A double transition: formalization and the shift to environmental sustainability with decent work
A double transition: formalization and the shift to environmental sustainability with decent work
# Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledgements</td>
<td>vi</td>
</tr>
<tr>
<td>Acronyms and abbreviations</td>
<td>vii</td>
</tr>
<tr>
<td>Executive Summary</td>
<td>ix</td>
</tr>
<tr>
<td>Needs and initiatives in key sectors</td>
<td>x</td>
</tr>
<tr>
<td>Observations</td>
<td>xi</td>
</tr>
<tr>
<td>1. Introduction</td>
<td>1</td>
</tr>
<tr>
<td>2. A guiding framework on informality</td>
<td>5</td>
</tr>
<tr>
<td>2.1. Defining the informal economy</td>
<td>5</td>
</tr>
<tr>
<td>2.2. The ILO’s Just Transition Guidelines</td>
<td>6</td>
</tr>
<tr>
<td>2.3. Recommendation on transition from informal to formal economy</td>
<td>8</td>
</tr>
<tr>
<td>2.4. The 2030 Agenda for Sustainable Development</td>
<td>9</td>
</tr>
<tr>
<td>2.5. Decent work deficits in the informal economy – a brief overview</td>
<td>9</td>
</tr>
<tr>
<td>3. Linkages between the environment and informality</td>
<td>11</td>
</tr>
<tr>
<td>3.1. Informality and vulnerability to environmental hazards and climate change</td>
<td>11</td>
</tr>
<tr>
<td>3.2. Informality and its environmental impacts</td>
<td>14</td>
</tr>
<tr>
<td>4. Potential opportunities to integrate transitions towards formalization with sustainability</td>
<td>17</td>
</tr>
<tr>
<td>4.1. A just transition takes into account the challenges of workers and enterprises of the informal economy</td>
<td>17</td>
</tr>
<tr>
<td>4.2. Greening formalization measures</td>
<td>18</td>
</tr>
<tr>
<td>5. Sectoral overview</td>
<td>23</td>
</tr>
<tr>
<td>5.1. Waste management</td>
<td>23</td>
</tr>
<tr>
<td>5.2. Artisanal and small-scale mining</td>
<td>28</td>
</tr>
<tr>
<td>5.3. Construction</td>
<td>33</td>
</tr>
<tr>
<td>5.4. Agriculture</td>
<td>36</td>
</tr>
<tr>
<td>6. Conclusions</td>
<td>41</td>
</tr>
<tr>
<td>References</td>
<td>45</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASGM</td>
<td>artisanal and small-scale gold mining</td>
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<td>ASM</td>
<td>artisanal and small-scale mining</td>
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<td>DID</td>
<td>Development International Desjardins</td>
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<td>GHG</td>
<td>greenhouse gas</td>
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<td>GTUC</td>
<td>Georgian Trade Union Confederation</td>
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<td>ILO</td>
<td>International Labour Organization</td>
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<td>LEED</td>
<td>Leadership in Energy and Environmental Design</td>
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<td>MSMEs</td>
<td>micro, small and medium enterprises</td>
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<td>MNCR</td>
<td>National Movement of Recyclable Waste Pickers</td>
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<td>NGO</td>
<td>non-governmental organization</td>
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<td>OSH</td>
<td>occupational safety and health</td>
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<tr>
<td>SICL</td>
<td>Sanasa Insurance Company Ltd</td>
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<tr>
<td>TVET</td>
<td>technical and vocational education and training</td>
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<td>ZGJP</td>
<td>Zambia Green Jobs Programme</td>
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Executive Summary

More than half of the world’s workforce operates in the informal economy, and four of every five economic units are informal. For measures designed to protect the environment and slow global warming to succeed, these workers and these enterprises must be recognized, included and engaged. In this, a move towards formalization plays a crucial and intrinsic role. Furthermore, recognizing how informality and environmental issues are linked is key to promoting sustainable development and decent work for all.

The relationship between work and the environment is reciprocal and complex. On one hand, with 1.2 billion jobs worldwide closely dependent on ecosystem services, environmental degradation and climate change are endangering livelihoods in diverse sectors around the globe. On the other, economic activity has, on balance, played a key role in climate change and depleted resources, but it also has the potential to decouple from emissions and contribute to protecting the environment.

Informality compounds the negative aspects of the work–environment interaction. First, ecosystem-dependent jobs are often informal. Agriculture accounts for the largest share of employment in the informal economy, and nine of every ten agricultural workers are informally employed. Fisheries and forestry, too, are sectors with a high degree of informality that rely on a healthy environment. Workers and enterprises in the informal economy in these fields and others are particularly vulnerable because of a lack of protection and decent work deficits across all four pillars of the Decent Work Agenda – employment, social protection, rights at work and social dialogue. Often, they lack information and financial resources, they do not own the land they work, and they do not have occupational health and safety (OSH) and social protection coverages to cushion them from economic shocks and environmental change. At the same time, workers and enterprises in the informal economy often lack the resources and information that would enable them to adopt sustainable practices.

The transition to sustainability involves deep restructuring of economies and labour markets. These changes create net employment gains and opportunities to improve job quality, but certain fields will be adversely affected. Due to the deficiencies in decent work, enterprises and workers in the informal economy could bear particularly high costs in the transition.

Given the massive size of the world’s informal economy and its close interdependence with the environment, a just transition to sustainability must include workers and enterprises in the informal economy and support their transition to formality. This requires explicit attention to the challenges that they face, and the contributions that they can make, in instruments across policy fields, from economic, to environmental, to employment and labour protection policies. At the same
time, formalization initiatives must recognize and build on their potential environmental dimensions. Such initiatives include licensing and registration procedures, formalization incentives, productivity enhancement initiatives, organizing workers and enterprises in the informal economy and facilitating their representation in social dialogue and stakeholder engagement processes.

**Needs and initiatives in key sectors**

The waste management, artisanal and small-scale mining, construction and agriculture sectors illustrate the diversity of interactions between the environment and informality. At the same time, they offer examples of promising initiatives that can link formalization and environmental sustainability.

**Waste management.** In the global South, informally employed waste-pickers provide an important environmental service to municipalities, but their contributions are seldom recognized. Their incomes are often low and precarious, and the work can be dangerous. Informal waste-pickers face stigmatization, and it is difficult for them to organize themselves to make their interests heard and considered. Support for the development of workers’ cooperatives and organizations, as in Brazil, is proving an important way to help waste-pickers improve their incomes and working conditions and at the same time to better integrate their role into overall waste management services.

**Artisanal and small-scale mining (ASM).** Artisanal and small-scale mining in the global South accounts for a large proportion of the world’s mineral production, and 70 to 80 per cent of its workers are informally employed as own-account workers or in micro or small enterprises. Child labour is a concern, as are injuries and unhealthy working conditions. Due to lack of regulatory enforcement and of information and capacities for sustainable practices, ASM causes significant land degradation and water and soil pollution. For example, artisanal and small-scale gold mining is responsible for 30 per cent of all mercury released into the environment, as well as posing a health threat to the miners who handle it. Safer alternatives to mercury are available for processing gold. In Colombia and Peru, the Fairmined Initiative certifies gold from formal organizations that adhere to standards related to labour practices, reduced environmental impact and positive community outcomes. The opportunity for this certification creates an incentive to adopt better practices and for informal operators to register their business in order to participate.

**Construction.** After agriculture, construction is the second largest source of informal employment worldwide and an important source of work for low-skilled workers and the landless poor. Decent work deficits are common. The work is often risky, and frequently OSH protocols are not followed. The environmental impacts of the sector are many and occur at every step in a building’s life cycle. The types and extent of impacts hinge on the choices of design and the practices of construction, operations and demolition. In addition, as a major consumer of natural resources, the demand of the construction sector is linked to several primary sectors, with their own environmental impacts.

In Zambia the innovative approach of the Zambia Green Jobs Programme has encouraged the growth of small and medium construction enterprises, use of more sustainable materials and decent work practices. The multi-pronged approach involved policymaking support, engagement of the private sector, extending social protection to construction workers and initiatives to improve OSH.

**Agriculture.** As noted, over 90 per cent of employment in agriculture is informal, and much of this work takes place on small farms. Such farms produce 80 per cent of the food consumed in the global South. Volatile food prices mean that incomes for these farm families are fluctuating and uncertain. Furthermore, they have difficulty obtaining production inputs, finance and training. Secure access to land is often a problem, as often they do not own the land they farm. These smallholder farms are particularly vulnerable to environmental degradation and to climate change impacts. These farmers lack social protections to cushion them from the catastrophic effects of crop failure. As for the environment, impacts of small farms can range from highly detrimental (for example, slash-and-burn agriculture) to contributing to regeneration and conservation (for example, conservation agriculture, permaculture).
In India the Mahatma Gandhi National Rural Employment Guarantee Act is a central element of India’s extension of social protection. It aims at providing rural populations with a basic level of income security through up to 100 days of guaranteed employment for households that request it. At the same time, the programme develops rural infrastructure and assets. Recently, particular attention has gone to works and assets that support environmental sustainability and adaptation to climate change, such as watershed management, flood protection and afforestation.

