustainable development, particularly at the enterprise level. A systematic inventory of legislation in order to identify and eliminate existing inconsistencies, duplications and gaps in legislation, including at the level of by-laws, is a welcome initiative that should help to clarify the role of sustainability principles at work.

There is a need to revive the debates on developing an Environmental Code in which the foundations of sustainable development, including in workplaces, can be laid out. Regulatory provisions to advance sustainable development can also be incorporated in legislative acts of all branches of law, taking into account the ILO instruments. To achieve a relevant and sustainable regulatory legal framework, as well as effective provisions vis-à-vis the needs of society, it is advisable that the discussion of decisions affecting sustainable development at the enterprise level should involve participation and dialogue.

4.6 United Arab Emirates

4.6.1 Providing for enterprise sustainability through education and awareness-raising

The climate change strategy of the United Arab Emirates broadly aims to reduce emissions as well as the economy's heavy dependency on exports of oil and natural gas, which represent 40 per cent of gross domestic product. With the rise in temperatures, the country is also increasingly prone to extreme heat in the summer, which impacts on the health and well-being of workers and slows down economic activity.[23] The country has been active, on both the domestic and international levels, in formulating policies required by the 2030 Agenda for Sustainable Development. It has issued comprehensive national policies such as Vision 2021, the Energy Plan 2050 and the Climate Change Plan 2017–2050 and has ensured that previous goals have been updated and different agendas made consistent.

The United Arab Emirates has a federal institutional and governmental framework in place to implement such plans, and each emirate has launched its own targets, policies and plans, initiated large-scale environmental sustainability projects, including sustainable cities, and legislated to enforce new standards and codes for sustainable practices in certain areas.

The country adopted a National Environmental Education and Awareness Strategy 2015–2021 to introduce sustainability both at the enterprise level and at workplaces more generally.[24] Its six key objectives are: (a) to educate youth to drive the country towards a sustainable future, (b) to improve community commitment to sustainability and environmental protection, (c) to encourage the active involvement of businesses and industries in moving towards environmental sustainability, (d) to engage key government stakeholders in supporting environmental sustainability, (e) to ensure the alignment and effectiveness of environmental education and awareness efforts in the country and (f) to build adequate capabilities to deliver the strategy.

23 The United Arab Emirates is expected to lose more than 2 per cent of its GDP by 2030 as a result of heat stress. See ILO, *Working on a Warmer Planet: The Effect of Heat Stress on Productivity and Decent Work*, 2019.

24 National Environmental Education & Awareness Strategy 2015–2021.

One of the objectives of the strategy directly addresses the role of enterprises in greening, proposing the following initiatives:

- promoting workplace environmental sustainability through outreach programmes targeting employers and employees;
- an annual national competition to reward businesses in key economic sectors for exemplary environmentally sustainable behaviour;
- awareness programmes and training promoting environmental sustainability in the tourism and hospitality industry;
- campaigns and activities to encourage waste reduction, reuse and recycling in the construction industry;
- targeting foreign labourers in the construction sector with environmental education and awareness programmes promoting sustainable practices;[25]
- targeting industries with awareness initiatives on new and updated environmental policies, laws, regulations and standards in order to enhance compliance.

4.6.2 Sector-specific measures to promote sustainability at enterprise level

The country also adopted a Green Agenda 2015–2030 as the overarching framework for green economy action. The agenda consists of five strategic objectives: (a) competitive knowledge economy, (b) social development and quality of life, (c) sustainable environment and valued natural resources, (d) clean energy and climate action and (e) "green life" and sustainable use of resources.

Pursuant to the Green Agenda, the country has been making bold moves to increase sustainable transportation through multiple approaches ranging from sustainable urban planning to accessibility initiatives. In particular, the Green Agenda has identified mass public transport as one of its priorities, identifying the following lines of action:

- integrated transport plans;
- low-emissions zones;
- considering alternative modes of transport in urban planning;
- intelligent traffic management systems;
- specifying the efficiency and emissions of cars and phasing out inefficient vehicles;
- technical standards to support the introduction of green vehicles;
- promoting responsible behaviour and sustainability in road transport;
- incentive schemes for the use of alternative fuels;
- awareness campaigns on sustainable transport.[26]

Each emirate's transport authority has ambitious plans in place to expand its existing bus services and some have introduced metros and trams, increasing their

25 See ILO, *Working on a Warmer Planet*.

26 United Arab Emirates, Green Agenda 2015–2030, 5.3.

environmental sustainability and providing more sustainable options for workers and employees.[27] Each emirate has a public bus system and some are targeting businesses with various prepaid card systems, corporate mobility plans, smart car rentals and other transport solutions.

In the United Arab Emirates, a federal law mandates the public authorities to raise awareness about waste management through educational programmes aimed at business owners.

Following the launch of the Green Agenda, the share of public transport in people's mobility in Dubai had reached 15 per cent by 2015, rising from less than 6 per cent in 2006. The Dubai Road and Transport Authority aims to increase this share to 30 per cent by 2030. However, the use of public transport is still limited, most people still relying on private cars and taxis, since the country lacks a coherent, federal policy for sustainable transport between the emirates.

The country has also adopted Federal Law No. 12 of 2018 on Integrated Waste Management. The law's stated objectives include protecting the environment. It sets out an integrated scheme for the emirates and other local authorities to enforce cooperatively, addressing the production, separation, collection, transport, storage, reuse, recycling, treatment and disposal of waste. It explicitly permits the Ministry of Climate Change and Environment to ban non-eco-friendly products from the market and to compel enterprises and workplaces to reuse certain wastes in the interests of the environment, or to process them in a certain way, and may mandate that industrial waste be reused or recycled. Federal Law No. 12 of 2018 on Integrated Waste Management mandates the public authorities to raise awareness on waste management by developing and implementing programmes for the education and awareness of business owners on reducing waste generation and promoting recycling.

In 2018, the Ministry issued a *Green Business Toolkit*.[28] This document, which is geared to all kinds of businesses, focuses on three goals: green office, green procurement and green products. It is the country's first publication targeting the role of the private sector in greening the economy. A "green business" is one that "can generate more profits while managing to address its needs without compromising the ability of future generations to meet their own – that is, it contributes to sustainable development". To have a green office, workplaces must keep records of water, electricity and paper consumption and waste generation and set percentage-based and time-bound targets and policies, engaging staff in such action through monitoring progress and upgrading practices. Green procurement works similarly, inspiring suppliers to adopt green procurement policies and find greener ways forward.

The United Arab Emirates has demonstrated commitment and rapid action on its sustainability goals. Most of the legal innovations to help enterprises to adopt sustainability practices were taken through environmental and sectoral laws and policies. The country seems to be broadly on track with the aim of continuously adapting and improving its legal framework to integrate sustainability at the enterprise level.

27 Government of Dubai, Roads and Transport Authority.

28 United Arab Emirates, *Green Business Toolkit*, 2018.

4.7 Creating an enabling environment for sustainable MSMEs: The case of Colombia

4.7.1 The emergence of legal regulation of sustainable enterprises[29]

Chapter 2 provided a synopsis of how sustainable business models are being integrated through legislation in some countries, where enterprises can choose to function under the specific legal identity of an enterprise with a social and economic objective. These legislative innovations found their origin in the concept of "benefit corporations", which started in the United States when Unilever acquired the ice cream company Ben & Jerry's (B&J).[30] This precedent gave rise to the concept that companies would put aside the imperative to maximize profits in order to incorporate benefits for others such as workers, consumers, suppliers and the community in general, thus creating a common objective for all parties involved in a business activity.

Sustainable business models are being integrated through legislation in some countries, where enterprises can choose to function under the specific legal identity of an enterprise with a social and economic objective.

This overview of legal frameworks raises a number of questions about the role of enterprises in sustainability: (a) the phenomenon of introducing a non-corporate sustainability value into a corporate culture; (b) a new approach for enterprises to adopt and pursue (different from other models such as corporate social responsibility), in terms of entrepreneurship objectives and interests; and (c) the role that enterprises can adopt in the mid to long term as well as the environmental and social impacts they generate.[31]

The Colombian Law 1901 of 2018, through which "Benefit and Commercial Companies of Collective Interests (BIC) are created and developed", is one of the recent regulatory frameworks to explore the above questions. The law was debated in both houses of Parliament – without, however, formal consultation with organizations of workers and employers. [32]

Colombia was the first country in its region to grant legal recognition to BIC companies, which seek to redefine the meaning of business success. Through this law, BIC companies voluntarily offer to combine the advantages of their commercial and economic activity with concrete action to promote the welfare of their workers, contribute to the social equity of the country and contribute to the protection of the environment.

29 This section is based on Diego Sanchez Achero, "Report on Legal Framework Governing BIC in Colombia", ILO, October 2021.

30 The acquisition by Unilever implied that the company respected the conditions that B&J imposed on the sale. B&J had insisted that the developing company should have a purpose that extended beyond mere profit-seeking; it should act in a sustainable manner with respect to environment and community, be committed to using organic materials in production and to maintaining friendly and transparent relationships with its workers and donate a major part of its profits to the community.

31 Emma Craven-Matthews et al., "When Big Fish Eats Small Fish: The Acquisition of Ben & Jerry's by Unilever", LBMG Corporate Brand Management and Reputation, Masters Case Series, 2021.

32 ILO social partners of Colombia did not actively participate in the project of creating and drafting Law 1901 of 2018. It is recommended that if this law is reformed, as suggested in the following points, their opinions should be taken into account.

The justification for the legislative initiative revolved around three axes: "(a) incorporation of a social and environmental purpose, which goes beyond maximizing the economic interest of its shareholders, (b) enforceability in the fulfilment of the purpose described so that the directors and managers of the company can maximize the social and environmental interest described in the purpose and (c) transparency in reporting its business impact in all dimensions: business model, corporate governance, labour practices, environmental practices and practices with the community".[33]

The Colombian initiative therefore aimed to contribute to and revitalize the existing legal framework to promote economic development, innovation, formalization, job creation, taxation and the social function of the company, and, above all and as a newer aspect, a profit greater than money – the inclusion, development and enforceability of BIC activities as tools for balancing profit, impact and sustainability. The legislation is one of the ways Colombia has committed to building an economy that integrates social and environmental commitments. [34]

4.7.2 Scope and effects of the legislation

The legislation defines BIC companies as "companies that redefine the sense of business success, using the force of the market to solve social and environmental problems".[35] According to the law, BIC companies have the special feature that they give rise to the protection and confluence of various interests, such as the interests of society, the interests of the partners and shareholders and the benefit and collective interest that the company has defined in its by-laws. This coexistence of ideas and interests means that the companies founded under the name "BIC" have a purpose that goes beyond profit-making; they are companies that create a positive impact in society and the environment, which is why they are also known as "triple impact companies".

The mission of creating a regulatory and commercial framework around the notion of the BIC company was to build a beneficial system to strengthen companies that use the force of the market to solve social and environmental problems. It should be noted that this law attempts to incorporate the idea – increasingly promoted in business management – of a "stakeholder economy",[36] which focuses on the protection of minorities, workers, the structurally unemployed population, young people in search of opportunities, women who desire important roles (under equal conditions) in society, homeless individuals and people who have been released from prison (Law 1901 of 2018, Article 2).

The law's intention is to guide BIC companies' activity and business impact around five dimensions enabling them to become socially and environmentally sustainable without losing their main purpose, commercial profit. The *ABC Booklet on BIC Companies* summarizes these five dimensions as follows:[37]

> First, from a business model perspective, women and minorities benefit from the local exchange of goods and services that this type of partnership promotes. In addition,

33 Colombia, Congress of the Republic of Colombia, Congress Bill 135 of 2016 (author's translation).

34 Sanchez Achero.

35 Colombia, Congress of the Republic of Colombia, Congress Bill 135 of 2016 (author´s translation).

36 Luis Fernando Sabogal, "El interés social: apuntes teóricos en el marco socio-económico del derecho de empresa", *Revista e-Mercatoria* 10, No. 1 (2011): 5.

37 Colombia, Ministry of Commerce in collaboration with CONFECAMARAS (Colombian Confederation of Commerce Chambers – Confederación Colombiana de Cámaras de Comercio), *ABC Booklet on BIC Companies*.

> they give preference in the conclusion of contracts to suppliers of goods and services that implement fair trade standards that are equitable and environmentally responsible. [The companies] implement fair trade practices and promote programmes for suppliers to become collective owners of society, in order to help them get out of poverty.
>
> Second, from the perspective of corporate governance, the companies promote diversity in the structure of their boards of directors, management and executive teams, and suppliers, to include people of different cultures, ethnic minorities and religions, with different sexual orientations and gender diversity. Likewise, they express the mission of the company and disclose their financial statements to their workers.
>
> Third, through the dimension of labour practices, the BIC companies establish a reasonable and proportional salary for their workers. They also provide subsidies to deliver training for their workers, allowing them to participate within the company through the acquisition of shares. Likewise, these companies are concerned with expanding the health plans and wellness benefits of their employees through designing nutrition, mental and physical health strategies, aiming for a balance between work and the private life of their workers, providing employment options that allow them to have flexibility in their working day such as telecommuting or working from home.
>
> Fourth, in the environmental practices dimension, BIC companies comply with the duty to annually carry out environmental audits on efficiency in the use of energy, water and waste, and disclose the results to the public, as well as train their employees for compliance with the social and environmental mission of the society. Likewise, they monitor greenhouse gas emissions generated by business activity, implement waste recycling or reuse programmes, progressively increase renewable energy sources, and encourage their suppliers to carry out environmental evaluations and audits that promote the use of renewable energies.
>
> Fifth, in the practices with the community, BIC companies are in charge of creating job options for the structurally unemployed population, as well as encouraging volunteer activities and creating partnerships with foundations that support social work that truly favours the community.

Hence, the companies that accept BIC status are those that advocate for a sustainable economy based on general well-being. They, in turn, have the task of generating good performance and a social, environmental and financial impact that complements the role of governments and non-profit entities, while offering both their economy of scale and their financial sustainability to the service of society.

Decree 2046 of 2019 stipulates the incentives and benefits offered to BIC companies. These include a preferential portfolio of services in the field of industrial property that is offered by the Industry and Commerce Superintendency (SIC), preferential access to credit lines created by the Government to promote entrepreneurship, and special tax treatment for profits distributed through shares to workers of BIC companies (Article 2.2.1.15.2).

Both the law and the decree offer a series of advantages for entrepreneurs interested in creating better companies, among which the advantages stand out: (a) the possibility of increasing their reputation in the market, (b) the creation of a loyalty relationship with customers and suppliers, (c) the attraction of private investment, and access to economic or tax incentives from the Government, (d) the solution of possible conflicts that may arise with communities and the environment from business activity, and (e) the attraction of talented human resources.[38]

38 Colombia, *ABC Booklet on BIC Companies*.

Similarly, following the provisions of Law 1901 of 2018, the entity in charge of monitoring and inspecting BIC companies is the Superintendency of Companies. This government entity is fully empowered to request the loss of a company's BIC status and therefore the cancellation of the company's commercial register if it finds that the company or its administrators have failed to comply with the duties provided by law because the reports rendered by the BIC company have not been properly prepared or do not coincide with reality or because the company is not complying with the methodology provided in the standard or dimension in question (Decree 2046 of 2019, Article 2.2.1.15.11).[39]

4.7.3 MSMEs as BIC companies

Despite the relatively recent adoption of the legislation creating the basis for BIC companies and the difficulties Colombia has faced during the pandemic, there has been growing interest among enterprises in identifying themselves as BIC companies. Before August 2021, data show, the creation of BIC companies was concentrated in the microenterprise sector (table 4.2).[40]

By 27 August 2021, 617 companies had adopted BIC status. However, only 573 of these had maintained this status, 77% of which were microenterprises.