**Observations**

Experience to date is limited, but these initiatives and others around the world are demonstrating the synergy of promoting environmental sustainability and formalization. These initiatives are diverse, tailored to the particular nature and needs of the sector and its workers and enterprises. Still, some generalizations are possible. It emerges that:

- Enabling legal and policy frameworks are crucial.
- Incentives play an important role in motivating improvements in environmental sustainability and transitions to formality.
- Organization, representation and social dialogue mechanisms are instrumental to designing relevant and effective policies and initiatives.
- Typically, multi-stakeholder approaches are important in delivering comprehensive interventions.

The challenges that climate and environmental change pose to actors in the informal economy require comprehensive measures. These measures should address the root causes of vulnerability associated with informality, in particular the lack of social protection coverage, organization and voice. At the same time, it is essential that policies, programmes and service delivery address more generally the needs of the people who work in the informal economy.
1. Introduction

More than six of every 10 workers in the world operate in the informal economy, which is estimated to be worth over US$10 trillion. The majority of enterprises and workers in the informal economy are concentrated in the global South, accounting for 40 per cent of employment in the Americas (mainly Latin America), 68 per cent in Asia and the Pacific, 68.6 per cent in the Arab states and 85.6 per cent in Africa (ILO 2018b, 13). Globally, four of every five enterprises1 are informal (ILO 2018a).

Informality presents significant challenges to the creation of full and productive employment and decent work for all, as work in the informal economy is often characterized by decent work deficits, including the denial of rights at work, lack of social protection, poor working conditions and low productivity. Also, workers and enterprises in the informal economy experience specific barriers to representation in advocacy initiatives and to engaging in social dialogue. In addition to decent work deficits, high degrees of informality pose a challenge to government revenues by creating a narrow base for tax and social security contributions and unfair competition to formal enterprises. The challenges related to informality have come to the forefront during the COVID-19 crisis. Workers and enterprises in the informal economy have been particularly hard hit. Workers operating in the urban informal economy in developing countries are more likely to be exposed to occupational safety and health risks and have less access to health care and social protection. If they have health issues, most workers in the informal economy do not have guaranteed access to medical care. They also often lack access to government support measures to mitigate the impact of the pandemic.

While the challenges associated with the informal economy and strategies to address them have received significant attention, little discussion has addressed how informality and environmental issues are linked. Yet, recognizing these links, including their implication for vulnerability and resilience, is key to promoting sustainable development and decent work for all.

Recognizing how informality and environmental issues are linked is key to promoting sustainable development and decent work for all.

The world of work is deeply interconnected with the environment. Climate change is having – and will continue to have – a large impact on workers and enterprises. Globally, 1.2 billion jobs are closely dependent on ecosystem services. An estimated 23 million working life-years have been lost to environmental disasters every year since 2000, and 2 per cent of working hours, the equivalent of 72 million full-time jobs, will be lost annually by 2030 due to heat stress (ILO 2018c). At the same time, the types of jobs that are created and the way that different economic sectors operate, in terms of resource use and waste and emissions generation, affect the state of the natural environment and the functioning of ecosystem services.

Many informal economic activities are resource-dependent. Agriculture, which accounts for the largest share of employment in the informal economy, is the most obvious case (ILO 2018a). Beyond agriculture, several natural resource-based sectors in the rural economy, such as artisanal and small-scale mining, fisheries and forestry, display a high degree of informality. At the global level, people living in rural areas are twice as likely to be informally employed as people in urban areas. Climate change and environmental degradation – especially through their impact on productivity and incomes – can contribute to migration and involuntary displacement. If migration is unsafe, it can perpetuate informality and situations of vulnerability.

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1 In this document the term “enterprise” refers to economic units as defined in ILO Recommendation 204 (https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:R204).
Many activities in the informal economy are not only sensitive to changes in the environment and resource availability, but they also have the potential to significantly impact environmental conditions.

**Informality can exacerbate vulnerability to environmental changes.** Decent work deficits – especially limitations in occupational safety and health (OSH) and social protection – can compound workers’ and enterprises’ vulnerability to both sudden and slow-onset environmental impacts and exposure to environmental risks. Specifically, informality can make it more difficult for workers and enterprises to adopt strategies of resilience, due to limited access to information, resources and networks. People working informally often lack legal ownership of, or secure access to, valuable assets such as land and productive equipment. This can hinder adoption of and investments in sustainable practices due to the uncertainty of returns and the inability to access finance. Furthermore, because workers and enterprises in the informal economy are often excluded from dialogue processes, policymakers may fail to take into account their specific environmental challenges and related vulnerabilities.

The informal economy can adversely affect the environment. The limited capacities of workers and enterprises to apply sustainable practices and the poor enforcement of regulations in the informal economy can compound low adherence to, or lack of knowledge of, environmental standards and protection measures. Furthermore, where enterprises and workers in the informal economy could contribute to positive environmental outcomes, their informal status and related challenges can reduce their ability to do so. Informal status limits productivity and creates barriers to scaling up operations, adopting cleaner practices and technologies and accessing markets and information.

Despite the significant connections between the informal economy and the environment, such linkages are rarely addressed in research or in policy measures. Research and policies addressing informality seldom make any reference to environment-related impacts, contributions and vulnerabilities. At the same time, policies and research in the environmental and green economy field seldom take into account the implications of environmental policies on workers and enterprises in the informal economy or the linkages between informality and the environment. A 2016 report from the International Institute for Environment and Development finds that, of 60 national green economy plans reviewed, only 25 per cent make explicit reference to the informal economy (Lewis 2016, 8).

Importantly, the shift towards sustainability involves deep restructuring of economies and labour markets. It is expected that at the global level there will be net employment gains and significant opportunities for improvements in job quality, but workers and enterprises in carbon-intensive sectors will be adversely affected (ILO 2018b). Due to the deficiencies in decent work that they typically face, workers and enterprises in the informal economy are at particular risk of bearing high costs in the transition and being unable to tap into emerging opportunities.

In order to realize the commitment to inclusive green economies and to creating decent work and sustainable development for all, the roles and needs of operators in the informal economy have to be addressed (Benson et al. 2014, 12; Brown and McGranahan 2016, 98). The Guidelines for a Just Transition Towards Environmentally Sustainable Economies and Societies for All from the International Labour Organization (ILO) (ILO 2018b, 54) recognize that the informal economy must be addressed in any meaningful effort to shift towards inclusive greener and more resilient models of development. This is particularly relevant in the context of today’s development of measures for recovery from the COVID-19 pandemic and the emphasis needed on a job-rich green recovery.

This paper seeks to contribute to the small but growing knowledge base on the linkages between the informal economy and the environment. On one hand, it aims at increasing our understanding of how issues of informality and the environment
are connected, articulating the various dimensions of these linkages. On the other hand, it seeks to reflect on how strategies to promote formalization can also support environmentally sustainable outcomes and vice versa. Thus, it provides an initial basis for identifying approaches and lessons learned that have significant potential to advance both aims in an integrated manner. Case studies from a range of sectors are presented to illustrate how linkages play out. The review and analysis draws out recommendations for further research as well as lessons for a possible integrated approach to address formalization and environmental sustainability.

Section 2 introduces a definition of the informal economy that will be used in this report and highlights some key sources that guide ILO’s actions in relation to informality and environmental sustainability. It discusses the informal economy in the framework of the Decent Work Agenda and summarizes the decent work deficits commonly found in the informal economy. Section 3 examines the general linkages between informality and the environment, focusing on vulnerability to environmental risks and the informal economy’s positive and negative impacts on the environment. Section 4 provides a more in-depth analysis of the linkages between (in)formality and the environment in selected sectors – waste management, artisanal and small-scale mining, construction and agriculture. Section 5 summarizes lessons learned for addressing decent work deficits and environmental challenges in the informal economy and for facilitating transitions to formality that maximize environmental benefits. This last section also presents concluding observations and identifies areas for future research.
2. A guiding framework on informality

2.1. Defining the informal economy

The Transition from the Informal to the Formal Economy Recommendation (No. 204) was adopted by the International Labour Conference in 2015. It defines the informal economy as all economic activities by workers and economic units that are – in law or in practice – not covered or are insufficiently covered by formal arrangements. This definition does not include illicit activities. For economic units, formalization means bringing them under government regulation, with the advantages and obligations that this entails. For employees the transition to formality means providing them with adequate labour and social protection.

The transition to formality can be a pathway to obtaining decent work opportunities and reducing poverty as workers gain access to comprehensive and adequate protection (in law and in practice) and their activities are fully declared to the government. For enterprises, formalization can be a pathway to increased sustainability. Means to encourage formalization include simplified business registration, accessing new forms of productive factors that increase productivity, governmental and non-governmental support, facilitating access to market opportunities in the formal economy and strengthening compliance with laws and regulations. A legal and institutional framework that incentivizes formalization and facilitates a transition to the formal economy for workers and enterprises can underpin this process. Inclusive social dialogue processes are important to ensure that informal economy and formalization issues are properly identified and addressed.

The root causes of informality include elements related to the economy (such as the structure and growth of the labour market), legal, regulatory and policy frameworks as well as to some micro-level determinants such as low levels of education, discrimination, poverty and a lack of access to economic resources, property, financial and other business services and to markets.

The ILO distinguishes between employment in the informal sector and informal employment:

- **Employment in the informal sector** takes enterprises as the entry point. According to the international standards adopted by the 15th International Conference of Labour Statisticians (ICLS), the informal sector consists of units engaged in the production of goods or services with the primary objective of generating employment and income for the persons concerned. The formality or informality of an enterprise is assessed by these criteria: (i) the enterprise’s institutional sector; (ii) their level of registration with national authorities and (iii) the extent to which they maintain a set of accounts required by law (for example, balance sheets). If information on these criteria is missing, alternative criteria can be applied.

- **Informal employment**, in contrast, takes the jobs as the entry point. Employment of employees is considered formal when their employers

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6 The government, public and private corporations and non-governmental and international organizations belong to the formal sector.
Contribute to social security on their behalf. In the absence of information about social security contributions, employment is considered formal if employees receive paid annual leave and paid sick leave. In all other cases, employment is considered informal. In the case of employers, own-account workers and members of cooperatives, the formality of employment depends on the status of the economic unit. If the economic unit is part of the formal sector, employment for employers and own-account workers is considered to be formal. Employment of contributing family workers is always considered informal employment.

Globally, informal employment is highest in the agriculture sector, at 93.6 per cent of agricultural workers. The industry and service sectors are relatively less exposed to informality, although informality remains high, with 57.2 per cent of workers in industry and 47.2 per cent in services working informally (ILO 2018b, 20). At the global level, informal employment is a greater source of employment for men (63.0 per cent) than for women (58.1 per cent). Of the 2 billion workers in informal employment worldwide, just over 740 million are women. This global picture hides important disparities. In low- and lower-middle-income countries, a higher proportion of women are in informal employment than men. In Africa 89.7 per cent of employed women are in informal employment in contrast to 82.7 per cent of men. Women in the informal economy are often over-represented in some of the most vulnerable occupations, for instance as home-based workers, contributing family workers or domestic workers (ILO 2018b, 20–21). It is also important to note that conditions of work, level of earnings and the nature of jobs in the informal economy are highly diverse, as are actors in the informal economy (Lewis, 2016, 20).

### 2.2. The ILO’s Just Transition Guidelines

As the relationship between the world of work and the changing natural environment has become increasingly recognized, in 2013, at the 102nd Session of the International Labour Conference, representatives of governments’, workers’ and

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<th>ILO’s Just Transition Guidelines: An Overview</th>
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<td><strong>Policy coherence and effective institutional arrangements</strong></td>
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<td><strong>Social Dialogue</strong></td>
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<td><strong>Macroeconomic</strong></td>
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<td>Macroeconomic Industrial and sector</td>
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<td>Social protection</td>
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<td><strong>Employment</strong></td>
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<td>Employment</td>
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<td>Skills</td>
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<td>Labour market</td>
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<td><strong>Labour Standards</strong></td>
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<td>Labour Standards</td>
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<td><strong>Gender</strong></td>
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<td>Gender</td>
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<td>Positive impact on labour markets and the environment</td>
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<td><strong>Improved environmental quality and resilience</strong></td>
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<td><strong>Increased decent jobs and income gains</strong></td>
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<tr>
<td><strong>Lower emissions and environmental impacts generated</strong></td>
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<tr>
<td><strong>Negative social impacts are minimized and addressed</strong></td>
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employers’ organizations adopted a resolution and a set of conclusions concerning sustainable development, decent work and green jobs. A tripartite group of experts formulated the Guidelines for a Just Transition to Sustainable Economies and Societies for All, henceforth referred to as the ILO Just Transition Guidelines. These guidelines seek to provide non-binding orientation and a framework for governments and social partners on policies across a number of fields that support a just transition. While explicitly recognizing that policies would be grounded in national circumstances and priorities, the guidelines present key principles and possible entry points to maximize decent work opportunities, while addressing possible risks, and ensuring worker protection in the shift towards environmental sustainability (ILO 2015; ILO 2018b, 54).

The ILO Just Transition Guidelines include points relevant to formalization in the context of promoting decent work. The guidelines encourage the development of integrated sectoral strategies and instruments, highlighting the need to improve working conditions and representation in sectors that may be considered “green” while presenting significant levels of informality and decent work deficits (for example, waste management). They also point to the importance of targeted formalization programmes. When discussing OSH policies, the guidelines emphasize the potential of training, capacity building, certification and legislation to improve OSH conditions

Transition to the formal economy: impacts and outcomes (Theory of Change)

<table>
<thead>
<tr>
<th>Impact</th>
<th>For People: Decent work, reduced poverty and better equality</th>
<th>For Enterprises: Enterprises are more sustainable including through increased productivity and fair competition</th>
<th>For Governments: increased scope of action including through increased revenues and strengthened rules of law</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome</td>
<td>Workers have access to adequate protection in laws and in practice (formal jobs)</td>
<td>Enterprises are covered and compliant with laws and regulations (formal enterprises)</td>
<td>Enterprises’ and workers’ activities are fully declared (formal activities)</td>
</tr>
<tr>
<td>Intermediate outcomes</td>
<td>Creating decent jobs and sustainable enterprises in the formal economy</td>
<td>Transitioning workers and enterprises to the formal economy</td>
<td>Preventing informalization of jobs</td>
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2. A guiding framework on informality
in such activities as materials recovery and recycling, which are often informal. The guidelines also recognize the vulnerability of workers and enterprises of the informal economy to climate change and environmental degradation and the need to pay particular attention to such vulnerabilities.

2.3. Recommendation on transition from informal to formal economy

The 2015 Transition from the Informal to the Formal Economy Recommendation (No. 204) identifies guiding principles and emphasizes integrated strategies to facilitate a transition to the formal economy of both workers and enterprises, the creation of new formal jobs and prevention of further informalization. Recommendation No. 204 recognizes that the high prevalence of the informal economy has a negative impact on the development of sustainable enterprises, public revenues and governments’ scope of action, including with regard to environmental policies. It encourages Member States to assess the characteristics and drivers of informality and to ensure that an integrated policy framework is in place to facilitate the transition to the formal economy. Recommendation No. 204 also provides an overview of Conventions and Recommendations relevant to facilitating the transition from the informal to the formal economy. Formalization is considered a gradual process. A reduction of decent work deficits should be considered a first step toward progressive formalization over the longer term. Thus, Recommendation No. 204 refers to a transition to formality, which implies the concept of a continuum, as opposed to a dichotomy of informality versus formality.
2.4. The 2030 Agenda for Sustainable Development

The 2030 Agenda for Sustainable Development clearly recognizes the economic, social and environmental dimensions of sustainable development, captured in 17 goals that are to be understood as integrated and inseparable. Decent work is a key part of the agenda, with a dedicated goal on decent work and economic growth (SDG 8), as well as related targets across other goals. Under Goal 8, target 8.3 specifically refers to formalization, as it seeks to “promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small-, and medium-sized enterprises, including through access to financial services”.

Environmental concerns are addressed in several goals, including, among others, those on climate change, life on land and life below water, energy, sustainable production and consumption. Goal 8 itself has an environmental component: Target 8.4 seeks to “improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programmes on sustainable consumption and production, with developed countries taking the lead”.

2.5. Decent work deficits in the informal economy – a brief overview

The Decent Work Agenda is essential to achieve sustainable and inclusive growth and development. Decent work is defined as work that is productive, delivers a fair income, offers security in the workplace and social protection for families, contributes to personal development and social integration, grants people the freedom to express their concerns, organize and participate in the decisions that affect their lives, and ensures equality of opportunity and treatment for all women and men.