For entrepreneurs of different sectors of industry and commerce who have micro, small, medium-sized and large companies, registering their company as a "BIC company" offers a multiplicity of benefits such as "accessing preferential rates in industrial property services, obtaining tax benefits for distribution of shares between employees, access to preferential conditions in credit lines, preferential access to calls, among others".[41]

Table 4.2 Number of BIC-registered companies in Colombia before August 2021

Size	Number of companies
Large	18
Medium	30
Small	74
Micro	371
Total	493

39 Additionally, the Colombian Superintendence of Companies has resolved any doubts that may arise regarding the scope of the BIC dimensions or activities provided for in Law 1901 of 2018, as well as issuing the corresponding orders for BIC companies to adopt the necessary corrective measures for points of non-compliance that are not serious or recurrent and that do not entail fines (Decree 2046 of 2019, art. 2.2.1.15.11).

40 Data provided by CONFECAMARAS in response to the right to petition.

41 Colombia, Ministry of Commerce, Industry and Tourism, "¿Cuáles son los beneficios de ser una Sociedad BIC?", 18 March 2021.

4.7.4 Lessons learnt and the outlook for strengthening the implementation of the law on BIC companies

It has been suggested that future reforms of the law creating a legal basis for BIC companies may motivate the registering of a greater number of companies as BIC companies. The first way to do this is to strengthen the legislation's implementation through financial incentives.[42] At present, special tax treatment is provided in the case of "profits distributed through shares to workers". Such an incentive only applies to corporations, limited partnerships and the simplified joint-stock companies (*sociedades por acciones simplificada*), that is, companies whose capital is represented in shares.[43] Thus, access to special tax treatment could be expanded to collective companies, other types of limited partnerships, limited liability companies and sole proprietorships. As long as greater benefits to entrepreneurs are offered, especially at the level of tax exemptions and tax incentives, it can be foreseen that these incentives will foster greater adherence to companies like BIC companies. This balance of interests – particularly in the light of the impact of the pandemic on MSMEs – can indeed therefore be considered a driver of the integration of economic and sustainability objectives.

Second, the current legislation stipulates that only commercial companies can acquire the status of a BIC company.[44] It does not take into account that lucrative activities can also be carried out by individual entrepreneurs (such as merchants).

Third, the legislation sets out 15 goals of collective interest for BIC companies.[45] These goals are then grouped into five dimensions: (a) business model, (b) corporate governance, (c) labour practices, (d) environmental practices and (e) practices with the community.[46] Within the formalities of registering BIC status, the regulatory framework states that the company only needs to choose one of these 15 goals. In practice, this does not encourage the pursuit of the other goals. It also leaves open the possibility that a disproportionate number of registrations could be generated in some of the five dimensions.

For instance, as the law stands, a BIC company may develop good labour and community practices but at the same time ignore good environmental practices – as in the case of a company that hires workers historically discriminated against and recognizes fair wages but does not incorporate reforestation policies in its economic activity of producing wooden furniture. Vice versa, a company may carry out good environmental practices but have poor labour practices, such as non-compliance with minimum labour and social security obligations to its workers.

Fourth, although the legislation provides that BIC companies have the objective of "Creating options for workers to have participation in the company, through the acquisition of shares", it also is true that neither this law nor Decree 2046 provides legally binding rules on business co-management; they simply contain an invitation to

42 In tax matters, Article 2 of Law 1901 of 2018 indicates that "BIC companies will continue to be obliged to comply with the obligations of the ordinary income and complementary tax regime, the common regime on sales and other tax obligations of national, departmental and municipal order"; that is to say, BIC companies, in principle, should pay taxes like any commercial company, both nationally and territorially.

43 Note that in Colombia the corporations, limited partnerships and simplified joint-stock companies are fully empowered to establish a micro, small, medium-sized or large company.

44 Colombia, Law 1901 of 2018, art. 1.

45 Colombia, Law 1901 of 2018, art. 3.

46 Colombia, Decree 2046 of 2019, art. 1.

implement it. In this context it is useful to recall the French legislation incorporating *sociétés à mission*,[47] which provides for one or more representatives of the workers standing on a committee that verifies the fulfilment of one or more of the goals of a company with the status of *société à mission*.

Although the lessons describe above are based on a specific legal framework in Colombia, they are worth taking into consideration when preparing a legal basis for sustainable business models in other legal contexts. Ultimately, the creation of BIC companies in Colombia is responding to a paradigm change in the business world that is determining that a modern company should assume a more central role in sustainable development.

4.8 Conclusion

This chapter has outlined selected national legislation and offered key insights on sustainability practices identified in these countries' legal and policy framework that promote the greening of enterprises. This overview offers a basis for discussing related challenges and opportunities elsewhere.

In Colombia, the recent legislation promoting sustainable businesses is creating an enabling environment for enterprises to take a lead role in transforming their respective economies into sustainable ones. The South African legal framework introduces the protection of workers' rights in relation to the environment and makes this a principle of national environmental management – and thus an opportunity for enterprises to become sustainable through empowering their workers. Both the Republic of Korea and South Africa have made just transition concepts central to their sustainability commitment and to the new generation of legal and policy interventions addressing environmental degradation and climate change.

Kyrgyzstan and the United Arab Emirates present a legal and policy context with a strong commitment to environmental regulation and where processes are underway to tailor these commitments to the world of work. The Chinese legal and policy landscape provides a strong foundation for resource efficiency.

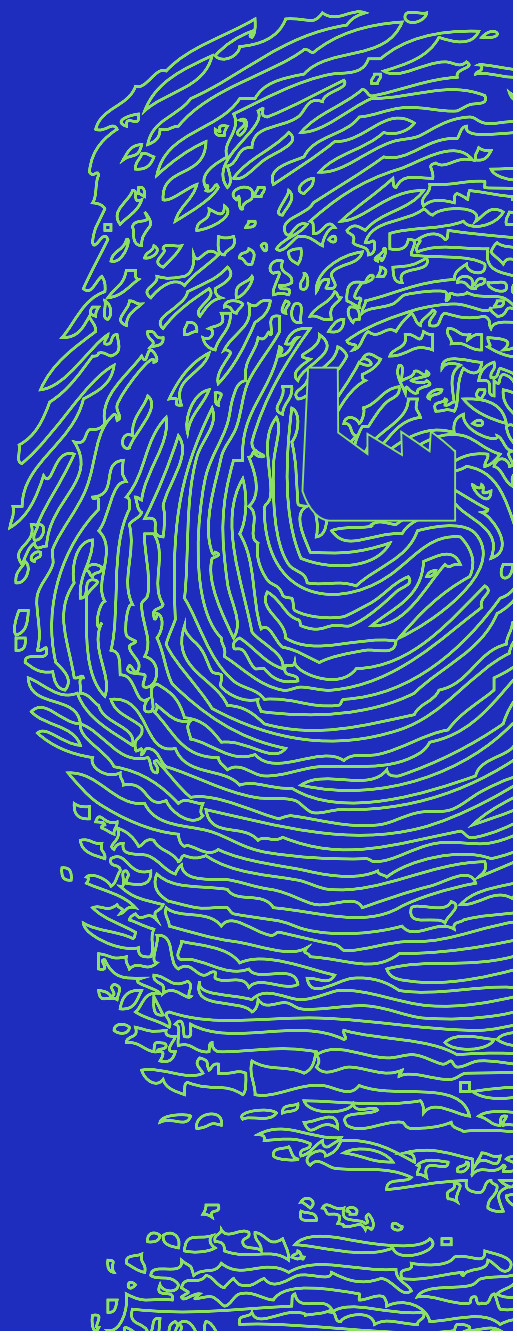
Even if no country discussed in this chapter has taken action in all the eight practice areas described in Chapter 3, each of these countries has, in various ways according to its national priorities, taken steps to address the environment in relation to the world of work. For example, whereas some countries have used enterprises as a vehicle to deliver on climate and environmental policies, others have used broad-based policies to lay the foundation for the greening of enterprises through a systematic approach to responsible consumption in society in general.

47 France, Plan d'action pour la croissance et la transformation des entreprises, 2019, art. 61.

V

A green recovery for MSMEs

Opportunities and challenges



Key findings

Although most of the MSMEs surveyed were not aware of the term "just transition" or of specific environmental and climate change mitigation policies, most enterprises reported being aware of the negative impact of climate change and acknowledged potential implications for their business.

The main drivers for adopting green measures relate to concerns that climate change has an impact on businesses, the reduction of costs, changes in demand from consumers and suppliers and incentives provided by the government. MSMEs responded that the major barriers related to a lack of financial resources, possibly owing to the lower productivity among MSMEs, as well as a lack of human resources and a lack of awareness of policies and technologies.

Most MSMEs are not aware of the different public policies and available incentives. They often find it too complicated and too time consuming to apply to support programmes.

Financial incentives and measures to create an enabling business environment are reported to be the most efficient measure to enhance energy efficiency and reduce waste.

There is great potential for employer and business membership organizations (EBMOs) to promote environmental sustainability. However, there are some limitations such as a lack of financial and human resources. The role of workers' organizations is weakly reflected because trade union presence is limited, as is social dialogue around environmental and sustainability issues.

As part of their responses to the COVID-19 pandemic, particularly to protect the health and safety of their staff or to reduce operational costs, some MSMEs undertook measures that have a positive impact on the environment, such as telework or energy efficiency measures. Results show that the post-COVID-19 recovery will require MSMEs to be more resilient to shocks, including climate change risks.

MSMEs reported that green finance was particularly needed for recovery from the pandemic. As part of the recovery package, some countries – in particular, South Africa – have implemented various measures that are having positive environmental results.

5.1 Introduction

The first four chapters of this report have laid out the conceptual framework, the legislative landscape for the greening of enterprises, the characteristics of green enterprises, and the legal framework for the greening of workplaces in six country case studies. A specifically enabling business environment for the greening of enterprises comprises: (a) a conducive legal framework and adequate policies and regulations, (b) social dialogue, (c) adequate access to green finance, (d) the adoption of new technologies, and skills development, (e) changes in culture and norms, and (f) a conducive business environment including higher productivity, cost reduction, and input security of raw materials (Chapter 1).

A range of tools are available to enable MSMEs to engage in the green transition; these relate to energy efficiency, waste management, green public procurement, sustainable business models, sustainable transport, working time and telecommuting arrangements, and environmental rights at work (Chapters 2 and 3).

Using responses from a qualitative survey conducted by the ILO between September and October 2021 among selected MSMEs and employer and business membership organizations (EBMOs) in Colombia, Kyrgyzstan, the Republic of Korea, and South Africa, this chapter analyses concrete examples of enterprises transitioning to more sustainable practices, as well as examples of enterprises that are not engaging in transition.[1]

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1 The national definitions of MSMEs in the four countries under study are listed in section 5.2.

Although the individual environmental footprint of MSMEs can be small relative to that of larger firms, their collective environmental impacts are substantial (see Chapter 1). MSMEs, taken together, are also a major employer. Most people work in enterprises with fewer than 50 workers.[2] However, much of the existing research on enterprise sustainability concentrates on large corporations. This is because of their individual environmental footprint in combination with the fact that an increasing number of such firms are producing significant GHG emissions. Data on MSMEs remain limited in developed countries and are non-existent in many developing countries.

A qualitative survey of MSMEs was carried out to learn from good practices and to understand the constraints on green transition in many MSMEs. Through case studies, the findings demonstrate whether the current regulatory environment and business climate may play any role in the uptake of green practices among the enterprises surveyed. The study also aims to provide a better understanding of the role of EBMOs in supporting the green transition of their members. Although the survey provides insightful examples of opportunities and challenges faced by MSMEs and EBMOs in their path towards environmental sustainability, it is not intended to report a representative sample of MSMEs in the countries studied.

Given the context of the climate crisis and global efforts to build back better and become more resilient after COVID-19, this chapter reviews the implications of the pandemic for the green transition of enterprises and EBMOs, together with the importance of the global call for a green recovery (ILO 2021a). The chapter also examines whether MSMEs are taking this opportunity to restructure, innovate, and adopt more sustainable ways of doing business, together with the challenges they face in a changing business environment.

The next section discusses the research questions and the methodology used to conduct the qualitative survey. Section 5.3 provides information on the economic and environmental context in the four countries under study. Section 5.4 shows the results of the qualitative assessment organized around five research questions. Based on the findings, the chapter concludes by providing policy recommendations of measures that MSMEs should consider to advance the uptake of green practices.

5.2 Research questions and methodology

5.2.1 Selection of countries and enterprises

The qualitative survey carried out for the purpose of this report aims to assess green transition at the workplace among MSMEs in Colombia, Kyrgyzstan, the Republic of Korea, and South Africa. These four countries were selected because they represent different regions of the world, various levels of economic development and diverse social and environmental contexts. Although the focus of the survey was on MSMEs, two large enterprises in South Africa were also included in order to better understand the influence that multinationals can have on small domestic suppliers. One large firm employing 260 employees was also surveyed in the Republic of Korea. Even though this figure exceeds the threshold of 250 employees, this firm falls into the

2 On average, 40 per cent of employment in high-income and upper-middle-income countries is in enterprises with less than 49 workers, whereas in low-income and lower-middle-income countries 80 per cent of employment is in self-employment and enterprises with fewer than 10 workers (ILO 2019).

Table 5.1 Summary of enterprises included in the qualitative survey

	Colombia	Kyrgyzstan	South Africa	Republic of Korea
Micro	0	1	1	2
Small	4	7	1	5
Medium-sized	6	2	7	2
Large	0	0	2	1
Total of enterprises	10	10	11	10
Total of EBMOs	4	3	5	3
Sectors covered	▸ Wholesale trade ▸ Manufacturing ▸ Food processing ▸ Construction ▸ Hotels, catering and tourism	▸ Manufacturing ▸ Food processing ▸ Renewable energy equipment and electric cars ▸ Hotels, catering and tourism	▸ Retail trade ▸ Food processing ▸ Construction	▸ Retail trade ▸ Manufacturing ▸ Food processing ▸ Construction ▸ Hotels

Note: In this table, enterprises are classified according to their size and using the most common definition, which distinguishes micro, small, medium-sized and large enterprises as firms with, respectively, less than 10, less than 50, less than 250 and more than 250 employees.

Source: ILO qualitative survey.

category of "medium-sized enterprise" according to the national definition based on the company's turnover (table 5.1).

In each of the four countries, 10 enterprises were selected for the qualitative survey, except in South Africa, where 11 enterprises participated. The enterprises were selected in consultation with EBMOs and with the objective of covering the sectors most vulnerable to climate change as well as most relevant for MSME development in each of the four countries. Thus, all 41 enterprises operate in sectors deemed crucial for the green transition in the respective country and in which the market penetration of MSMEs is high (table 5.1). The idea was to include MSMEs that are already engaged, to some extent, in the green transition but have not yet reached their full potential, as well as some enterprises not engaging in transition. The sample includes businesses with various degrees of formality or informality.