Workers in the informal economy are often subject to decent work deficits across all pillars of the Decent Work Agenda – employment creation, social protection, rights at work and social dialogue. In terms of employment, informality may limit access to quality jobs that generate decent wages, access to inputs that improve workers’ capacity to find productive opportunities, such as skills training, financial services and market information, and the ability of entrepreneurs and workers to use their assets and expand their markets (ILO 2013). Workers and enterprises in the informal economy also lack legal ownership of or secure access to valuable assets such as land or buildings. Most informal economy workers are excluded from social protection coverage (which makes them vulnerable to the consequences of shocks and crises such as sickness, maternity and old age) and are not covered by occupational safety and health measures. Workers in the informal economy often lack rights at work: They are by definition not, or are not sufficiently, covered by labour and social security legislation and administration. Yet, the eight core ILO Conventions that relate to the fundamental principles and rights at work apply to the informal economy, and some instruments make explicit or implicit reference to it or apply to specific categories of informal jobs. They also often face difficulties in accessing dispute settlement mechanisms, are beyond the reach of legal and rights education, and may work under bonded or unfair conditions. They may also be excluded from processes of social dialogue, and they may be unable to organize. Where workers’ organizations are formed, they may not be recognized or may not be included in tripartite dialogue processes.

Decent work deficits in the informal economy may contribute to the adverse environmental impacts of informal activities and make both informal workers and enterprises more vulnerable to climate-related risks and environmental hazards.

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7 https://sdgs.un.org/2030agenda
3. Linkages between the environment and informality

The linkages between informality and the environment vary according to the nature of activities in the informal economy. Activities that depend greatly on the availability of natural resources or that are situated in vulnerable areas such as informal settlements or in which workers are exposed to risks can be highly susceptible to environmental hazards and climate shocks. Decent work deficits, especially those related to gaps in social protection or lack of adherence to OSH standards, may contribute to the vulnerability of enterprises and workers in the informal economy. At the same time, activities in the informal economy have an impact on the environment. Some informal activities may have a negative effect on climate change and environmental degradation, while others may contribute to positive environmental outcomes and sustainability.

A wide range of environmental challenges affect and are affected by workers and enterprises in the informal economy. Climate change impacts are economy-wide, but certain sectors are particularly affected. A case in point is agriculture, which has very high rates of informality. Agriculture is highly affected by water scarcity, soil degradation and loss of biodiversity. In turn, agricultural activities are significant contributors to greenhouse gas (GHG) emissions, pressure on freshwater sources, and soil degradation and desertification, among others. Waste and pollution also are challenges posed by a variety of sectors. Of particular relevance to informality are issues related to the waste management sector itself and to the use of hazardous chemicals, particularly in mining.

This section provides an overview of the linkages between the environment and informality, focusing both on enterprises’ and workers’ vulnerability to climate and environmental hazards and on the environmental impacts of activities in the informal economy.

3.1. Informality and vulnerability to environmental hazards and climate change

Environment-related vulnerability refers to the tendency to be adversely affected by the impacts of climate or other environmental change. In this context, vulnerability is a multidimensional concept, determined by exposure to climate and environment-related risks and by factors that affect adaptive capacity and resilience, including access to resources and decision-making.

Environmental risks can arise from slow-onset events, such as droughts, erosion, soil degradation or sea level rise, or from rapid-onset events, such as cyclones, flooding and wildfires. They can be local, regional or global. Environmental risks can result from human activity (for example, water pollution from industrial activity) or natural hazards (for example, water pollution following a volcanic eruption) (ILO 2018c, 22).

Exposure to environmental risks, especially in the absence of adaptation measures, can reduce productivity and result in job losses. Between 2000 and 2015, 23 million working life-years were lost annually as a result of various environmentally related hazards caused or exacerbated by human activity (ILO 2018c, 23).

People who are socially, economically, culturally, politically or otherwise marginalized are especially vulnerable to the effects of climate change and other forms of environmental degradation. They also tend to be overrepresented in informal employment and enterprises.

Many informal enterprises and the workers they employ are located in informal settlements, which creates a double exposure to environmental risks and increases their vulnerability (Cleveland 2013, 1). Informal settlements are often located in marginal land areas that can be subject to various environmental and climate-related hazards, including landslides and flooding. Davis notes, “The newly urbanized poor become the ‘pioneer settlers’ of
the swamps, floodplains, volcano slopes, unstable hillsides, rubbish mountains, chemical dumps, railroad sidings and desert fringes“ (Davis 2006, 120). Furthermore, the world’s fastest growing cities are located along coastlines that are vulnerable to sea level rise, storm surges and flooding. In many cases informal settlements that lack green infrastructure (that is, trees and vegetation) and grey infrastructure (that is, flood channels and sewerage systems) are the most severely affected (Cleveland 2013, 3).

The high exposure to environmental risks, combined with infrastructure that often does not comply with building standards, increases the vulnerability of enterprises and workers in informal settlements. In many cases residents in informal settlements adopt localized adaptation measures, constructing basic infrastructure and improving drainage systems. However, adaptive capacity in informal settlements tends to be limited due to residents’, workers’ and enterprises’ limited access to finance, information and technology for adaptation and due to the exclusion of informal settlements from government planning and regulation on risk mitigation and adaptation to climate change (Hallegatte and Corfee-Morlot 2010, 9).

Enterprises and workers in the informal economy are overrepresented in environmentally sensitive and resource-dependent sectors, increasing their exposure and vulnerability. Many informal economic activities, such as those in agriculture and fisheries, depend on natural resources (Benson et al. 2014, 12). As noted, the agriculture sector alone accounts for the majority of enterprises and workers in the informal economy. Agriculture is one of the sectors most vulnerable to climate change, and farmers are already seeing declining yields as a result of changing rainfall patterns, increased temperatures, more prolonged and intense drought and floods, and climate-related pest and disease outbreaks. Declining resource availability may also put own-account workers in the informal economy in high-risk situations, as they may need to travel farther or undertake riskier activities to obtain resources (Benson et al. 2014, 12).

Decent work deficits often associated with informality increase vulnerabilities to environment and climate-related risks. A clear instance may be found in OSH. Informal enterprises that fail to adhere to OSH standards may expose workers to hazardous conditions linked to environmental changes. For example, workers may be working under increasing heat stress as a result of rising average temperatures and a higher incidence of extreme temperatures (ILO 2019b). Heat stress is likely to reduce productivity and lead to adverse occupational health effects and workplace injuries, especially in countries that are most exposed to extreme heat, in activities that involve outside and daytime work, such as agriculture and construction, and in enterprises with weaker adaptive capacity, such as factories that lack effective cooling systems (ILO 2018b, 26). Other workers, such as fishermen, may need to take more risks to access depleted resources in increasingly unfavourable environmental conditions (Lewis 2016, 17). Furthermore, enterprises and own-account workers in the informal economy often operate in informal settlements, where the absence of OSH standards, including those on emergency preparedness and response, combined with the high exposure to environmental hazards and climate change, may further increase workers’ vulnerability.

Decent work deficits often associated with informality increase vulnerabilities to environment and climate-related risks.

The limited application of OSH standards also affects workers in the informal economy who perform environmental services and who are engaged in activities and sectors that have a beneficial impact on environmental outcomes. For example, occupations such as waste picking expose these workers to a variety of risks and hazards, despite the sector’s environmental contributions. At the same time, informal activities with a high adverse environmental impact, such as illegal mining, also may have detrimental effects on workers.

Another clear illustration of the relationship of informality and climate and environmental change impacts may be found in social protection deficits. Limited access to social protection for workers in the informal economy exacerbates
their vulnerability. The linkages between social protection, climate change and environmental degradation are multiple and complex. The majority of studies on the subject have focused on linking social protection to disaster risk reduction and risk management. The potential of social protection to protect populations from climate-related stresses and to provide relief in response to natural hazards and extreme weather events is increasingly recognized (ILO 2019a). However, to the extent that they lack social protection, workers in the informal economy face greater risk of income losses and threats to their livelihoods from environmental hazards and climate-related risks (ILO 2019a). Extending social protection to those in the informal economy (ILO 2021a) enhances their resilience in the face of environmental change. Thus, it is an important component of a just transition to a greener economy (ILO 2018c; ILO 2021b).

**Limited adaptive capacity.** At the same time that informality increases vulnerability to climate and environmental changes, it also hampers these enterprises’ and workers’ ability to mitigate or adapt to those changes.Informal operators adopt coping strategies. However, because profits and income in the informal economy tend to be low and inconsistent, these enterprises and workers may not have the financial resources and capacities to plan and implement adequate long-term adaptation measures. Furthermore, workers and enterprises in the informal economy are less likely to be able to access information and technologies that are crucial for adaptation and resilience. Their informal status, concentration in informal settlements, limited representation through workers’ and employers’ organizations and limited access to policy dialogue make it difficult for their concerns and priorities to be adequately reflected in national adaptation and emergency preparedness and response plans. As a result, mechanisms that would provide societal resources to support adaptation are often silent on the needs of workers and enterprises of the informal economy.

*Mechanisms that would provide societal resources to support adaptation are often silent on the needs of workers and enterprises of the informal economy.*
Importantly, workers and enterprises in the informal economy are not only vulnerable to risks associated with the environment and climate change, but they are also exposed to potential negative impacts of environmental policies. For example, when energy and climate policies bring about a contraction of carbon-intensive industries, with subsequent loss of employment and income, workers not covered by collective bargaining agreements and social protection schemes may be left out of unemployment benefits and retraining programmes. The fact that workers and enterprises in the informal economy are often not represented through social dialogue means that they typically have less influence in policy dialogues and decision-making processes and that their voice is not heard, which increases the risk that their concerns are overlooked. In order to ensure a just transition to environmental sustainability, it is, therefore, essential to take into account the realities and voices of workers and enterprises of the informal economy, to ensure that no one is left behind.

### 3.2. Informality and its environmental impacts

Activities in the informal economy can have significant impacts on the environment. Because many of the activities in the informal economy are resource-dependent, they have the potential to significantly affect environmental conditions. Furthermore, the sheer size of the informal economy makes it not only significant in terms of employment but also in terms of its environmental impacts – both negative and positive.

Enterprises in the informal economy operate outside the reach of regulatory regimes, which makes it difficult to support sustainable practices, conduct the necessary environmental assessments, invest in clean technology, respect national and international environmental standards and laws, or report environmental impact. As a result, activities in the informal economy can pose severe risks for the environment. For example, informal
enterprises in the mining sector are responsible for one third of the mercury released into the environment, despite the existence of more sustainable processes that pose fewer health and safety risks to workers.

The adverse environmental impacts of enterprises in the informal economy are often associated with limited revenues and limited access to information and skills. Limited revenues make informal enterprises less likely to invest in sustainable technologies or practices, while limited access to information and a skilled labour force or limited management capacity may prevent informal enterprises from changing to more environmentally sound processes and business models.

Not all activities in the informal economy have negative environmental impacts. Some enterprises and workers in the informal economy can produce positive environmental outcomes. Informal waste pickers, for example, perform an essential, yet under-recognized, environmental service by contributing to waste management. In other sectors some informal operators may also adopt highly sustainable practices. For example, some agricultural methods adopted by informal farmers, such as crop rotation and the use of organic and natural fertilizers and pest control systems, can result in soil regeneration and increase biodiversity.

Unfortunately, their informal status may hinder these enterprises’ and workers’ ability to scale up and maximize their environmental contributions. Limited revenues and access to information, markets, networks and skills all can act as barriers to expanding sustainable practices and technology uptake in the informal economy.

While the linkages between the environment and informality are clear, more research is needed to better understand the specific vulnerabilities faced by workers and enterprises in the informal economy and the positive and negative environmental impacts of informal activities. Given that some of the challenges faced by enterprises in the informal economy in relation to sustainability and resilience may also be faced by micro and small enterprises more generally – for example, in terms of access to information, markets and capacities – it would be beneficial to also reflect on the constraints faced by micro and small enterprises more generally.
4. Potential opportunities to integrate transitions towards formalization with sustainability

This section first reflects on the importance of fostering a just transition towards sustainable economies that includes the workers and enterprises of the informal economy, paying explicit attention to their needs and their specific constraints and contributions. Second, it presents a preliminary exploration of measures to integrate “green” considerations into formalization measures.

4.1. A just transition takes into account the challenges of workers and enterprises of the informal economy

The ILO Just Transition Guidelines towards Environmentally Sustainable Economies and Societies for All state in their very title that they are about ensuring a just transition for all. It is essential for the transition to include workers and enterprises of the informal economy and to support their formalization. This requires explicit attention to their challenges and contributions across the policy domains indicated in the guidelines:

In aligning macroeconomic and growth policies with a just transition, it is important to consider the impacts that different environmental targets, subsidies and regulations have on labour and on enterprises of different types and sizes, including enterprises and workers of the informal economy. In this context possible links of such policy instruments with formalization initiatives related to incentives and compliance may be explored.

When it comes to industrial and sectoral policies, the size and role of labour and enterprises in the informal economy have to be taken into account. Targeted measures may be required, especially for sectors with a high degree of informality, to address environmental vulnerabilities and promote job upgrading through paths to formalization (for sectoral case studies, see Chapter 5).

In designing and implementing enterprise policies, it is essential to address the needs of enterprises of different types, taking into account the specific constraints that micro, small and medium enterprises (MSMEs) face in shifting to sustainability and in increasing their resilience to climate and environmental shocks. It is also important to adopt specific formalization measures in sectors with a large proportion of informal enterprises and workers.

Skills policies need to be equitable and inclusive. Informal economy workers often face constraints in access to skills training and lifelong learning opportunities, due to the requirements for entry to formal education, lower levels of foundational skills, training costs and other factors. When developing policies and programmes on skills for green jobs and on retraining workers adversely affected by climate policies, such barriers need to be addressed. Promising venues include recognition of prior learning and the extension of technical and vocational education and training (TVET) to informal economy workers.

With regard to occupational safety and health, risks associated with informality in activities related to the greening of the economy, such as material recovery and recycling, need to be recognized and addressed through various measures and in the context of pathways to formalization. Measures may include training, capacity building, certification and, where appropriate, legislation.

In terms of social protection, it is important to reinforce social protection systems, including social protection floors, to safeguard populations from environmental and climate change impacts on their health and incomes, while accelerating the extension of protection to workers and enterprises in the informal economy. The case of workers and small holders in the agricultural sector in developing countries clearly illustrates the urgency of this challenge (ILO and FAO 2021). They operate in a sector that is highly sensitive to climate and environmental changes, while
typically having limited or no protection against shocks. A social protection system that is climate-proof and inclusive is vitally important.

In relation to active labour market policies and instruments, assessments of the impacts of environmental changes and response measures on labour markets need to address such impacts on workers and enterprises in the informal economy. Employment services that address needs arising from the transition to sustainability should reach out to workers of the informal sector. Appropriately designed emergency employment schemes deployed in the context of climate disasters can serve as an important vehicle for formalization and the extension of social protection.

Social dialogue and stakeholder engagement are the route for the development and implementation of just transition policies. Given the constraints on representation and voice faced by workers and enterprises in the informal economy, efforts to organize them are crucial, as are initiatives to ensure that their voices are heard through inclusive social dialogue processes.

4.2. Greening formalization measures

It is important to recognize and address the connections between informality and environmental challenges in formalization policies and initiatives. This will involve recognizing the complex ways in which multiple vulnerabilities interrelate and leveraging synergies to advance both environmental sustainability and formalization objectives.

Greening formalization measures means leveraging synergies to advance both environmental sustainability and formalization objectives.

Greening licensing and registration procedures. One way to foster the formalization of enterprises is to streamline registration, licensing and compliance procedures. Common examples include providing information on the registration and licensing process, facilitating registration and licensing through one-stop shops, reducing the
number of steps to register businesses, putting in place requirements and legal formats designed specifically for small and medium enterprises, simplifying procedures for license renewals and simplifying procedures and requirements for reporting, accounting and tax and social security payments.

Integrating environmental considerations into initiatives that aim to streamline licensing and registration procedures could include:

- Integrating information and support for meeting environmental regulations and standards into the information and services offered by authorities responsible for licensing and registration. The information could be tailored to the business’ sector of operations.

- Simplifying and adapting environmental regulations and standards to meet the needs and capacities of small enterprises in selected sectors, as well as simplifying reporting requirements. Small enterprises often lack the resources, information and capacity to meet complex and rigorous environmental regulations and standards, which are often geared for larger, formal enterprises. Simplifying environmental regulations, standards and reporting requirements for small enterprises in the formal and informal sectors can encourage these enterprises to adopt more environmentally friendly practices.

- Mainstreaming environmental requirements in registration and licensing processes or integrating environmental permitting into initiatives that streamline licensing and registration for informal enterprises. Often, the procedures for registering a business are separate from those related to environmental permits, which creates an additional hurdle for small enterprises. In addition, integrating environmental permitting into licensing underlines the indivisible linkages between enterprises’ operations and the environment.

**Greening formalization incentives.** Effective formalization initiatives include incentives to encourage small enterprises to transition to formality. Examples include financial incentives for registering and complying with regulations; improved access to social insurance coverage for entrepreneurs, their families and their employees; as well as access to formal private and public markets. Such formalization incentives could be “greened” by:

- Providing financial and non-financial incentives or support to enterprises that provide an environmental service or that adopt sustainable technologies and practices and take steps to comply with environmental registration requirements and standards;

- Making schemes for payment for ecosystem services accessible to workers and enterprises of the informal economy and using them as a pathway to formalization;

- Supporting newly formalized workers and enterprises in meeting environmental certification standards in order to facilitate access to more sustainable and profitable value chains and markets. Section 5.2, on artisanal and small-scale mining, uses the Fairmined certification initiative to illustrate this approach.