This qualitative survey aims to provide case studies describing the experiences of MSMEs on their path towards environmental sustainability. As it is based on a limited number of in-depth interviews, the sample is not intended to be fully representative of the sector, region or country under study. In Colombia three additional BIC companies were interviewed in order to better understand the role of sustainable business models (described in Chapter 2) in the green transition. The sectors selected for the survey and the reasons for selecting them are discussed in subsection 5.2.3.

In addition to the MSMEs, three or four EBMOs were interviewed in each country using an adjusted questionnaire with similar questions to those presented to the enterprises (table 5.1). In Kyrgyzstan, interviews were also carried out with specialists of specialized departments of several ministries, as well as with experts from international and professional organizations, on the implementation of the policy of transition to a green economy.

5.2.2 National definitions of MSMEs

The national surveys use national definitions to classify MSMEs. In most cases these definitions depend on the size of the labour force and the level of assets or annual turnover (see table 5.2). These definitions are crucial because they define enterprises' rights to specific support to make their business greener.

Table 5.2 Definition of MSMEs in Colombia, Kyrgyzstan, South Africa and the Republic of Korea

Country	National definition
Colombia[a]	MSMEs are classified based on the number of employees and total assets: ▸ Microenterprises are defined as those that have no more than 10 workers and whose assets are equivalent to less than 501 legal monthly minimum wages in force (*salario mínimo mensual legal vigente* [SMMLV]). ▸ Small companies have between 11 and 50 workers and total assets between 501 and 5,000 SMMLV. ▸ Medium-sized companies have between 51 and 200 workers and total assets between 5,001 and 15,000 SMMLV. ▸ Note that if the number of employees and the value of the assets belong to different categories, the value of the assets takes priority.
Kyrgyzstan[b]	MSMEs are defined according to the number of employees and the annual turnover, which differ for two groups of economic sectors (Group 1 and Group 2). The MSME sector includes individual entrepreneurs and peasant farms. ▸ Microenterprises have 1 to 15 employees and a turnover of less than 150,000 Kyrgyzstani som (Group 1) or 1 to 7 employees and a turnover of less than 230,000 som (Group 2). ▸ Small enterprises have 16 to 50 employees (Group 1) or 8 to 15 employees (Group 2) and a turnover of less than 500,000 som. ▸ Medium-sized enterprises have 51 to 200 employees (Group 1) or 16 to 50 employees (Group 2) and a turnover between 500,000 and 2 million som.
South Africa[c]	MSMEs are defined on the basis of revenue and employee thresholds that vary between sectors. Number of employees is categorized as micro (10 employees or less), small (11 to 50 employees) or medium-sized (51 to 250 employees). The thresholds of annual turnover used to categorize firms' size vary between sectors. For example, in wholesale, medium-sized enterprises are defined as having a turnover of up to 220 million South African rand, small up to 80 million rand, and micro up to 20 million rand. In agriculture, the corresponding thresholds are 35 million, 17 million and 7 million rand, respectively.
Republic of Korea[d]	MSMEs are classified on the basis of thresholds set out for three-year average sales and vary by sector. For example, in the food-manufacturing sector, small enterprises are defined as ones having average sales of 12 billion won or less, whereas the upper limit for medium-sized enterprises is 100 billion won. The corresponding thresholds in textile manufacturing are 12 billion and 150 billion won, respectively.

[a] Government of the Republic of Colombia, Law 590 of 2000, art. 2. [b] Government of Kyrgyzstan, Decree No. 590, 29 August 2002. [c] The updated definition and revised schedule for different schedules can be accessed at https://www.gov.za/sites/default/files/gcis_document/201903/423041gon399.pdf. [d] Government of the Republic of Korea, Presidential Decree No. 19189, 27 December 2005.

5.2.3 Priority sectors for the green transition in Colombia, Kyrgyzstan, the Republic of Korea and South Africa

Much work to develop environmental, economic and social policy has shown that it is essential to promote change at the sectoral level with all relevant stakeholders, including the social partners (IDB and ILO 2020). A sectoral and participatory approach will allow all stakeholders to anticipate the impact of climate change strategies on economic activity and jobs and ensure a just transition both in the subsectors that need to be downsized and in those with the potential for job creation.

Priority sectors were selected for the qualitative studies on the basis of (a) the dominance of MSMEs in the sector, (b) their significant role in the green transition, globally and in the four countries, and (c) other aspects of the labour market, such as the labour intensity of firms and the degree of formality.

The selected sectors are labour-intensive ones with a high density of microenterprises and own-account workers, which tend to be low-productivity economic units. This has important implications for MSMEs' ability to participate in the green transition. The sectors in question, which are discussed in more detail below, include retail, food processing, construction, and hospitality and tourism.

Retail sector

A large proportion of MSMEs operate in the retail sector (OECD 2018). Often retailers are self-employed and have only one store. As a result, own-account workers and microenterprises represent around 70 per cent of global employment in retail (ILO 2020a). The industry is a huge employer, accounting for the largest share of employment in many countries.[3] Retail has traditionally served as an effective entry point into the labour market, particularly for people seeking flexible hours and labour conditions (ILO 2015a). It is also a common entry point into the labour market for low- and middle-skilled workers and migrant workers and their family.

The retail sector can have significant influence on various levels of value chains, including the buying decisions of consumers, as well as on the environmental sustainability of suppliers. As retailers are also responsible for the disposal and recycling of goods packaging, they can play a key role in responding to environmental sustainability issues.

Sustainability issues in retail have received relatively little attention compared with that in other sectors such as energy, construction, manufacturing and transport. One difficulty is the multiplicity of entrepreneurs and the small size of most firms. The low level of productivity and organization of the sector may also have important implications for MSMEs' ability to participate in the green transition. There remains a critical lack of information on retail sustainability in developing countries and among MSMEs in both developing and developed countries.

3 For instance, in 2013 retail provided close to 19.3 million jobs in the EU-28, and women accounted for 62 per cent of workers in this sector. In the United States, retail employed 13.5 per cent of non-farm workers in 2014; in Australia, retail was the second-highest-employing industry, accounting for 10.5 per cent of the entire workforce. Estimates are summarized in ILO (2015a).

Food processing

The food and beverage sector comprises a large number of MSMEs active at various levels of the value chain, from supplying organic agriculture products to distributing food with eco-friendly packaging. The sector continues to expand in response to the growing global demand for processed food and drink. In 2008, the food- and drink-manufacturing sector employed more than 22 million workers worldwide (ILO n.d.). This figure would be larger if all jobs throughout the entire food production system were counted. In Kyrgyzstan, for example, among the subsectors of manufacturing, the food and beverage industry generates the greatest employment (PAGE 2019). Women have a large share of employment in the sector, and they also take most of the food-purchasing decisions for their families.

The sector has also been associated with various environmental issues, including carbon emissions, water consumption, and packaging. Food processing accounts for up to 30 per cent of food-related GHG emissions and 25 per cent of worldwide water consumption (Sovacool et al. 2021). Packaging is responsible for a non-negligible share of the food sector's emissions, and plastic packaging is little recycled and contributes to pollution that has a severe impact on wildlife in both aquatic and terrestrial environments.

The greening potential of the food- and beverage-manufacturing industry remains substantial. MSMEs in the global supply chains receive pressure from their clients to meet environmental sustainability standards. In the domestic market, where such pressures don't exist, MSMEs may lack the technical and financial capacity to introduce more sustainable practices. Yet they could do much by reducing waste, recycling water and adopting green processes.

The diversification of suppliers towards local suppliers and indigenous peoples can also be a promising avenue and can contribute to local development and food security. Moreover, organic or environmentally friendly food processing offers new business opportunities. The increasing demand for organic products has stimulated growth in the organic sector, which accounted for at least 3.1 million organic producers globally in 2019 (Willer et al. 2021).

Construction

Construction is a major sector found in virtually all economies, irrespective of their development level. The construction sector is a major employer both directly and also indirectly through the provision of construction-related services and the supply of materials and inputs (ILO 2015b). Construction workers represent between 5 and 10 per cent of total employment in industrialized countries and an increasing proportion in many developing countries. Construction is also a sector with a significant share of MSMEs and self-employed workers.[4] Jobs in the sector tend to be low skilled and an entry point to the labour market for many young and migrant workers. These jobs are also more often characterized by unsafe work environments and poor working conditions.

Construction is important for the green transition. Together, buildings and construction are responsible for 39 per cent of all the world's carbon emissions (Global Alliance for Buildings and Construction, IEA and UNEP 2019). Operational emissions (from

4 For example, in Colombia SMEs account for 6 per cent of employment in construction. In Argentina 9 per cent of SMEs can be found in the construction sector.

energy used to heat, cool and light buildings) account for 28 per cent. The remaining 11 per cent comes from embodied carbon emissions or "upfront" carbon that is associated with materials and construction processes throughout the building life cycle (World Green Building Council 2019). Moreover, the greening of construction can go hand in hand with a safe and healthy environment and higher wages, involving, for example, well-conceived training and formalization programmes (ILO 2015b).

Environmental sustainability in the construction sector entails several challenges, including a shortage of professionals with green skills (United Kingdom, DBIS 2013) and a shortage of green suppliers (Shi et al. 2013), as well as a lack of engagement from some of the many different professionals who will intervene at some point in a project (Balasubramanian and Shukla 2017).

Hotels, catering and tourism

The tourist industry is a major engine of economic growth, job generation and local development in many developing countries. It accounts for 10 per cent of global employment (WTTC 2019) and is responsible for around 8 per cent of global GHG emissions (6 per cent coming from lodging) (Lenzen et al. 2018). Although tourism can help to reduce poverty and inequality (World Tourism Organization and United Nations Development Programme 2017), the COVID-19 pandemic has had a devastating impact on tourist enterprises; millions of jobs have been lost as a result of travel restrictions. The sector's MSMEs, own-account workers, women and young people were among the hardest hit by hotel and resort closures (ILO 2020b).

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Ecotourism is a growth opportunity for many enterprises in the sector. Large corporations leading the industry have made commitments to environmental sustainability.[5] Some common practices to make tourist sector MSMEs greener include energy efficiency measures, renewable energy, minimizing water consumption, limiting the changing of linen and towels, waste management and waste reduction, and increased use of local produce (Abdou, Hassan and El Dief 2020). Local tourism can also minimize the detrimental effects on the environment that are generated by long-haul tourism.

In principle, a minimum of two enterprises were to be selected for each of the three sectors: (a) hotels, catering and tourism, (b) food processing and (c) manufacturing. However, in practice, the sectoral distribution of the chosen enterprises varies by country, since the selection of enterprises was subject to consultation with EBMOs and aimed to give attention to the sectors most relevant to each of the four countries.

5.2.4 Research questions

The main focus of the surveys was on enterprises with some capacity to be strategic and anticipate what green transition would mean for their business strategy. This implies that the selected enterprises should include businesses that were already engaged, to some extent, in the green transition but had not yet reached their full potential, as well as some enterprises that were not engaged in the transition.

The overall goal of the exercise was to better understand the factors that prevented enterprises from entering more fully into the green transition. The chapter relies on qualitative surveys both of enterprises and of EBMOs regarding their awareness of the issues of just transition and the kind of enabling environment that is conducive to the greening of MSMEs. In particular, the surveys addressed the following research questions:

1. What does the green transition mean for the enterprises surveyed – particularly MSMEs – in developing countries?
2. What are the drivers of and barriers to these MSMEs adopting green practices at the workplace?
3. What are the roles of the regulatory environment, business climate, economic policies and incentives faced by the MSMEs surveyed?
4. What are the roles of workers' and employers' organizations in promoting environmental sustainability?
5. In the context of the pandemic and the global call for a green recovery, how do these MSMEs view this opportunity to restructure, innovate, and adopt more sustainable ways of doing business?

After we have provided information on the economic and environmental context in the four countries, the five questions above are discussed, in turn, in section 5.4 alongside concrete examples drawn from the survey responses.

5 For example, Marriott International aims, by 2025 relative to a 2016 baseline, to reduce water intensity (per occupied room) by 15 per cent, carbon intensity (tonnes of carbon dioxide per square metre) by 30 per cent and waste to landfill by 45 per cent, and to achieve at least 30 per cent use of renewable electricity (Marriott International 2021).

5.3 Context of the green transition in Colombia, Kyrgyzstan, the Republic of Korea and South Africa

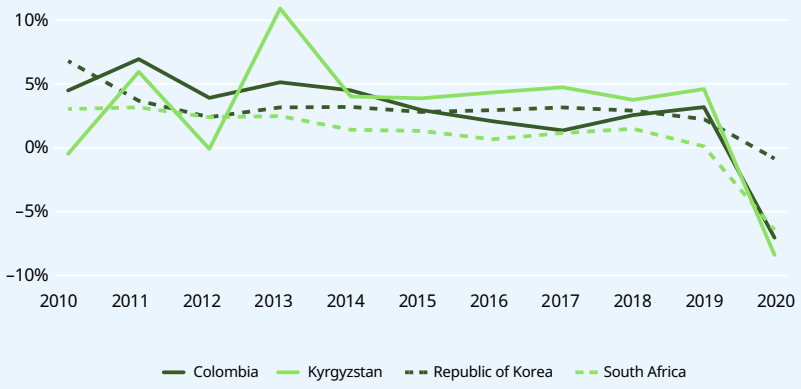
5.3.1 Economic and labour market contexts

The four countries selected for the survey are characterized by different levels of economic development. Whereas Colombia and South Africa belong to the upper-middle-income group of countries, Kyrgyzstan and the Republic of Korea fall into, respectively, the lower-middle-income and high-income groups. Kyrgyzstan and the Republic of Korea saw an annual average GDP growth rate of 3 per cent over the ten-year period 2010–20, while economic growth in South Africa was less than 1 per cent on average over the same period (figure 5.1). All the countries saw negative growth during 2019 and 2020, which reflected the impact of the pandemic.

A common feature observed in these four countries relates to the important role of MSMEs in employment creation. Figure 5.2 shows the distribution of workers across the various sizes of enterprises in each country and disaggregated for men and women. Using national labour force surveys, the employment data are broken down into the self-employed and three different categories of firm size comprising microenterprises (2–9 employees), small enterprises (10–49 employees) and medium-sized and large enterprises (50 or more employees). Because of the considerable divergence in the way that different countries report employment distribution, for comparability purposes medium-sized and large enterprises had to be grouped into a single category. Nevertheless, figure 5.2 shows that in the four countries individual entrepreneurs and micro and small businesses account for the large majority of employment.

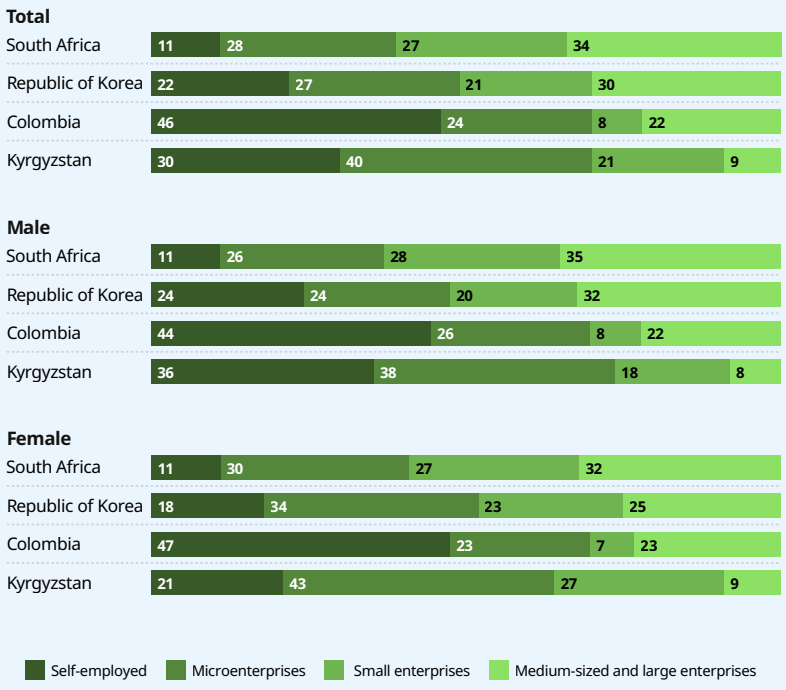
In Kyrgyzstan, individual entrepreneurs and micro and small businesses account for around 91 per cent of total employment (figure 5.2). According to the National

Figure 5.1 GDP growth (percentage) of the four countries surveyed, 2010–20



Source: ILO calculation based on World Development Indicators (2022).