**Greening productivity enhancement initiatives.** Initiatives that aim to encourage formalization by enhancing business productivity often focus on business upgrading and financial inclusion. Business upgrading can entail providing market information, building technical and business management skills, facilitating access to business development services for small enterprises, launching measures to encourage innovation and technology transfers, and strengthening national institutions for improved coordination of services and support. Financial inclusion can entail improving access to finance, improving the relevance of financial services available to small enterprises, providing financial incentives for

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9 Schemes for payment for ecosystem services are grounded in the notion that “resource users and communities (usually land owners) who are in a position to provide environmental services should be compensated for the cost of their provision, and that those who benefit from these services (private, public or a combination of both) should pay for them, thereby internalizing the benefits” (ILO 2018b).
formalization, and launching financial education and awareness programmes for small enterprises.

Initiatives to enhance business productivity could be “greened” through the following measures:

- Enhancing the capacity of service providers to incorporate sustainable practices and environmental considerations into entrepreneurship training and other enterprise training. Often, there is little emphasis on environmental issues in trainings for workers and business owners, and yet important productivity gains can be made by improving the resource and materials efficiency of enterprises. These improvements can be leveraged by offering training and coaching tailored to small enterprises.

- When promoting access to technology and innovation, including green technology and innovations relevant to the needs of small enterprises.

- Facilitating access to finance to help more enterprises to adopt more sustainable practices or technologies and/or climate adaptation measures.

Organizing workers and enterprises in the informal economy and facilitating their representation in social dialogue and stakeholder engagement processes. Some activities, such as waste collection, make important environmental contributions, and yet many of these workers and enterprises operate in the informal economy and face poor working conditions. Other sectors, such as agriculture, depend greatly on natural resources and are highly affected by climate change, while their workers and enterprises have limited access to social protection and lack the assets to support adaptation. Supporting workers and enterprises in these sectors to unionize and organize into cooperatives can help them to secure support services, improve their working conditions and reduce their vulnerability to environmental and climate risks.
Crucially, workers’ organizations and cooperatives also can strengthen their representation in local and national dialogue processes to ensure that their concerns are addressed. Measures can include:

- Compiling evidence and raising awareness of the environmental challenges and contributions of enterprises and workers in the informal economy, so that they can be taken into account in policy design;

- Building the capacity of employers’ and workers’ organizations to engage with environmental issues in the world of work and to make the linkages between formalization and sustainability more salient;

- Facilitating the functioning of platforms for policy dialogue at the national and local levels that bring together actors from the world of work, from key economic sectors and from the environmental field.
5. Sectoral overview

Activities in the informal economy are very diverse, and this means that generalizations about their environmental impacts and vulnerabilities necessarily have limitations. This section provides a more in-depth view of the linkages between informality and the environment in selected sectors. The case studies in this section illustrate how activities in the informal economy impact the natural environment and how informality can reduce resilience and increase vulnerability to environmental hazards. These case studies also illustrate possible ways to address decent work deficits and environmental challenges in the informal economy. They are by no means comprehensive or prescriptive; solutions to decent work deficits and environmental challenges in the informal economy must be tailored not only to the specific sector but also to local and national contexts.

The analysis focuses on the waste, artisanal and small-scale mining, construction and agriculture sectors. These sectors clearly illustrate interconnections of vulnerability to environmental hazards or environmental impacts with informality. It should be noted that this selection of sectors is not exhaustive and other sectors are also relevant to the discussion on informality and environmental sustainability.

5.1. Waste management

Informal waste picking provides the livelihoods of an estimated 15 million people. In Latin American and Asian cities, 2 per cent of the population depends on waste picking (Wilson et al. 2006). Countries in the global South have experienced rapid rates of urbanization. This, paired with insufficient governance structures and technical and financial resources, have often led to inefficient waste management systems (Dias and Samson 2016, 375). Cities of the global South often lack formal waste management systems and instead rely on informal waste pickers to collect waste, sort and repackaging materials for recycling.

The global waste market is vast. Each year 11 billion tonnes of solid waste are collected worldwide, and the global formal waste market is valued at an estimated US$410 billion (Benson et al. 2016, 22). One of the waste streams that is growing fastest is e-waste. It is driven by the production of electrical and electronic devices, the increasing capacity to purchase electronic goods and the flexibility and speed with which old devices are replaced (ILO 2019b; ILOCOOP 2014, 10). The e-waste sector is also largely informal, as most countries have not yet established appropriate infrastructure or regulatory frameworks to manage this type of waste (ILOCOOP 2014, 10).

The informal waste management system is characterized by four distinct categories of informal waste picking, determined by where and how material recovery takes place. These include:

1) **itinerant waste buyers**, who go from door to door collecting sorted recyclable materials from households and transport them to a recycling shop;
2) **street waste pickers**, who recover secondary raw materials from mixed waste thrown on streets or from bins before collection;
3) **waste pickers** who sort through waste dumps and who often live on or near dumps and landfills;
4) **municipal waste collection crews**, who recover secondary raw materials from vehicles transporting waste to disposal sites (Wilson et al. 2006).

The informal waste sector is often closely linked to its formal counterpart. Informal waste pickers collect recyclable materials and sell them, often through middlemen, to a network of recycling industries and exporters in the formal economy (Wilson et al. 2009, 629). Despite these waste pickers’ role in the economy and their provision of an environmental service, policymakers and society at large often view them negatively. As a result, waste pickers are heavily stigmatized.
Informal waste pickers help to maintain the cleanliness of cities, and they make an important contribution to environmental sustainability. They help to reduce pollution, prevent the spread of diseases and enhance the quality of life in areas where they work (Dias and Samson 2016, 2006). They are skilled at identifying waste with potential value. They collect discarded materials and add value by sorting, cleaning and altering their physical shape to facilitate transport (Wilson et al. 2006). In this way waste pickers provide inputs into the recycling market, enabling materials that would otherwise be dumped to be re-used or reprocessed (Dias 2016, 377). By increasing recycling, waste pickers lengthen the lifespan of landfills and reduce the cost of cities’ solid waste management programmes (Moreno Sanchez and Maldonado 2006, 373). Waste pickers are generally aware of their role as environmental service providers, and they often help to fill the wide gap in the waste management systems of the global South. However, the general lack of recognition of waste pickers as environmental actors makes it difficult to measure the extent of their contributions (Wilson et al. 2009, 631).

Despite their positive contribution as service providers, waste pickers typically lack the facilities and infrastructure to perform their task safely. Informal waste pickers are often responsible for storing the material they have collected until it is sold or until transport to recycling centres can be arranged. This storage is often at their own expense and typically in unsanitary conditions. Thus, they are exposed to an additional set of occupational hazards when they have to store materials without appropriate infrastructure. Heavy rains and floods can disperse collected waste, also resulting in significant income losses for workers (Dias and Samson 2016, 42).

In addition to the challenges related to waste storage, informal waste pickers often experience significant decent work deficits when conducting their work. While waste picking provides livelihoods for many of the urban poor and creates opportunities for employment, the occupation is labour-intensive and characterized by low and precarious incomes (Wilson et al. 2006). Furthermore, the absence of OSH standards...
exposes waste pickers to health risks due to the manual handling of waste and lack of protective clothes or equipment (Wilson et al. 2006). Waste pickers may come into direct contact with broken glass, human and animal faecal matter, toxic materials and chemicals, and used needles and bandages from hospitals (Wilson et al. 2006). Waste pickers who work with e-waste are particularly vulnerable, as some of the components and materials are dangerous. In the absence of OSH standards and training on safe handling, lead, mercury, batteries and flame retardants can expose waste pickers to toxic materials and, thus, to work-related accidents and risks while also contaminating the local environment (ILO 2019c, 18; ILO COOP 2014, 10). The ILO has developed a manual that presents low-cost ideas for using locally available materials to help e-waste workers improve their safety, health and productivity (ILO 2019e).

Family-organized waste-picking is common. Thus, many informal waste pickers are children, the elderly and women, exposing them to the risks associated with informal waste picking. In the unsafe and precarious conditions in which they work, women waste pickers are more likely to experience gender-based violence and harassment (Benson et al. 2016, 21).

Waste pickers face significant barriers to organizing themselves into trade unions and associations and experience stigmatization. This prevents them from being represented in social dialogue and policy processes (Lewis 2016, 17). As a general rule, individual waste pickers who are not members of organizations are more vulnerable; they are more often subject to exploitative conditions and have limited capacity for processing and storing materials (Wilson et al. 2006). In many countries the waste picking profession is not recognized by law, making it difficult for waste pickers to address decent work deficits and to measure and value their economic, social and environmental contributions.