Figure 5.2 Employment share of the self-employed and different categories of firm size, by country, 2019 (percentage)



Source: ILO calculation based on the Korean Labor & Income Panel Study (KLIPS) 2019 for the Republic of Korea, Gran Encuesta Integrada de Hogares (GEIH) 2019 for Colombia, Labour Force Survey (LFS) 2019 for Kyrgyzstan, and Quarterly Labour Force Survey (QLFS) 2019 for South Africa.

Statistical Committee of the Kyrgyz Republic (n.d.), in 2019, MSMEs contributed 42.8 per cent of GDP. During the past decade, the number of MSMEs has grown on average by 5.8 per cent annually, mainly owing to the increasing number of individual entrepreneurs. The main barriers that constrain MSME growth in Kyrgyzstan include: (a) poor access to financial resources, (b) absence of targeted programmes supporting MSME development, and (c) limited access to quality infrastructure, including transport (Hasanova 2019). On the institutional side, enterprises also reported that cumbersome administration, including tax administration, was a major obstacle to their growth (box 5.1)

In Colombia, the self-employed and micro and small enterprises account for 78 per cent of total employment. Figure 5.2 shows that self-employment accounts for almost half of the total employment. The distribution between genders appears to be fairly similar.

In the Republic of Korea, businesses employing 50 people or less account for 70 per

Box 5.1 Electricity shortages and other challenges to doing business in Kyrgyzstan

Kyrgyzstan's heavy reliance on hydropower has posed challenge to the business sector, especially with regard to electricity shortages. Of the 300 enterprises surveyed in 2016 on factors that affect business development and job creation, 88 per cent said that power outages are a significant issue for the private sector and are disruptive of the firm's operations and 73.6 per cent confirmed that power outages cause damage to electronic equipment, such as computers, resulting in significant expenses. Enterprises also reported that the overlapping competences of regulatory bodies (agencies, inspections) were an obstacle to business development in Kyrgyzstan. The levels of taxes and tax bureaucracy and sometimes corruption also compromised the business environment.

Source: Adapted from ILO (2016).

cent of the total employment. They account for 68 per cent of men's employment and 75 per cent of women's (figure 5.2). In the Republic of Korea, also, according to the Ministry of SMEs and Start-ups (2021), SMEs dominate certain economic sectors, such as services, construction and manufacturing.

In South Africa, as in the Republic of Korea, the self-employed and micro and small enterprises account for a larger share of employment among women than among men. They account for 68 per cent of the total employment of women and 65 per cent of the total employment of men (figure 5.2). In South Africa, the development of SMEs is seen as key to reducing the high and persistent unemployment among youth and to improving black empowerment. The National Development Plan aims to create 11 million jobs through SMEs by 2030 (Republic of South Africa, National Planning Commission 2011). Between 2013 and 2019, there was an increase in small businesses' share of the total turnover. In 2013, small businesses generated 16 per cent of total turnover in the formal business sector; this expanded to 22 per cent in 2019 (Statistics South Africa 2019).

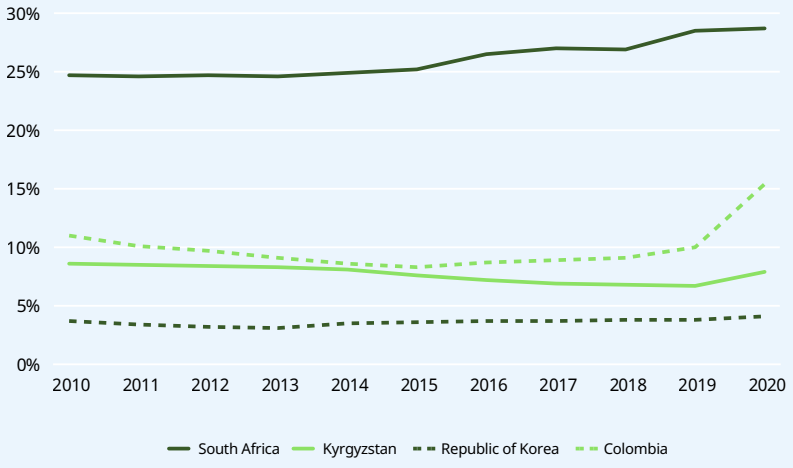
Despite their significant economic contribution, MSMEs around the world continue to lag behind large firms in terms of labour productivity and working conditions (ILO 2015c). Evidence suggests that in most countries labour productivity gaps between micro, small and medium-sized firms, on the one hand, and large firms, on the other, are quite high and vary across regions and sectors.

Despite their significant economic contribution, MSMEs around the world continue to lag behind large firms in terms of labour productivity and working conditions.

A recent analysis of a subset of OECD countries shows that the labour productivity levels of micro, small and medium-sized enterprises in manufacturing are, respectively, 37 per cent, 62 per cent and 75 per cent of those of large companies (OECD et al. 2020; ILO 2015c). For instance, in the manufacturing sector in the Republic of Korea the average productivity of small and medium-sized enterprises stands at 27.1 per cent and 40.8 per cent, respectively, of that of large firms (OECD 2019a). In developing countries, the dispersion of productivity across enterprises is further widened by the presence of a large segment of informal enterprises (ILO 2015c). Therefore, supporting MSMEs to raise productivity is a precondition to enable such economic units to become profitable, to invest in skills development and clean technologies, to raise wages or to invest in R&D. It is therefore important to provide an environment enabling sustainable businesses to engage in a just transition (see Chapter 1). Evidence also shows that a just transition towards an environmentally sustainable economy could narrow these productivity gaps by improving skills development and occupational safety and health and bringing more decent job opportunities as well as investment in R&D (ILO 2018; GGGI 2015).

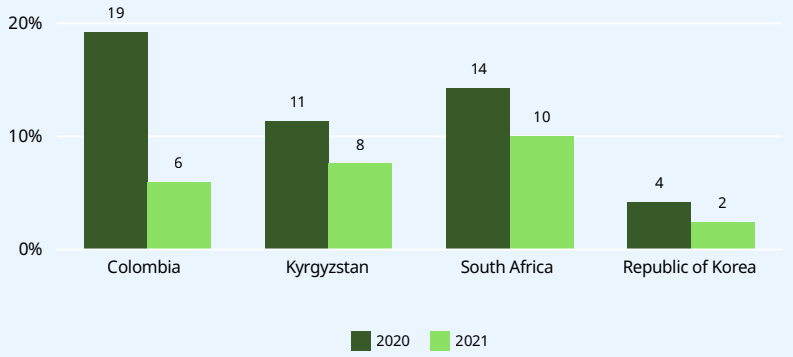
In the Republic of Korea, for example, green SMEs were found to have greater interest in undertaking R&D activities than were SMEs in general. During the period 2005–07, 22 per cent of green SMEs invested in R&D, whereas general SMEs accounted for 9.4 per

Figure 5.3 Unemployment rate in the four countries, 2010–20 (percentage)



Source: ILO calculation based on ILOSTAT.

Figure 5.4 Working hours lost to COVID-19 in Colombia and South Africa, 2020–21 (percentage)



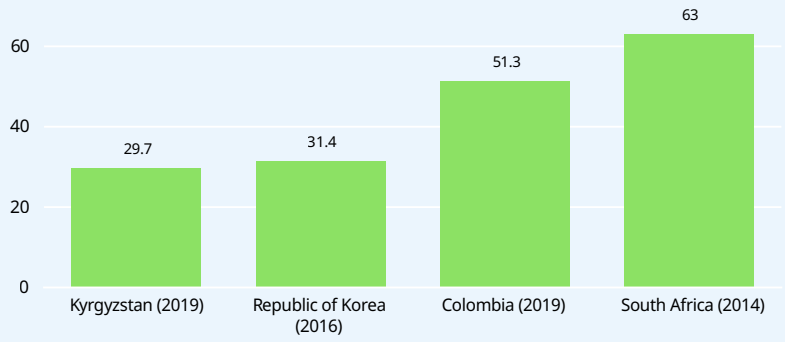
Source: ILO calculation based on ILOSTAT.

cent (GGGI 2015).[6] Green SMEs were also found to be more labour intensive than general SMEs: job creation per unit of production was estimated to be 12.9 to 13.3 jobs per 1 billion won for green SMEs, whereas that of SMEs in general was 9.2.

The pandemic saw an increase in unemployment in all four countries (figure 5.3). South Africa tops the list with an unemployment rate of 28.7 per cent in 2020. The unemployment rate in Colombia increased from 10 per cent in 2019 to 15.4 per cent in 2020. Consistent with the rise in unemployment, working hours lost because of COVID-19 were 19 per cent in Colombia and 14 per cent in South Africa (figure 5.4).

6 In the Republic of Korea, green SMEs are defined as those that are striving to improve energy efficiency, reduce GHG emissions and minimize environmental impacts in the process of manufacturing goods and providing services, and/or are practising green management.

Figure 5.5 Gini coefficient in the four countries, latest available year



Source: World Bank data.

Persistently high unemployment is contributing to poverty and inequality across the world and in particular in South Africa and Colombia (figure 5.5). In South Africa, the legacy of exclusion created under apartheid has continued to exacerbate extreme levels of inequality (IFC 2019).[7] In Colombia, the high levels of inequality, poverty and corruption have spurred demonstrations and protests across the country. The levels of inequality, poverty and unemployment and the status of education and skills development require that green transition be far more inclusive of workers, communities, the informal sector and broader society to ensure that these inequalities are not further entrenched.

5.3.2 Environmental context and environmental impacts on MSMEs

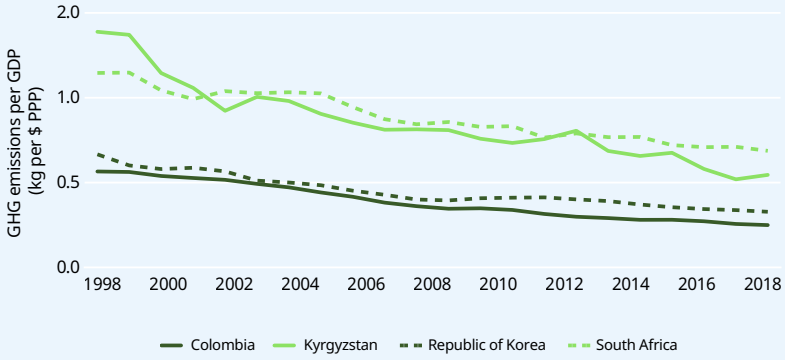
Over the past 20 years, the four countries have seen a relative decoupling of their economies from GHG emissions, with GDP growth higher than that of GHG emissions. Although their total GHG emissions continued to rise, they produced less GHG per unit of output (emission intensity of GDP) in 2018 than in 1998 (figure 5.6). This relative decoupling trend demonstrates that they can reduce GHG emissions while growing the economy.

Observation of the energy mix provides a better understanding of the constraints that enterprises face in ensuring a sustainable energy supply (figure 5.7). Oil, gas and hydropower account for a large share of energy consumption in Colombia, while the Republic of Korea's energy consumption is sourced primarily from oil, coal and nuclear power.

In South Africa, one of the most coal-dependent countries in the world, 70 per cent of energy consumption comes from coal. Kyrgyzstan is a country with plentiful water resources, and hydropower accounts for more than 90 per cent of total electricity

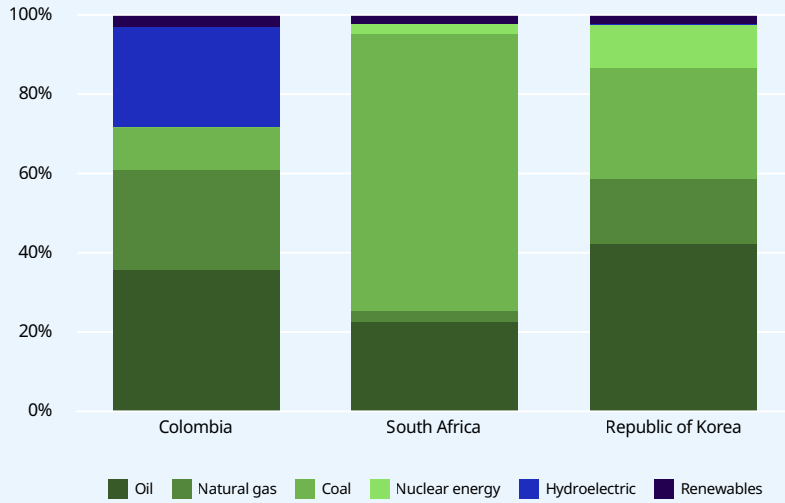
7 Although political power in South Africa has shifted to the majority population since the introduction of a democratic state in 1994, economic power remains largely in the hands of the minority white population who continue to dominate the ownership and management of larger enterprises. They own much of the country's resources and therefore influence ownership and control patterns over supply chains and value chains across many sectors (Southall 2019).

Figure 5.6 GHG emissions per GDP in the four countries, 1998–2018 (kg per $ purchasing power parity [PPP])



Source: ILO calculation based on World Development Indicators (2021).

Figure 5.7 Distribution of primary energy consumption in Colombia, South Africa and the Republic of Korea, 2019 (percentage)



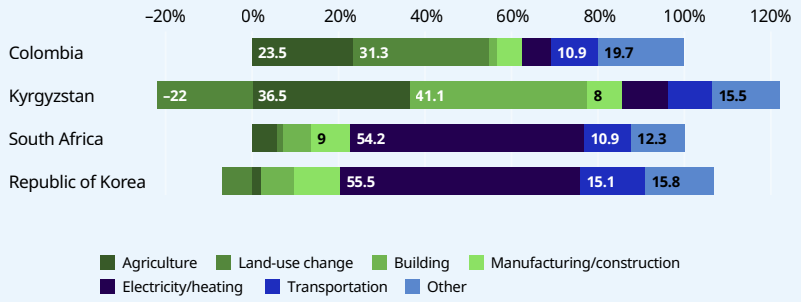
Note: Data are not available for Kyrgyzstan.

Source: ILO calculation based on BP Statistical Review of World Energy (2021).

generation (OECD 2019b). However, seasonal effects, especially during the winter months, and years of lower rainfall bring a high dependence on oil and gas imports from Tajikistan and Kazakhstan. This can make businesses vulnerable to external shocks – for example, surges in electricity prices or electricity shortages (see box 5.1).