The ILO Just Transition Guidelines refer specifically to the waste management sector and its role in the transition, stating “governments, in consultation with social partners, should undertake steps and design measures to facilitate formalization and promote decent work, particularly in, but not limited to, the waste management and recycling sectors.” The informal waste sector clearly provides an important environmental service while its workers are vulnerable to environmental hazards. These contributions and risks can serve as entry points to encourage the formalization of the informal waste sector in the context of an equitable and inclusive shift to sustainability. In relation to e-waste particularly, the Points of Consensus of the ILO’s Global Dialogue Forum on Decent Work in the Management of Electrical and Electronic Waste highlight the need for formalization measures as key to addressing decent work deficits in the sector (ILO 2019d).

Workers and enterprises in the informal waste sector provide an important environmental service while facing significant decent work deficits.

Such considerations are increasingly important for policy discussions concerning the circular economy. While there is no globally agreed definition of a circular economy, the Ellen MacArthur Foundation is often cited; it defines the circular economy as a system that looks beyond the current “take–make–waste” extractive industrial model. It is based on the principles of designing out waste and pollution, keeping products and materials in use and regenerating natural systems (Ellen MacArthur Foundation 2019). Given their role in materials recovery and recycling, workers and enterprises in the informal economy make an important contribution to circularity. However, for the circular economy to deliver maximum positive societal benefits, a just transition has to be ensured. This can be done by stepping up efforts towards formalization and tackling decent work challenges in the waste management sector.

To create a just transition to circularity, it is essential to look at the potential employment and social impacts of circularity-related policy measures, including for workers and enterprises in the informal economy. Depending on the context and specific sector, this would include supporting the integration of waste pickers into formalized modern waste management systems. Looking ahead, when reduction of waste may be associated with job losses among waste pickers, social
A double transition: formalization and the shift to environmental sustainability with decent work

...号码的废品回收工作将需要被计划和实施，以确保废品拾捡者不会在向循环经济的过渡中被遗漏。

**Case study 1**

**Promoting legal recognition and dialogue through membership-based organizations in Brazil**

In Brazil since the late 1980s, informal waste pickers have been operating with the support of national cooperatives such as the Association of Paper, Cardboard, and Recyclable Material Catadores,\(^{10}\) (ASMARE) and the Autonomous Waste Pickers Cooperative (COOPAMARE). Both cooperatives have been instrumental in addressing decent work deficits, challenging the stigmatization of waste pickers and increasing recycling rates.

COOPAMARE was founded in São Paulo with the support of a project implemented by the non-governmental Organization for Fraternal Assistance. Following an organized protest for the recognition of the waste picker profession, catadores started meeting at the community centre in the Glicerio neighbourhood. Since its creation in 1989, COOPAMARE has helped to create work opportunities for waste pickers by facilitating contracting with large manufacturers and local government and by organizing sessions to build waste pickers' skills. The cooperative has also been instrumental in reducing waste pickers' vulnerability to heavy rain and flooding by transporting collected waste to delivery points. Today, COOPAMARE has over 80 members (COOPAMARE, 2018).

ASMARE, based in Belo Horizonte, was one of the first waste picker cooperatives in Brazil (Colombijn and Morbidini 2017, 99). Belo Horizonte is Brazil's third largest city, and rapid urbanization, combined with a high rate of waste generation per capita and urban poverty, has increased the numbers of waste pickers. Waste pickers had been working in the open dump since the 1960s. However, when the dump was closed in 1973, waste pickers began to protest for their rights. Driven in part by the movement started in 1973, ASMARE was officially established in the 1990s with the support of the non-governmental organization (NGO) Pastoral de Rua (CPI 2016). Thanks to ASMARE's efforts, Belo Horizonte introduced an integrated solid waste management model in 1993 to improve waste collection and management and increase recycling rates. The model legitimized the collection of recyclables by cooperatives and recognized their environmental contributions, enabled the city's municipal government to form partnerships with waste picker cooperatives and instituted a comprehensive system of waste pickup, sorting and delivery that included waste picker cooperatives (CPI 2016).

Waste picker cooperatives such as COOPMARE and ASMARE provided the foundation for establishment of the National Movement of Recyclable Waste Pickers (MNCR) during the National Congress of Recyclable Waste Pickers in 2001 (Dias 2016, 382). The MNCR gave waste pickers a voice in policy dialogues and was instrumental in enabling catadores to advocate changes in law and policy. As a result of the MNCR's efforts and meaningful engagement in dialogue, waste picking became a recognized occupation in the Brazilian Classification of Occupations in 2002 (Global Alliance of Waste Pickers 2014). The official recognition of waste picking as a profession has key implications for enabling waste pickers to transition to formality and to be recognized in statistics and addressed in public policies and programmes that aim to address aspects of decent work.

The following year, 2003, the Inter-ministerial Committee for the Social and Economic Inclusion of Waste Pickers was established, demonstrating national commitments to formalize the waste picking sector and the extension of the decent work agenda. In 2007 Law #11.445/07 was passed, establishing national guidelines for basic sanitation and allowing municipalities to

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\(^{10}\) *Catadores* is the Brazilian word for waste-pickers.
directly hire waste picker associations and cooperatives (Global Alliance of Waste Pickers 2014). Law #11.445/07 both increased employment opportunities in the waste management sector and improved OSH standards. Furthermore, the Brazilian government has continued to support the inclusion of informal waste pickers through financial assistance programmes and the creation of more waste picker membership organizations (Benson et al. 2014, 22). The MNCR represents over 300 of the 500 waste picker associations and cooperatives formed in Brazil in the last decade (Fergutz, Dias and Mitilin 2011, 598). Today, over 60,000 catadores are members of cooperatives (World Bank 2014, 3). The legal recognition of the waste picker profession, support for greater compliance with OSH standards, and various forms of support have both addressed some of the decent work deficits and improved environmental outcomes in Brazil’s waste management sector.

Furthermore, waste picker cooperatives in Brazil have increased workers’ political power and improved their quality of life by increasing incomes, improving working conditions and health and safety, raising waste pickers’ social status and self-esteem and facilitating the development of networks (Dias 2016, 382). Cooperatives have reduced waste pickers’ vulnerability by facilitating hiring by formal actors and circumventing intermediaries and middle-men and by providing adequate storage spaces and transportation (Colombijn and Morbidini 2017, 98).

Despite these efforts, not all waste pickers in Brazil belong to a cooperative or association, and waste pickers continue to be stigmatized and experience challenges in terms of rights to space, equipment and decent work deficits (MNCR 2018).

While efforts to address such challenges need to continue, in the past years Brazil has developed a progressive, comprehensive policy framework on waste pickers, and the country’s recycling rates exceed those of Europe and the United States of America (Global Alliance of Waste Pickers 2014). Today, an estimated 200,000 to 800,000 waste pickers work in Brazil and contribute to national recycling programmes (Global Alliance of Waste Pickers 2014). In Belo Horizonte 93 per cent of total waste is disposed of in controlled disposal sites or environmentally sound landfills, and over 600 people are officially employed in the waste management sectors. ASMARE has grown to
represent over 400 members, half of whom are women, and to recycle over 500 tons of material per month (World Bank 2014, 4).

Beyond Brazil, the cooperative model has proved effective in several countries with high levels of informality in the waste picking sector, including Colombia and India. At the same time, it should be emphasized that the success of the cooperative model depends greatly on the context and degree of support provided. The establishment of cooperatives should not be an isolated initiative, but instead it needs to be complemented by measures that facilitate access to facilities, adequate transportation and storage infrastructure, access to markets, business development services and training. Furthermore, it is important to facilitate the role of cooperatives in addressing decent work deficits related to hazardous working conditions, low profit margins, stigmatization, insufficient knowledge and skills and exclusion from dialogue processes.

5.2. Artisanal and small-scale mining

Principally an activity undertaken in the global South, artisanal and small-scale mining (ASM) directly provides the livelihoods of 20 to 30 million people across 70 countries and indirectly supports three to five times that number. Thus, close to 100 million people – workers and their families – depend on ASM, compared with about 7 million who depend on industrial mining worldwide.11 The number of people engaged in ASM has been steadily rising, partly due to the decline in livelihoods in the agricultural sector (Corneau 2018). Many of the workers in the informal ASM sector are women, and it is increasingly recognized that approaches to greening and formalization of ASM should be gender-responsive (Buss and Rutherford 2020). The use of non-mechanized, rudimentary tools such as shovels and machetes makes ASM a low-capital, highly labour-intensive occupation that provides employment to a large number of people and also creates a markedly gendered division of labour (Mujere and Manuel 2016, 102).

While operators in ASM often engage in this sector as either own-account workers or micro or small enterprises, they are responsible for a considerable share of the world’s mineral production. They produce 85 per cent of the world’s coloured gemstones, 50 per cent of tin, 40 per cent of diamonds and 20 per cent of gold (Benson et al. 2014, 26). Gold and gemstones are the most economically important minerals in ASM.