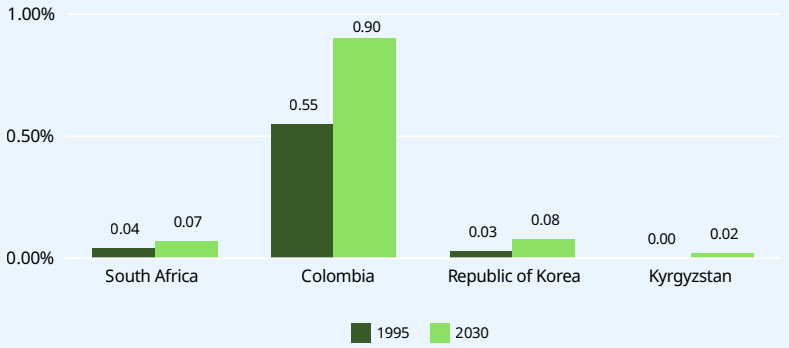
The four countries also differ significantly in terms of the sectoral profile of GHG emissions (figure 5.8). Electricity and heating account for more than half of GHG emissions in the Republic of Korea and in South Africa, whereas agriculture and land-use change produce almost 60 per cent of emissions in Colombia. In Kyrgyzstan, the agriculture and building sectors combined produce almost 80 per cent of total GHG emissions, while land-use change absorbs 22 per cent of the emissions.

Figure 5.8 GHG emissions by sector in the four countries, 2018 (percentage)



Source: ILO calculation based on CAIT Climate Data Explorer, https://www.climatewatchdata.org/data-explorer/historical-emissions?page=1.

Figure 5.9 Working time lost because of heat stress in the four countries, 1995 and projected for 2030 (percentage)



Source: Kjellstrom et al. (2019).

Together, climate change and environmental degradation have taken a toll on economy and society. Situations in which it is too hot to work or at least too hot to work at normal intensity, a phenomenon called "heat stress", are going to become increasingly common, endangering the safety of workers, notably outdoor workers and those performing physical tasks, and reducing the ability of businesses to operate during the hottest hours. South Africa has recognized the challenge of heat stress, especially for rural and outdoor workers (including a large proportion of women), who are the most exposed to extreme temperatures that can lead to adverse effects such as heat stroke (Republic of South Africa 2021). Heat stress is reducing labour productivity in all four countries, especially Colombia, and the productivity loss is expected to increase over time, reaching 1 per cent for Colombia by 2030 relative to a situation with no heat stress (figure 5.9).

The frequency and intensity of extreme weather events and natural disasters have increased because

The frequency and intensity of extreme weather events and natural disasters has increased because of climate change and other forms of environmental degradation.

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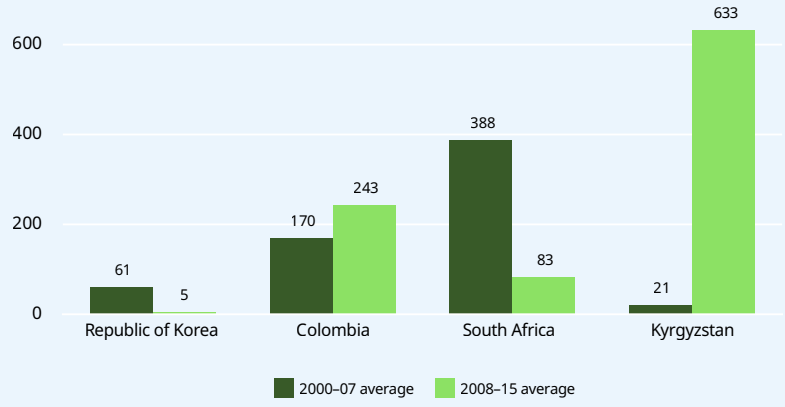
of climate change and other forms of environmental degradation (IPCC 2014). Extreme events take their toll on business activities by damaging properties and transport infrastructure, disrupting supply chains and reducing consumer demand. A common way of measuring the impact of natural disasters on societies is to estimate the damage in terms of working life years (figure 5.10).

Figure 5.10 Working life years lost owing to disasters in the four countries, 2000–15



Source: ILO (2018).

Between 2008 and 2015, Kyrgyzstan saw a significant increase in working life years lost owing to natural disasters compared with the period 2000–07.[8] Prolonged droughts during 2008–15 also affected the country's small and medium-sized farms.

5.4 Results

This section reviews the results from the qualitative survey conducted in Colombia, Kyrgyzstan, the Republic of Korea, and South Africa. It is structured around five research questions that investigate (a) the meaning of green transition for the enterprises surveyed, (b) the drivers and barriers that MSMEs face when implementing green practices, (c) the roles of the regulatory environment, business climate, economic policies, and incentives, (d) the roles of workers' and employers' organizations in promoting environmental sustainability, and (e) the impact of the pandemic, including the global call for a green recovery.

5.4.1 What does green transition mean for the MSMEs surveyed?

Among all the enterprises surveyed in the four countries, almost none was familiar with the term "just transition"; all tended to view green transition primarily through an environmental lens with little regard for the involvement and interests of employees and the social aspect of the transition. Exceptions can be found in Kyrgyzstan and in Colombia: in Kyrgyzstan some enterprises learned about just transition through their participation in fashion industry activities where information about greening was provided; and in Colombia the three BIC companies interviewed are examples of enterprises that fully understand what a just transition entails.

Most of the respondents were not aware of specific environmental or climate change mitigation policies and the implications for their business. In South Africa, the introduction of the carbon tax seemed to be the most recognized policy among surveyed firms in the construction sector and was seen as a threat to their business viability. In Kyrgyzstan, MSMEs and representatives of business associations seemed uninformed about current government policy on the green transition, only two out of ten MSMEs mentioning the impacts of climate policies on MSMEs. In this context, improved consultation with social partners might increase the information available to workers and employers. The two enterprises that mentioned the impacts of climate policies were (a) a small enterprise of 15 employees that supplies electric vehicles, which mentioned green finance through subsidies, and (b) a small meat-processing enterprise with ten employees, which mentioned green legislation stipulating that butcher shops should be located far from waterbodies.

Nonetheless, responses across the four countries suggest that MSMEs in economically advanced countries are more informed about general climate policy at both

8 The estimates of working life years are based on Noy's (2014) estimates for total life years lost owing to disasters, with adjustments for retirement age and the employment-to-population ratio. The estimates take into consideration casualties, persons affected and damage caused by weather events (storms, fog, extreme temperatures), hydrological events (floods, landslides, wave action), climate events (drought, glacial lake outbursts, wildfires) and biological events (insect infestations). Estimates do not include casualties, persons affected or damage caused by geophysical events (earthquakes, volcanic activity), biological events (viral, bacterial, parasitic and fungal epidemics, prion diseases, animal-related accidents), extraterrestrial events (impacts, space weather) or certain technological threats (transport accidents).

Although most of the MSMEs surveyed were not aware of the term "just transition" or of specific environmental policies, most enterprises reported being aware of the negative impact of climate change.

the national and the global level. In the Republic of Korea, several MSMEs were aware of laws or policies relating to climate change and/or the environment that might have an impact on their business. A microenterprise with three employees in the liquefied petroleum gas (LPG) retail industry was aware of the provincial government's net zero emissions target and the plan to supply new and renewable energy equipment and electric motor vehicles. The enterprise understood that the energy transition would lead to a sharp decline in LPG sales and that the whole industry should be prepared with strategies to secure its sustainability in accordance with environmental policies.

Two other SMEs in the country's manufacturing sectors were aware of specific environmental policies. One, a small enterprise, knew about renewable energy subsidies provided by the government and was considering installing solar power facilities. The other, a medium-sized enterprise, foresaw increased fossil fuel prices and more stringent enforcement of the emissions-trading scheme. These two manufacturing enterprises export to the international market.

Although most of the MSMEs surveyed were not aware of the term "just transition" or of specific environmental policies, most enterprises reported being aware of the negative impact of climate change and acknowledged potential implications for their business. In South Africa, most of the enterprises surveyed had already experienced droughts, flooding and higher temperatures. For example, an owner of a meat- and wool-producing microenterprise that employs eight workers reported that his crop had been almost completely destroyed in 2019 by a tornado and in 2020 by flooding. In the Republic of Korea, seven out of the ten MSMEs surveyed and all three EBMOs indicated that climate change had affected their business or would do so over the next five years; they noted that increasing heatwaves posed major risks. In Kyrgyzstan, the MSMEs expressed their concern about droughts, floods, rising or fluctuating temperatures, air pollution and pasture degradation. In Colombia, most of the MSMEs surveyed were aware of the effects of climate change; droughts and floods were most frequently mentioned, followed by higher temperatures, air pollution and biodiversity loss.

In managing the impacts of climate change and mitigating environmental risks, these enterprises have been trying to conserve the use of water, invest in energy-efficient equipment and invest in solar energy and waste reduction strategies. These are common practices that many of the surveyed enterprises have already adopted or are planning to adopt in the near future.

In South Africa, for example, three clay brick manufacturers in the construction sector reported that they were especially impacted upon by droughts owing to their high consumption of water. This has prompted these firms to conserve water and use recycled

Box 5.2 An MSME in Kyrgyzstan taking action to respond to climate change

In Kyrgyzstan, the manager of a 30-worker honey-processing enterprise reflects on its recognition of climate change impact:

> The honey-harvesting season used to start at the end of April, in May. Now, owing to climate change, because of the cold weather the season starts later. Accordingly, the collection of honey is less in volume ... Excessive rainfall affects the grass, as does drought. There were abundant rains, precipitation once, and bees did not fly away during this period.

The enterprise is also aware of the business opportunities arising from the green transition. In particular, the global demand for organic products is helping to increase the demand for their product. The enterprise needs to increase supply accordingly. One of the strategic changes on the table is relocation to expand production. The owner also recognizes that greening the business will promote an image of the enterprise as producing eco and bio products.

water. Other MSMEs see business opportunities in the green transition (see box 5.2).

In some cases, in smaller firms, the level of adoption of environmental measures remains limited even where the owner or manager is highly aware of the need to address environmental issues. For instance, the owner of a medium-sized farmers' cooperative with 134 employees, located in the Eastern Cape and providing services (animal feed, farming equipment, crop chemicals, market access) to micro and small farmers, said that farmers had started to feel the stress of climate change through droughts, floods and rising temperatures and that more members were adopting organic farming methods and requiring support in water harvesting to combat droughts. The cooperative understood the need to educate small farmers on managing chemical waste more effectively and to support farmers in sustainable practices such as recycling and sustainable packaging. However, financial constraints were hindering the implementation of such measures.

Besides the negative impact of climate change on their business, the increased public attention to the climate crisis means that some enterprises expect environmental issues to affect their market by changing consumer demand, and other enterprises expect that changes in public procurement and suppliers' business will affect their business.

Many firms have identified business opportunities relating to climate change and to implementing green initiatives. For example, in Kyrgyzstan the Clean Air Amendments and Tax Administration Improvement Act was passed in August 2020, providing tax incentives for electric vehicles.[9] The incentives contributed to the emergence and development of MSMEs in this industry, among which a small enterprise distributing electric cars was created in 2020 to serve the domestic market. Another example, in Colombia, of an enterprise taking advantage of the green transition is illustrated in box 5.3.

Box 5.3 Greening a medium-sized food-processing enterprise in Colombia

A medium-sized enterprise in the food-processing sector in Colombia has adopted a variety of green practices in its business. The enterprise has been producing, distributing and marketing food on an industrial and national scale in the dairy, frozen and ready meals categories for 15 years. It currently sustains about 74 jobs, of which 24 per cent are filled by women, and is located in Valle del Cauca. Its business strategy is based on the mechanization of processes. The company has a wide portfolio of products and the ability to adapt to customer needs in order to supply high-quality food to high safety standards.

By 2025 the enterprise plans to have become a mass consumption food company that participates in all marketing channels and is nationally recognized in the dairy, frozen and ready meals categories, with international sales of frozen foods and products with a long shelf life. In this vision, it wishes to guarantee to consumers – by means of trained workers and innovation – nutritionally balanced food, timeliness and increased coverage of distribution, and quality and safety, as well as to exercise social and environmental responsibility.

The enterprise has secured a variety of certifications, including ISO 9001 version 2015, ISO 14001 version 2015, OHSAS (Occupational Health and Safety Assessment Series) 18001 version 2007, Hazard Analysis and Critical Control Points (HACCP) and Good Manufacturing Practices (GMP). It has registered with the United States Food and Drug Administration and as a supplier of the United Nations Global Marketplace (UNGM) and is also qualified as a supplier of the World Food Programme in Colombia. It is one of the few Colombian companies in the food sector that has the authorization of the Government of Mexico to export dairy products to that country.

The company has a corporate social responsibility policy committing it to creating value for its different stakeholders. The enterprise is committed to taking measures to prevent occupational accidents and illnesses. And the corporate social responsibility policy promotes efficient management of natural resources, and awareness about the protection of the environment at all levels of the company as well as among clients and contractors.

On the whole, this enterprise has adapted to the green transition in the food sector by adopting frontier technology together with international certifications. This has brought it new opportunities to compete in the market and, the owner reports, better working conditions for employees.

9 In particular, vehicles propelled only by an electric motor are exempted from Group 4 property tax. In addition, the delivery of vehicles powered only by an electric motor and produced in Kyrgyzstan and the import of vehicles powered only by an electric motor and of equipment for charging them are exempted from VAT. http://cbd.minjust.gov.kg/act/view/ru-ru/112068?cl=ru-ru.

In Colombia, the three BIC companies interviewed are examples of enterprises that fully understand that green transition implies the transformation of production models through the implementation of sustainable production systems, which may include energy efficiency, renewable energy, soil recovery, reforestation programmes, water treatment, adequate handling of solid waste, training employees on sustainability and environmental care, and the measurement of carbon footprint. Such a transition is a step towards "triple impact" business models – that is, business models that are not limited to maintaining profitability but also promote social development and environmental sustainability. By their promotion of sustainability, these companies serve as an example to other companies and organizations. Beyond the maximization of profits, they believe that environmental sustainability is a key objective and are strongly committed to mitigating the impacts of climate change. They are companies that communicate their commitments continuously and transparently through sustainability reports.

5.4.2 What are the drivers of and barriers to MSMEs taking up green practices?

Many elements have been identified as potential reasons for enterprises to engage in the green transition, including changes in demand from consumers or suppliers, demand from employees, government incentives, changes in laws and regulations, improvement of the business's image, increased resource efficiency, reduced operational costs, and concern about the environment or about employees and decent work.

The main reasons given by MSMEs in the survey for greening their enterprises relate to (a) concerns that climate change has an impact on their businesses, (b) reduction of costs, (c) changes in demand from consumers and suppliers, and (d) incentives provided by the government. Apart from a few exceptions in Kyrgyzstan and the Republic of Korea, changes in laws and regulations do not appear to be a major driver of change. This may owe to lack of awareness and also to the fact that some regulations exonerate MSMEs from the scope of application (Chapter 2). Evidence also suggests that the opinions of employees do not play a major role in the reasons why MSMEs participate in the green transition.

The major barriers identified in the survey relate to lack of financial resources, possibly linked to the lower productivity among MSMEs, as well as lack of human resources and lack of awareness of policies or technologies.

Many MSMEs have adopted green measures as a way to adapt to the negative impact of climate change.

First, results from the survey suggest that many MSMEs have adopted green measures in order to adapt to the negative impact of climate change and environmental degradation. Smaller firms are driven to adopt green practices by the need to survive and be resilient. The direct environmental impacts they have experienced have persuaded them to budget for green investments in the short to medium term as a strategy of survival.

Second, many companies said that their decision to adopt green initiatives had primarily to do with economic benefits and, in particular, lower operational costs. For example, in Colombia, eight out of the ten enterprises surveyed gave the reduction of operational costs as one of the reasons they had taken green measures. For instance, a family business located in Barranquilla and Bogotá that has more than 50 years of experience and produces food for a

range of buyers ranging from fast-food outlets to high-end restaurants and hotels said that the reasons they had adopted environmental strategies were related to cost reduction, taxes, and compliance with regulations. In the Republic of Korea, three manufacturing MSMEs were surveyed, one of which is unionized. The unionized MSME is in the business of loose fibre dyeing and processed products and identified economic benefit as the reason for producing green products.

Another third main driver relates to changes in the demands of both consumers and suppliers. Consumers that are most significant for smaller enterprises include large companies that, in turn, are concerned about their reputation with key stakeholders – such as their consumers, investors, shareholders and government. Those enterprises that export to the international market are driven to adopt the more stringent green practices required by their export market, particularly if they are exporting to markets such as the European Union (in the case of South Africa). The following examples illustrate this finding:

- In the Republic of Korea, one construction company that participated in this survey constructs green buildings and has received a green building certificate and a building energy efficiency certificate. The reason for the company's decision to offer green products is pressure from stakeholders – specifically, the demand from consumers and supply chains. The construction of eco-friendly buildings was carried out because of the contractor's preference, not that of the construction company.

- The sample in South Africa, which includes two large companies, provides an opportunity to better understand how green transition takes place within a value chain. The first company is a producer of beverages and employs 4,440 workers. Apart from its internal interest in reducing carbon emissions, minimizing energy costs and responding to direct climate change impacts, the company is under pressure from various stakeholders, such as the government, investors and retail consumers, who are increasingly requesting sustainable products that incorporate ESG principles.

- The second corporation is a publicly listed company, a leading retailer of food and consumer goods in South Africa, which has expanded its business to many other countries in Africa. The company has created 90,000 jobs and supports a further 400,000 jobs in the 5,000 enterprises that constitute its supply chain. As part of its enterprise development programmes, it offers some training and development for its supply chain. The company cares about its reputation among various stakeholders, including the Government, employees, consumers, communities, shareholders and investors. Consequently, it has dedicated board oversight, strategies and implementation plans to mitigate and adapt to climate change, including influencing the operations of MSME suppliers. It should be noted that, although large companies can play a critical role in supporting MSME business development, they also have resources and standardized criteria that can create barriers to and unfair competition for MSMEs.

Finally, it is apparent that smaller companies are sensitive to financial incentives. The qualitative survey finds that there is higher likelihood that enterprises will adopt green practices if they receive tax reductions, are incentivized by the government or supported by targeted programmes. Box 5.4 provides a more detailed look into the SWITCH Africa Green project, which aims to help enterprises in four high-priority

Box 5.4 SWITCH Africa Green and the green transition of enterprises in South Africa

One EBMO and four enterprises in the clay brick manufacturing sector in South Africa have benefited from the introduction of more efficient technology through the SWITCH Africa Green programme. As part of the broader programme, the initiative Promoting Inclusive Sustainable Practices in the South African Clay Brick Sector, begun in 2018, aims to promote sustainable practices in the South African clay brick sector. The project is executed jointly by the Clay Brick Association of Southern Africa, EcoMetrix Africa, and Partners for Innovation. The project provides comprehensive support to the stakeholders on matters such as energy efficiency, water, waste and materials.

The support has been provided through a digital sustainability data analysis platform and a reporting portal. Using this platform to record energy, water and materials consumption, and reduction of GHG emissions, enterprises have been able to record improvements and introduce corrective action where they have recorded retrogressive results. The platform also produces both enterprise-level and industry-level sustainability reports that can be used for the purposes of self-improvement, marketing to consumers and the sharing of lessons learned. Through this initiative, enterprises have been able to demonstrate year-on-year improvements and reduce the sector's absolute GHG emissions.

This clay brick sector welcomes the support, since energy costs account for as much as 40 per cent of revenue and, without the support from this project, the industry would be seriously impacted upon by the carbon tax. Despite the progress the industry has made, and investments in renewable energy and more efficient equipment, the industry requires green finance and green skills that they have no access to other than in the support they have received from this project.

SWITCH Africa Green started in 2014 with the aim of helping countries in Africa to achieve sustainable development by transitioning to an inclusive green economy based on sustainable consumption and production. The programme has engaged in over 45 projects and continues to support an inclusive economy in seven countries: Burkina Faso, Ethiopia, Ghana, Kenya, Mauritius, South Africa and Uganda. In each country, the programme has three components: (a) policy support, (b) green business development and (c) a networking facility. The national project in South Africa is coordinated by a National Technical Coordination Committee, whose members include the Department of Environmental Affairs and the Department of Trade and Industry. Other members include the European Union country office, United Nations Development Programme, UNEP and grantees (Republic of South Africa, Department of Environmental Affairs 2017).

sectors – agriculture, manufacturing, integrated waste management, and tourism[10] – to contribute to South Africa's transition to a greener economy. The example illustrates that enterprises can adopt green practices with positive outcomes if they are provided with appropriate technical support to measure and monitor their use of resources. This finding also aligns with the conceptual framework reviewed in Chapter 1.

Company managers seem to play a primary role in environmental sustainability, whereas the opinion of employees is rarely taken into account. From the results of the survey, it can be seen that the implementation of green practices in the workplace in MSMEs depends primarily on such decisions being made by management.

Despite a fair share of MSMEs having adopted green practices in their business operations, a variety of obstacles continue to prevent firms from taking action or further developing their green strategies. Therefore, if no support is put in place, the green transition among MSMEs may progress more slowly. The major barriers identified in the survey relate to a lack of financial and human resources as well as to a lack of

10 https://www.switchtogreen.eu/home/switchafricagreen/.

The major barriers identified in the survey relate to the lack of financial and human resources.

awareness of policies and/or technologies; together these posed major stumbling blocks to MSMEs.

Some enterprises would consider taking measures towards green transition but are constrained by the financial costs. An example is the case of a microenterprise employing eight workers in the food-processing sector in South Africa. The owner has begun investing in solar energy but believes that it would take five times his annual income to make the investments necessary to his planned transition, particularly regarding energy, water and modernized equipment. The enterprise is a member of the African Farmers' Association of South Africa, established by small-scale black farmers in order to lobby for their interests. The association has the opportunity to raise its own concerns in the development of agricultural policy.

Other enterprises indicate that their workforce's small size and lack of green skills have been challenging for their participation in green transition. For instance, when asked whether its business will suffer from skill shortages during green transition, a small enterprise in the retail sector in the Republic of Korea reported that it was not fully prepared, since its employees' awareness of green transition remains low, green skills training courses are lacking and there is shortage of younger workers willing to engage in green transition. This enterprise already has a staff member dedicated to waste management, the training of new staff, and renewable energy, and yet it reports skills shortage as one of the main barriers to green transition. In other enterprises in which no staff have been dedicated to environmental issues, the skills challenge may be even more critical.

Employees' low awareness about the green transition and the shortage of green skills occur in enterprises elsewhere, too. In South Africa, the manager of a medium-sized clay brick manufacturer employing 120 workers has brought new ideas to implementing a just transition in the company. The manager has identified the need to prioritize awareness-raising and education on the environmental, social and economic benefits of adopting greener practices. The manager anticipates that the firm will need to spend between 120 million and 140 million rand (US$7.8 million to US$9.1 million) on technology over five years to promote efficiency, invest in renewable energy and reduce pollution and waste. The firm also needs to fill gaps in basic skills such as those of electricians and mechanics. The advance of a green and just transition therefore requires greater emphasis from the Government and training institutions on the requisite basic education and skills that it requires.

A further barrier is that most small companies do not have environmental strategies and the responsibility of implementing environmental strategies rests with the owner or manager, who will have many other responsibilities too.

Regarding sustainable business models, responses from the three Colombian BIC companies suggest that, although the adoption of BIC status does not involve a heavy bureaucratic procedure, difficulties arise because of the lack of government support subsequently. They saw it as essential that the Government expand the benefit catalogue associated with the sustainable business model by introducing economic, tax and fiscal mechanisms favouring those companies that take on a commitment (*compromiso*) to the community, the environment and sustainability.

5.4.3 What roles are played by the regulatory environment, business climate, economic policies and incentives?

Regarding the roles of public policies and incentives, the main findings are that most MSMEs surveyed were not aware of the different policies in place and often found it too complicated or time consuming to apply to support programmes. Therefore, without financial and human resources or consultancy services, few of the MSME respondents alluded to the regulatory environment for greening, especially access to incentives, although some were aware of broad policies, such as the carbon tax in South Africa. Most MSMEs surveyed regard financial incentives and other measures to create an enabling business environment as the most efficient measures to enhance energy efficiency and reduce waste.

Indeed, evidence suggests that for smaller enterprises the regulatory environment can be daunting and complicated. Larger enterprises can employ sustainability management teams whose specialized work is to understand the various policies emanating from various government departments. Large firms may also contract the services of an advisory firm to assist them in the interpretation of regulations and how best to comply. Without financial and human resources assigned to in-house or outsourced consultancy services, some of the MSME respondents saw the regulatory environment as so complex and burdensome – especially regarding accessing incentives – that they preferred to spend their own money on green investment.

In South Africa, for example, many of the respondents mentioned the carbon tax as a key driver when it comes to carbon dioxide reduction. Smaller enterprises had limited knowledge about the broader policy drivers beyond this tax and had little understanding of the variety of incentives provided by the Government. Apart from vague references to incentives relating to energy efficiency, smaller enterprises and their EBMOs did not refer to the broader policies and regulations of the Department of Minerals and Energy regarding energy efficiency that have been in place since 2013. The 12L tax incentive, which provides an allowance for formal businesses, including smaller firms, to improve energy efficiency, is administered through the National Treasury. There are also laws pertaining to water licences, air pollution, GHG reporting and biodiversity protocols.

They were also limitations in MSMEs' time and ability to engage in social dialogue that could help them learn more about the tenets of a just transition. One exception was found in a medium-sized brick manufacturing enterprise in South Africa. The manager highlighted the importance of continuous social dialogue and the involvement of workers in decision-making to navigate the transition. This is especially important for a firm in which half of the workforce of 120 employees are unionized.

Although there are various incentives that MSMEs could consider in order to improve their energy and resource efficiency, the time, resources and skills to tap into these incentives are not available in most EBMOs or the enterprises themselves. In South Africa, an advisory association was included in the qualitative survey. This business association has been able to create a business from helping enterprises of various sizes to identify projects and then preparing them to apply to the incentive schemes. However, applying for and receiving the incentives is not all that is required to manage the transition. Enterprises also need to have suitable project management skills to ensure that the appropriate technology solutions are deployed to match the challenges identified and to ensure commitments are met.

Table 5.3 MSMEs' ranking of government measures to support a just transition, Republic of Korea

Industry sector	Priority 1	Priority 2	Priority 3
Wholesale and retail	Measures to create an enabling business environment	Financial support to buy new and more energy-efficient machines	Easier access to credit and loans
Food processing	Measures to create an enabling business environment	Tax reduction for investment in energy efficiency and/or waste management	Public procurement, e.g. measures that prioritize green products and services
Construction	Measures to create an enabling business environment	Tax reduction for investment in energy efficiency and/or waste management	Easier access to credit and loans
Hotels and tourism	Financial support to buy new and more energy-efficient machines	Easier access to credit and loans	Partial refunding of training costs for green skills development
Manufacturing	Financial support to buy new and more energy-efficient machines	Tax reduction for investment in energy efficiency and/or waste management	Easier access to credit and loans

Most MSMEs surveyed selected financial incentives as the most efficient measure to enhance energy efficiency and reduce waste. In South Africa, most responding MSMEs believe that the Government's financial support to buy new and more energy-efficient machines is the most important factor in helping their business to engage in a just and green transition. Building a business-friendly environment was identified as the next priority.

In Colombia, the MSMEs indicated that cost reimbursements, support for machinery purchase and tax reductions were the three most important government measures that will encourage green transition. EBMOs highlighted the role of tax reduction for investment in energy efficiency and/or waste management, measures to recognize successful green business models, as well as financial support for the purchase of new and more energy-efficient machinery. In Kyrgyzstan, MSMEs prioritized measures to recognize successful green businesses, reimbursement for developing green qualifications, and easier access to credit and loans. In the Republic of Korea, government measures to support an enabling business environment were the element considered the most critical to helping businesses to go green. Financial measures were the second priority – including tax reduction for energy efficiency and waste management investment and easier access to credit and loans. Green public procurement also ranks among the priority areas that MSMEs believe would support their green transition (see table 5.3).

5.4.4 What are the roles of workers' and employers' organizations?

There is great potential for EBMOs to promote environmental sustainability among enterprises; many associations are engaged in lobbying and advocacy for a greener and sustainable business environment as well as other service development to support the greening of economies and enterprises (ITC-ILO 2016). This action includes (a) establishing key relationships and briefing policymakers, (b) providing technical information and advice, (c) identifying green skills, (d) raising awareness, (e)

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sensitization, (f) networking and (g) supporting and providing courses and training, business development and advisory services.

However, survey evidence suggests that a number of limitations prevent EBMOs from achieving their full potential in providing green support to their members. As was observed among MSMEs, EBMOs suffer a lack of financial and human resources for delivering the appropriate technical support to their members. Also, in many cases, the promotion of green policies does not appear to be their main priority, since the prime objectives of EBMOs are to help to create a supportive business environment for enterprises' success and to provide services that improve their economic performance.

Furthermore, the role of workers' organizations in the green transition among enterprises seems weak according to the qualitative evidence. The first reason for this is that trade unions have a limited presence among MSMEs. Second, it appears that social dialogue around environmental and sustainability issues remains very limited. Our findings suggest that, except in South Africa, the promotion of green workplaces has a limited presence in the discourse and agenda of social dialogue.

An understanding that climate change and environmental degradation have a negative impact on businesses is present among all the business associations surveyed in the four countries. Droughts, floods and high temperatures were reported as presenting the highest risk, but some EBMOs also mentioned biodiversity loss or air pollution.

In South Africa, several business organizations inform or support their member enterprises on a variety of topics, including energy and environment. For instance, an EBMO active in the agricultural sector promotes climate change response measures and provides information about environmental impact and related policies to both its

members and consumers. The association also promotes networking opportunities, offers training in green skills through its academy and promotes innovation through investment in R&D. Most members are medium-sized companies. Communication with members is through newsletters, emails, roadshows and a member log-in portal.

Another example is an EBMO in the manufacturing sector that shares environmental information with its members, provides networking opportunities and is an accredited training provider able to equip people with skills they will require in the future. It also runs social media campaigns, does radio and television interviews, and issues pertinent press releases. The organization works in support of all sizes of enterprise and also arranges social dialogue through the likes of breakfast events and seminars or webinars. Nevertheless, this EBMO reported that its actions are limited by a lack of human and financial resources.

In the Republic of Korea, two out of four EBMOs surveyed have designated staff in charge of environmental management practices. They are in charge of drawing up medium- and long-term road maps for green management, managing and setting indexes regarding environmental performance and resource efficiency, and publishing sustainability reports. Of the surveyed EBMOs, only one operates with an environmental committee and this committee can only make recommendations to the executive body. While this EBMO has a relatively high awareness of the country's environmental policies, other EBMOs revealed a moderate level of awareness. Nevertheless, all the responding EBMOs seem willing to engage in a just transition owing to legal requirements. In the Republic of Korea, EBMOs could play a key role in the implementation of the Carbon Neutrality Act, as they did in the development of the act by consulting their members and informing the Government about the results of this consultation. Immediately after the act was passed, EBMOs also informed the Government of the difficulties their member companies and industries faced in implementing its requirements.

In Colombia, EBMOs reported facing a number of challenges to their advocacy work – such as a lack of dedicated resources and funding, a lack of opportunities to build relationships with policymakers, and limited staff capacity. Of the four EBMOs surveyed, two reported providing services to support their member companies in a just transition. The main services they provide include green business skills training for owners, managers and staff, the communication of information about just transition, the promotion of an enabling environment for green businesses, and advisory services.

As the Ministry of Commerce was developing environmental standards for the tourism sector, a business association in the hotel industry participated in the introduction of a sustainable tourism standard, Norma Técnica Sectorial para el Turismo Sostenible (NTS-TS 002). In support of its members, this EBMO created a platform to help them implement this standard. The EBMO continues to promote the standard, which includes references to labour and social values.

Some of the Colombian EBMOs surveyed have taken actions to promote the active participation of their members in social dialogue, including (a) national and regional agendas with authorities and working groups regarding topics of interest that relate to the green transition, such as recycling, and (b) actions taken by the "coexistence committee", with the aim of taking ideas from the different stakeholders. For more information about social dialogue for a just transition in the four countries studied, see box 5.5.

In Kyrgyzstan, none of the business associations that were surveyed provides services to support member enterprises in a fair transition to environmental sustainability,

Box 5.5 Social dialogue for a just transition in Colombia, Kyrgyzstan, the Republic of Korea, and South Africa

The forum for the institutionalized involvement of trade unions and employers in Colombia is the Tripartite Permanent Commission for Concertation on Salary and Labour Policies. However, this institution has a narrow mandate on labour issues and no involvement in anything related to just transition. Social partners have accordingly been involved in social dialogue around issues of just transition outside institutionalized channels – for example, during the preparation of the National Development Plan 2018–22. In November 2019, the Ministry of Employment and the ILO signed a pact for green jobs and a just transition to connect the advances in environmental policies with the labour market and the economy. The agreement contemplates a strengthening of opportunities for tripartite social dialogue on the transition to a green economy.

Social dialogue in Kyrgyzstan takes place at various levels through the Republican Tripartite Commission. Although this body has had a rather limited role in relation to the development of plans for just transition, in 2019 the Green Economy Development Programme (2019–2023) was enacted, setting out a strategy and plan to introduce green economy approaches in seven key sectors. The matrix of outcome targets enacted with the programme will facilitate effective and timely monitoring of implementation.

Social dialogue in the Republic of Korea is institutionalized through the Economic, Social and Labour Council. This tripartite institution has promoted several tripartite processes and agreements on different policy areas, including labour market reforms, collective bargaining and industrial relations, the impact of technologies in the labour market and, most recently, the impact of the COVID-19 pandemic.

However, when it comes to the green transition, there is little evidence of the Council's involvement in any policy initiative. Nor are civil society actors involved in the main body responsible for green growth policies, or given a consultative role in other bodies. Nonetheless, local government bodies have established regional green growth plans and created regional green growth committees, which provide a more favourable setting for involving local actors.

Social dialogue in South Africa is institutionalized through the National Economic Development and Labour Council. South Africa is one of the countries in which the policy debate around the green transition and its social and economic implications has been more intense and started earlier, possibly reflecting the need to find solutions to the country's heavy reliance on coal. In 2011, a Green Accord was signed by the Government, employers' organizations, organized labour and other civil society organizations. The Green Accord includes specific commitments by the Government to renewable energy, together with employment targets, commitments by all to promote clean cooking stoves, and commitments by businesses to increase investment in green processes. It also specifies a target that 80 per cent of new jobs should be for unemployed youth.

What these examples show is that, although it is not uncommon for the social partners to participate in national debates on environmental policy, there is much less involvement of representatives of employers and workers at the sector and local levels, where the situation and challenges of enterprises would benefit from greater representation.

Source: Molina Romo (2022).

although they are engaged in advocacy and lobbying on green issues and environmental sustainability. The evidence shows that the green transition of MSMEs is not on the business associations' agenda. Nevertheless, they are aware that it should be their responsibility to provide such services. Business associations could themselves act as mobilizers and facilitators of a green and just transition for MSMEs if they were suitably certified and trained and were provided with green office conditions. This, in turn, would entail financial costs. In representing the interests of member enterprises,

business associations position themselves more as a bridge between business and the State, and also as a link to international organizations and other stakeholders.

One such business association – a member of a closed informal club (with ten large companies) dealing with green economic issues – lobbies and protects the companies' interests, represents them at various venues and facilitates their participation in hearings, round tables and forums. It plans to fully transition to a green office by 2027 and hosts various events, such as conferences and expos, in a green format.

Associations at the sectoral level have prepared a draft country concept on the reduction of pesticides in fruit and vegetables. One has spearheaded legislation in the textile sector and, in particular, participated in the discussion and drafting of the new tax code and in the clarification of environmental standards among exporting member companies. A problem that organizations face in advocacy work is a lack of human resources and capacity. Another association of businesses at the sectoral level plans to routinely provide green skills training to managers of member enterprises and provide information about just transition.

These various examples suggest that there is a need to mobilize and enhance the capacity of MSMEs by creating training centres and offering educational courses led by industry associations. In this way, EBMOs can be agents of a green and fair transition. The examples also convey the importance of expanding MSMEs' knowledge about transition to a green economy. Other valuable options that associations might arrange are demonstrations of good practice and cases of enterprises' staged transition, for instance through exchange visits, excursions and tours.

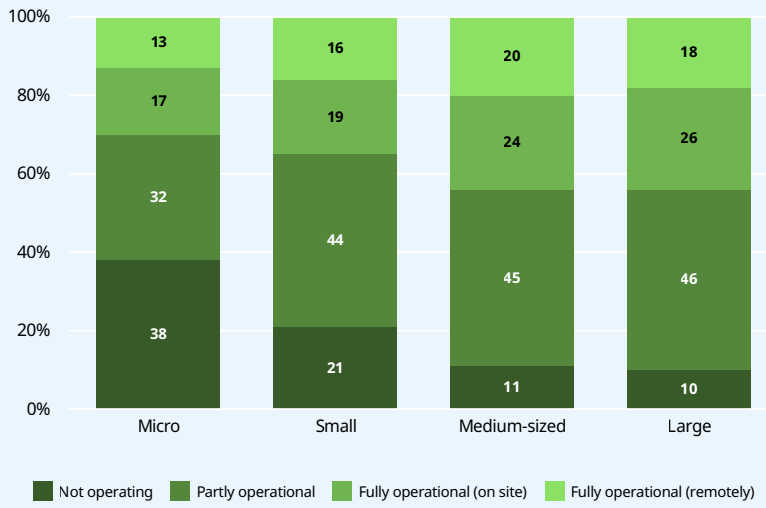
As we have seen, it appears that one reason why workers' organizations have a weak role in the green transition is that trade unions have a limited presence among MSMEs. For example, the industries in the South African sample reported a maximum level of 30 per cent unionization, most enterprises reporting no unions at all. Most enterprises surveyed reported no involvement of unions or workers in green or just transition beyond basic training in the core skills required by the enterprise, or basic resource conservation.

Beyond the qualitative survey carried out in the four countries, we also found in our desk research that promotion of a green workplace has a limited presence in the discourse and agenda of social dialogue (box 5.5).

5.4.5 How have MSMEs restructured themselves, tried innovations and adopted more sustainable practices during the COVID-19 pandemic?

Quarantine, lockdowns and the closing of businesses during the pandemic have had a clear impact on the activities of MSMEs; this sector has suffered greater losses than larger companies (see figure 5.11). Some 38 per cent of microenterprises and 21 per cent of small enterprises reported not operating in the second quarter of 2020, and others were forced to reduce production and/or lay off part of their workforce (ILO 2021b). There are also particular risks for enterprises in the GSCs, linked to both weakened trade and supply bottlenecks. These challenges are particularly significant in the lower tiers of supply chains where MSMEs and informal workers are strongly represented, especially in developing and emerging economies, even though the majority of MSMEs and informal workers are not directly connected to GSCs (ILO 2020b). As the crisis lengthens, MSMEs in GSCs may also be less able to manage supply and staffing shortages and reductions in productivity (ILO 2020c).

Figure 5.11 Operational status of enterprises during the COVID-19 crisis, by size, 2020 (percentage)



Source: ILO (2021b).

The COVID-19 pandemic has had huge negative impacts on all sizes and types of enterprises included in the qualitative survey. MSMEs, for instance, are experiencing COVID-related impacts such as partial or complete closure, and some are understandably losing motivation to deal with environmental issues and a just transition.

However, as part of their responses to the pandemic, particularly to protect the health and safety of their staff or to reduce operational costs, a number of MSMEs interviewed in the four countries have undertaken measures that have a positive impact on the environment, such as telework or energy efficiency measures. In addition, many enterprises responded that the post-COVID-19 recovery will require MSMEs to be more resilient to shocks, including risks arising from climate change. Almost all of the MSMEs surveyed said that monetary measures such as green finance were what was most needed for recovery from the pandemic. Capacity-building for staff and information about consumer demand in the green market were also identified as effective policy measures that could help businesses to be more environmentally sustainable in the post-COVID recovery.

As part of their responses to the COVID-19 pandemic, a number of MSMEs interviewed undertook measures that have a positive impact on the environment.

In the Republic of Korea, the pandemic has negatively affected the surveyed enterprises' greening initiatives. The evidence is that it has had a significant impact in prompting, for example, a reduction of numbers of employees or the closure of some or all parts of business sectors. However, three MSMEs reported that they had taken measures to increase energy efficiency as a means of reducing operational costs during the pandemic. As has been observed in other countries, most MSMEs highlighted the need for green finance to support recovery.

In Kyrgyzstan, according to EBMOs, to reduce operating costs during the pandemic, member enterprises mainly reduced production volumes and decreased wages. The enterprise survey shows that the most common measure, implemented in almost all MSMEs surveyed, was to reduce the volume of production. The second

most common measure was compliance with social distancing in the workplace and occupational safety and health measures relating to COVID-19. Two MSMEs also mentioned measures to increase energy efficiency as a way to reduce operational costs. In addition, in Kyrgyzstan half of the surveyed MSMEs reported they had introduced teleworking to protect the health and safety of their staff. If, in the future, teleworking opportunities are increased in these enterprises, this will likely have a positive impact on the environment. The recovery path may also bring opportunities for a just transition. Interviews with experts in Kyrgyzstan indicate that COVID-19 taught entrepreneurs to save, conserve and efficiently use resources, redirect investment to other sectors, change markets, and develop digital sales models as well as digital means of communicating with consumers. Similarly to what was observed in the Republic of Korea, in Kyrgyzstan almost all MSMEs surveyed (nine out of ten) said that monetary measures such as green finance are what is most needed for recovery from the pandemic. For example, a small meat-producing enterprise in Kyrgyzstan highlighted that if there were financial support the enterprise would implement environmentally sustainable measures on its path to recovery from COVID-19. Furthermore, seven out of ten MSMEs responded that capacity-building for staff and information on consumers' demands in the green market would be effective policies to support recovery from the pandemic.

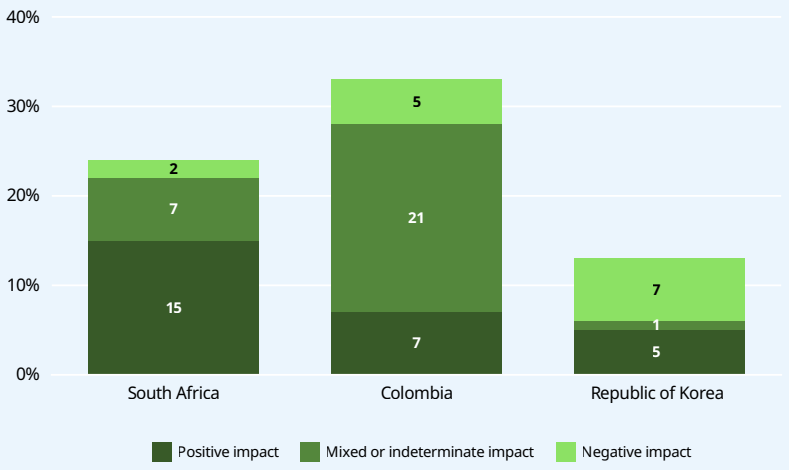
In Colombia, eight out of the ten MSMEs surveyed implemented teleworking as a way to protect their employees during the pandemic. A majority of enterprises reported that the post-COVID-19 recovery will require them to be more resilient to shocks, including climate change risks. The three BIC companies claimed that, beyond the negative impact of the pandemic upon them, the experience had had the positive aspect that they had been able to dedicate time to structuring their business and thereby give it a more solid foundation. The companies recognized the importance of enhancing their business practices, gave time to training their workers and suppliers on sustainability, structured their sales team to promote economic recovery and introduced flexible working conditions.

In South Africa, the firms operating in the food-producing sector of agriculture were least affected, since they were regarded as providing an essential service. However, the beverage side of agricultural services was economically impacted upon by severe restrictions on their trading; this disrupted their businesses and resulted in reduced employment even though there was an attempt to retain jobs as far as possible. Most of the MSMEs reported that their employees were able to access the Temporary Relief Scheme (TRS) that was drawn from the South African unemployment fund.

Moreover, South Africa implemented an Economic and Reconstruction Recovery Plan that is organized around the principle of inclusive and equitable growth. There seems to be a consensus among social partners that major changes are needed for a sustainable recovery. Beyond the direct COVID-19 response measures, the strategy includes local development, reindustrialization, export promotion, public employment measures and support for the green economy. The major catalysts identified for achieving these objectives include, among other things, skills development and an enabling environment for sustainable enterprise development.

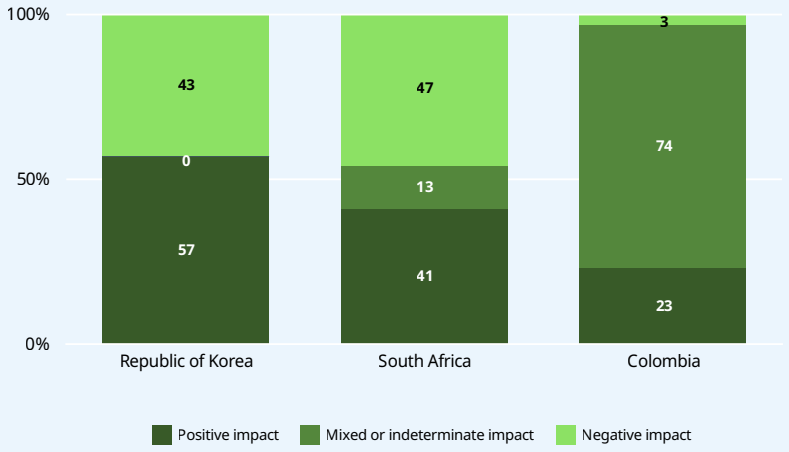
To complement the results from the qualitative survey, the analysis uses the OECD Green Recovery Database, which tracks COVID-19 recovery measures with likely positive, negative or mixed environmental implications and includes data on three of the four countries under study, namely South Africa, the Republic of Korea, and Colombia. Figures 5.12 and 5.13 explores the extent to which these countries have undertaken a green recovery through the stimulus packages that were implemented. As can be

Figure 5.12 Environmental impact of COVID-19 recovery measures, by country (percentage)



Source: OECD Green Recovery Database 2021.

Figure 5.13 Share of total funding allocated, by environmental impact and country (percentage)



Note: Percentages refer to the total investments budgeted by the Government. Many recovery measures, however, are implemented without a fixed budget and are therefore not included in the figure.

Source: OECD Green Recovery Database 2021.

seen in figure 5.12, of the 24 recovery measures implemented in South Africa 15 have been identified as impacting positively on the environment. These measures include grants and loans for the large part, but also some regulatory changes, and target a wide range of sectors such as energy, transport, buildings, industry, waste management and forestry. In Colombia and the Republic of Korea, respectively, 7 out of 33 and 5 out of 13 measures have a positive impact on the environment. In the Republic of

Korea, most of these measures target air pollution through economy wide initiatives or by focusing on the energy sector and other industrial sectors (such as mining and manufacturing). In Colombia, one such measure also targets the agricultural sector with the goal of planting 180 million trees through incentives for silvopasture and agroforestry with community support.

Although South Africa has implemented the highest number and the highest share of measures with positive environmental objectives, it is worth mentioning that in the Republic of Korea more than half (57 per cent) of total budgeted government funding to support post-pandemic recovery is allocated to measures with positive environmental impacts (figure 5.13). In South Africa and Colombia, the proportions are, respectively, 42 per cent and 23 per cent.

However, figure 5.13 should be interpreted with caution, since it refers to the total investments budgeted by government, and many measures are implemented without a fixed budget. For example, measures such as tax reductions, regulatory changes, and subsidies are not budgeted and therefore not included in the percentages presented here.

As shown in Chapter 1, some countries have adopted post-pandemic recovery measures that simultaneously target SMEs and seek to have a positive environmental impact. In Colombia and the Republic of Korea, some measures specifically targeted SMEs but were not designed with an inherent environmental objective. For instance, in Colombia, the Government financed the salaries of workers in SMEs for three months (up to five times the minimum wage) as long as no worker was fired. Another measure offered financial relief for a period of two months to SMEs that had credit difficulties. New credit lines subsidized by the Ministry of Commerce, Industry and Tourism and the Business Development Bank Bancóldex were established to support companies and preserve employment; the maximum amount granted per SMEs was 3 billion Colombian pesos. In the Republic of Korea, the K-water Research Institute under the Ministry of Environment announced that charges for the use of dam water and multiregional water supply were to be lowered for SMEs in light of the COVID-19 crisis.

5.5 Conclusion

The qualitative survey carried out in Colombia, Kyrgyzstan, South Africa and the Republic of Korea, although not representative of all MSMEs or EBMOs in those countries, suggests that MSMEs and business associations are concerned about the effects of climate change and other environmental issues that will affect their business operations. Some MSMEs are responding to environmental impacts in ways not unlike the positions taken by market players with respect to the environment and sustainability. The evidence shows that MSMEs' action is driven primarily by business-case and profit motivations. Therefore the pace at which they transition will be determined by their need to survive and develop resilience, as well as by the support measures they receive from their industry associations, consumer markets and governments.

The results suggest that there is a need for a common understanding of what a just transition means for enterprises, what structural shifts in the economy will need to take place and how such a transition may be navigated with people at the centre. The chapter has also identified sectoral and local levels as relevant to responding better to the challenges enterprises face in undertaking a just transition. These include lack of information, knowledge and education about the opportunities and benefits of

the green transition, efficient use of resources, and the contribution to the economy of various MSME industries. Most MSMEs are unaware of existing technologies that can be applied in the green transition and can also increase the efficiency with which available resources are used.

It is therefore important to expand MSMEs' knowledge about transition to a green economy through the demonstration of real practices and through cases of enterprises' staged transition. This can most readily be accomplished via peer-to-peer exchange visits, excursions and tours arranged by enterprise associations. EBMOs can also gather and disseminate best practices among their members and organize events with guest speakers from enterprises that have successfully undertaken a green transition.

The following also play an important supportive role: (a) incentives provided by the government, (b) measures to improve the productivity of MSMEs, (c) opportunities for long-term green financing, laws and environmental standards, and (d) the availability of professional training centres for management and employees of MSMEs with regard to the green transition.

The four countries reviewed lack some of the above conditions, which means there are obstacles to MSMEs' green transition. Therefore, additional support measures need to include: (a) knowledge and capability to access incentives, (b) appropriate financial mechanisms for adaptation and mitigation measures, and (c) technical support to choose appropriate technologies on the basis of sound management and decision-making.

Since most of the MSMEs surveyed do not have dedicated environmental management teams, they will require the support of paid advisory services and specific technical support. There is also a need for more robust platforms on which knowledge can be shared between EBMOs and MSMEs about the challenges that MSMEs face as distinct from the experiences of larger enterprises.

It is essential to create an enabling environment for sustainable enterprise development and favourable conditions for the transition of MSMEs to play their part in an environmentally sustainable economy. Their transition depends on governments' provision of incentives reflecting the real benefits of the green transition. There is a need to review and create, for instance, tax and customs preferences for MSMEs in the sectors most crucial to the green transition. Fostering MSME productivity is also key to improving saving, investment and capital accumulation, which will facilitate access to finance to invest in clean technologies and skills development and to upgrade production processes and management practices.

National development banks could play a leading role in lending to resource-constrained MSMEs to encourage their green transition. Green finance and investment are also effective measures to help businesses adopt environmentally sustainable policies during the recovery period after COVID-19. They will help MSMEs to tackle constraints such as high financial costs of technology and equipment, and to strengthen the capacity of their employees (through hiring, training and support).

References

A

Abdou, Ahmed, Thowayeb Hassan, and Mohammed M. El Dief. 2020. "A Description of Green Hotel Practices and Their Role in Achieving Sustainable Development". *Sustainability* 12 (22): 9624.

B

Balasubramanian, Sreejith, and Vinaya Shukla. 2017. "Green Supply Chain Management: An Empirical Investigation on the Construction Sector". *Supply Chain Management* 22 (1): 58–81.

G

GGGI (Global Green Growth Institute). 2015. *Korea's Green Growth Experience: Process, Outcomes and Lessons Learned*.

Global Alliance for Buildings and Construction, IEA (International Energy Agency) and UNEP (United Nations Environment Programme). 2019. *2019 Global Status Report for Buildings and Construction: Towards a Zero-Emission, Efficient and Resilient Buildings and Construction Sector*.

H

Hasanova, Savia. 2019. *Strengthening Competitiveness of Small and Medium-Sized Enterprises and Enhancing Their Integration into Regional and Global Value Chains in Kyrgyzstan*. UNESCAP.

I

IDB (International Development Bank) and ILO. 2020. *Jobs in a Net-Zero Emissions Future in Latin America and the Caribbean*.

IFC (International Finance Corporation). 2019. *Creating Markets in South Africa*.

ILO. 2015a. *Employment Relationships in Retail Commerce and Their Impact on Decent Work and Competitiveness*.

———. 2015b. *Good Practices and Challenges in Promoting Decent Work in Construction and Infrastructure Projects*.

———. 2015c. *Small and Medium-Sized Enterprises and Decent and Productive Employment Creation*.

———. 2016. *Enabling Environment for Sustainable Enterprises in Kyrgyzstan*.

———. 2018. *World Employment and Social Outlook 2018: Greening with Jobs*.

———. 2019. *Small Matters: Global Evidence on the Contribution to Employment by the Self-Employed, Micro-enterprises and SMEs*.

———. 2020a. *ILO Monitor: COVID-19 and the World of Work*, 3rd ed. 29 April 2020.

———. 2020b. *ILO Sectoral Brief: The Impact of COVID-19 on the Tourism Sector*.

———. 2020c. *The Effects of COVID-19 on Trade and Global Supply Chains*.

———. 2021a. *Global Call to Action for a Human-Centred Recovery from the COVID-19 Crisis that Is Inclusive, Sustainable and Resilient*.

———. 2021b. *World Employment and Social Outlook – Trends 2021*.

———. n.d. "Food, Drink and Tobacco Sector". https://www.ilo.org/global/industries-and-sectors/food-drink-tobacco/lang--en/index.htm.

IPCC (Intergovernmental Panel on Climate Change). 2014. *Climate Change 2014: Impacts, Adaptation, and Vulnerability*.

ITC-ILO (International Training Centre of the ILO). 2016. *Greening Economies, Enterprises and Jobs: The Role of Employers' Organizations in the Promotion of Environmentally Sustainable Economies and Enterprises*.

K

Kjellstrom, Tord, Nicolas Maitre, Catherine Saget, Matthias Otto, and Tahmina Karimova. 2019. *Working on a Warmer Planet: The Effect of Heat Stress on Productivity and Decent Work*. ILO.

L

Lenzen, Manfred, Ya-Yen Sun, Futu Faturay, Yuan-Peng Ting, Arne Geschke, and Arunima Malik. 2018. "The Carbon Footprint of Global Tourism". *Nature Climate Change* 8 (6): 522–528.

M

Marriott International. 2021. *2025 Sustainability & Social Impact Goals*.

Molina Romo, Oscar. 2022. *The Role of Tripartite Social Dialogue in Facilitating a Just Transition: Experiences from Selected Countries*. ILO.

N

National Statistical Committee of the Kyrgyz Republic. n.d. "Small and Medium Enterprises". http://stat.kg/en/statistics/maloe-i-srednee-predprinimatelstvo/.

Noy, I. 2014. *A Non-monetary Global Measure of the Direct Impact of Natural Disasters*. United Nations Office for Disaster Risk Reduction.

O

OECD (Organisation for Economic Co-operation and Development). 2018. *SME Policy Index: ASEAN 2018 Boosting Competitiveness and Inclusive Growth*.

———. 2019a. *OECD SME and Entrepreneurship Outlook 2019*.

———. 2019b. *Promoting Clean Urban Public Transportation and Green Investment in Kyrgyzstan*.

OECD, ETF (European Training Foundation), European Union and European Bank for Reconstruction and Development (EBRD). 2020. *SME Policy Index: Eastern Partner Countries 2020: Assessing the Implementation of the Small Business Act for Europe*.

P

PAGE (Partnership for Action on Green Economy). 2019. *Kyrgyz Republic Green Industry and Trade Assessment (GITA)*.

R

Republic of Korea, Ministry of SMEs and Startups. 2021. *Statistics of Korean SMEs*.

Republic of South Africa. 2021. *South Africa First Nationally Determined Contribution under the Paris Agreement*.

Republic of South Africa, Department of Environmental Affairs. 2017. *SWITCH Africa Green: Review of Laws, Policies and Business Environment*.

Republic of South Africa, National Planning Commission. 2011. *National Development Plan: Vision for 2030*.

S

Shi, Qian, Jian Zuo, Rui Huanga, Jing Huanga, and Stephen Pullen. 2013. "Identifying the Critical Factors for Green Construction: An Empirical Study in China". *Habitat International* 40: 1–8.

Southall, R. 2019. "Polarization in South Africa: Toward Democratic Deepening or Democratic Decay?" *Annals of the American Academy of Political and Social Science* 681 (1): 194–208.

Sovacool, Benjamin K., Morgan Bazilian, Steve Griffiths, Jinsoo Kim, Aoife Foley, and David Rooney. 2021. "Decarbonizing the Food and Beverages Industry: A Critical and Systematic Review of Developments, Sociotechnical Systems and Policy Options". *Renewable and Sustainable Energy Reviews* 143: 110856.

Statistics South Africa. 2019. *How Large Is the Small Business Footprint?*

U

United Kingdom, DBIS (Department for Business Innovation & Skills). 2013. *UK Construction and Economic Analysis of the Sector*.

W

Willer, Helga, Jan Trávníček, Claudia Meier, and Bernhard Schlatter, eds. 2021. *The World of Organic Agriculture: Statistics and Emerging Trends 2021*. Research Institute of Organic Agriculture (FiBL) and IFOAM – Organics International.

World Green Building Council. 2019. *Bringing Embodied Carbon Upfront*.

World Tourism Organization and United Nations Development Programme. 2017. *Tourism and the Sustainable Development Goals – Journey to 2030*.

WTTC (World Travel & Tourism Council). 2019. *The Economic Impact of Travel & Tourism*.

Glossary

Disclaimer: This glossary is provided for information only, to facilitate the reading and interpretation of this report. If a formal definition has been adopted by the ILO, it is used. In all other cases, the definitions provided do not constitute a formal definition or an adopted ILO position on the matter or an endorsement of any political position.

Green economy: an economy that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities.

Green enterprise: an enterprise that has successfully introduced green outputs and processes into its business strategy and operation. "Outputs" include green products and services, while efforts to reduce energy and raw material use can be categorized in "processes".

Green jobs: decent jobs that are involved in the production of environmental goods and services (e.g. renewable energy) or are directly related to the provision of such goods and services (e.g. natural resource conservation) or contribute to reducing the environmental footprint of an enterprise's production processes. They can enhance the transition to a green economy. Their formal definition and guidelines for measuring them were adopted by the 19th International Conference of Labour Statisticians in 2013.

Green outputs: green products and services for consumption outside the producing unit.

Green processes: the use of methods, procedures, practices or technologies that make the economic unit's production processes more environmentally sustainable. They include methods, procedures, practices or technologies that, for example, reduce or eliminate pollution, reduce consumption of water and energy, minimize waste or protect or restore ecosystems. They also include research, development, maintenance or use of technologies or practices to reduce the environmental impact of the economic unit, and the training of the unit's workers or contractors in these technologies or practices.

Green transition: the process through which an economy becomes a green economy. In this process, economies reduce their reliance on GHG emissions (become "low carbon") and become resource efficient.

Just transition: a process by which economies that progress towards a green economy also take into account the impact of the transition on labour markets. A just transition is based on social dialogue and gives adequate social protection and rights at work to workers in high-emissions sectors who will lose their jobs. A just transition also seeks to create decent jobs in the new green sectors, for example by putting in place training programmes that correspond to the needs of the green sectors, in consultation with employers' and workers' organizations. Notions relating to just transition have been expressed in various international binding and non-binding instruments.

Sustainable consumption and production: the decoupling of economic growth and environmental degradation by using resources more efficiently in the production, distribution and use of products.

Workplace: any place where workers need to be or to go by reason of their work and that is under the direct or indirect control of the employer as defined by Article 3 of the Occupational Safety and Health Convention, 1981 (No. 155).

Advancing social justice, promoting decent work

The International Labour Organization is the United Nations agency for the world of work. We bring together governments, employers and workers to drive a human-centred approach to the future of work through employment creation, rights at work, social protection and social dialogue.

The conduct of enterprises is crucial to the natural environment's well-being and to a just transition. Most enterprises, including small ones, are implementing measures to reduce waste and carbon emissions; in the majority of cases this entails no cost or even a reduction in production costs. Measures to green the places where people carry out their work are an integral part of the greening of enterprises and are important to both workers and employers. But more needs to be done to help enterprises and workplaces become green and be productive in environmentally sustainable ways. Innovative tools and solutions to make enterprises greener are highlighted in this report, including measures for small enterprises in developing countries as well as the role of social dialogue.

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