While ASM significantly contributes to employment, mineral production and national economies, the sector is characterized by high levels of informality: From 70 to 80 per cent of workers engaged in ASM are informally employed (Corneau 2018). The high levels of informality in ASM are related to the sector’s rapid growth, which has made it difficult for operations to remain within the government’s reach. In addition, ASM tends to take place in remote regions with weak regulatory frameworks or beyond the reach of institutions. In some cases ASM is also at the centre of land-rights conflicts and debates on indigenous rights and conservation (Benson et al. 2014, 25). Even where regulatory frameworks exist, they may be too complex for the majority of ASM miners to comply with (Benson et al. 2014, 26). In Peru, for example, ASM was regulated by 21 different pieces of legislation at the time of this research in 2012, and the process of formalization required that ASM enterprises complete 22 different steps (ELLA 2012, 5). Only groups of miners that formed firms and received technical and management training and support from development agencies were able to comply (ELLA 2012, 5).

The high levels of informality in the ASM sector have significant implications in terms of decent work deficits, vulnerability to environmental risks and environmental impacts. In terms of decent work deficits, ASM is increasingly recognized as a hazardous work stream with a high incidence of preventable accidents. The generalized failure to apply OSH standards exposes workers to a high

degree of risk related to the use of machinery without proper training and equipment, exposure to toxic chemicals, and accidents that result from haphazardly constructed pits and the use of explosives (Wilson 2002, 868). Furthermore, workers are often operating in unfavourable environmental conditions and working in exposed locations where they may be subject to strong sunshine, heat and cold (WHO, 2016). The majority of artisanal miners are not covered by social protection schemes, leaving them especially vulnerable to the consequences of work-related accidents. The vulnerability resulting from the absence of social protection is compounded by the high incidence of diseases such as malaria, diphtheria, cholera and, in some areas, HIV/AIDS, which are increasingly common in locations with high concentrations of ASM operations (Wilson 2002, 868). Because ASM has, for many years, been seen as an illegal activity, workers and enterprises have been excluded from social dialogue (Wilson 2002, 867).

The informal ASM sector also faces challenges related to women’s and children’s rights. While women make up almost 50 per cent of the workforce in the ASM sector, they are generally paid far less than their male counterparts and may be subject to discrimination and harassment. One of the most pressing challenges in the ASM sector is the use of child labour. In many cases children are separated from their parents and are underpaid (Wilson 2006, 868). Also, children are exposed to high-risk situations, and one of every eight children in ASM has been involved in accidents. In many mines children work underground, due to their small size, and in some areas they handle explosives.

About half of informally employed miners are women, who are paid less than men. Many are children. Injuries are common.

While all mining activity has an impact on the environment, informality in the ASM sector may contribute to more significant unmitigated environmental damage. For example, the ASM sector may be responsible for excessive land degradation, as in some cases ASM contributes to deforestation and often involves diverting rivers and streams. In many cases excavated land is not reclaimed, resulting in permanent changes to the ecosystem and the landscape. In addition, some of the chemicals used in ASM may contribute to water and soil pollution (Wilson 2002, 869). Negative environmental impacts of ASM are linked to the lack of adherence to environmental regulations and standards. Further, they are exacerbated by limited access to clean technologies and information on sustainable practices, especially for water usage and diversion. Low profit margins and limited capital to invest in land reclamation also contribute to the environmental impacts of ASM.

Informal artisanal and small-scale gold mining (ASGM) presents very significant challenges related to decent work deficits and environmental impacts in the ASM sector. Growth in ASGM has been driven by increasing demand and escalating prices: From 2000 to 2010, the price of gold increased by 360 per cent, at a constant rate of 18 per cent per year (Swenson et al. 2011, 1). While many enterprises and workers in the ASGM sector do operate in the formal economy, the majority remain in the informal economy. Even where escalating gold prices have enabled small-scale operators to grow beyond small scale, employment in these enterprises sometimes remains informal (ELLA 2012, 2).

Some of the major health and decent work issues in gold mining are related to the use of mercury (ELLA 2012, 2). The use of mercury for amalgamation simplifies the process, saving costs and resulting in high recovery rates (Mujere and Manuel 2016, 106). But the use of mercury in ASGM has significant health effects, which are exacerbated by the limited application of OSH standards. In some cases the burning of amalgams takes place at mill sites, but some workers, especially women, burn amalgam in their homes. Exposure to mercury can cause severe health impacts and in extreme cases can lead to death. Nonetheless, many workers handle mercury without proper protective gear or techniques. In Zimbabwe the average level of mercury in gold miners’ blood was eight times the WHO-recommended maximum level (Mujere and Manuel 2016, 106).
In addition, workers in the ASGM sector are exposed to preventable injuries sustained in work accidents that result from limited training and improper equipment (ELLA 2012, 2). Workers in the informal ASGM sector lack access to social protection, which places them in a vulnerable position in a risky work stream. As in other streams of ASM, child labour is common in ASGM. While children are often responsible for panning gold, in some sites over 60 per cent of children handle mercury for amalgamation. Furthermore, the majority of children working in mining sites do not go to school, a situation that reduces their future opportunities for productive and decent work (Navch et al. 2006, 3). The conclusions of the 1999 Tripartite Meeting on Social and Labour Issues in Small-scale Mines (TMSSM/1999) highlighted key decent work deficits in the ASGM and emphasized in particular the need to promote fundamental principles and rights at work and occupational health and safety, taking into account challenges faced by the sector (ILO 1999a).

The unregulated use of mercury also contributes to some of the main environmental challenges in the ASGM sector. When the amalgam is heated, mercury evaporates from the mixture. Between 70 and 80 per cent of the mercury is lost to the atmosphere, contributing to air pollution, while the remaining 20 per cent to 30 per cent is lost to tailings, soils, stream sediments and ground water, contributing to chemical contamination of soil and water (Mujere and Manuel 2016, 105). ASGM is responsible for one third of all mercury released into the environment (Swensen 2011, 10). In addition to the contamination caused by mercury use, ASGM has significant impacts on river beds due to panning activities, digging into river banks, diversion of rivers and streams to make mineralized alluvials and trenching along floodplains (Mujere and Manuel 2016).

ASGM is responsible for one third of all mercury released into the environment.

The environmental and health impacts of mercury use in ASGM have been recognized at the international level. In August 2017 the Minamata Convention on Mercury was ratified. The Convention aims to protect humans and the environment from the harmful effects of mercury...
and encourages country-specific plans to phase out unsafe practices while allowing people to benefit from responsible mining. At the top of the Convention’s priorities is ASGM, as the convention calls for the reduction and, where possible, elimination of the use of mercury in ASGM. So far, the Minamata Convention has led to a series of country assessments of mercury use in ASGM and to the preliminary development of a toolkit for safe handling of chemicals. While the large scale of informal ASGM operations poses a challenge to the implementation of the Convention, the case study below demonstrates how implementation of the Convention to improve safety and environmental practices can be linked to enterprise formalization.

Decent work deficits and environmental challenges in the informal ASM and ASGM sectors are substantial. However, the right policies and interventions can make the sector more responsible. These include more effective application of labour and environmental standards, the substitution of safer alternatives for mercury, and improved capacity in OSH and environmental management. The ILO Report for Discussion at the Tripartite Meeting on Social and Labour Issues in Small-scale Mines (TMSSM/1999) presents examples of how some of the decent-work deficits in the ASM sector can be addressed (ILO 1999b).

Case study 2

Formalization through certification: Alliance for Responsible Mining and Fairmined in Colombia

The Alliance for Responsible Mining (ARM) started the Fairmined Initiative. It is now an assurance label that certifies gold from ASGM organizations that adhere to standards related to decent work, reduced environmental impact and positive community outcomes (Drazin and Kuchler 2015, 163). The Fairmined standard is recognized by the Minamata Convention’s Guidance Document on the Preparation of National Action Plans for Artisanal and Small-scale Gold Mining as a key approach to the formalization of the ASM sector.

The Fairmined Gold Standard addresses decent work deficits by requiring ASGM operations to be legally registered, to promote gender equality and well-being in the community, to have no links to conflict situations or child labour, to provide stability in terms of contracts for workers, to ensure compliance with OSH standards and to ensure workers’ rights to organize. It promotes improved environmental outcomes by requiring ASGMs to reduce their environmental impact, to protect water supplies, to minimize chemical use and to ensure the safe handling of chemicals in extraction. Fairmined guarantees miners a fair price for gold and adds an additional premium as a market incentive to cover the costs of certification and to invest in mining operations, social development and environmental protection (Fairmined 2018). Furthermore, Fairmined facilitates direct access to international markets and supply chains, as well as to a network of miners, experienced allies and mining support organizations (Fairmined 2018).

In addition, Fairmined serves as a powerful legitimizing agent, as the certification helps miners be recognized as members of a responsible and valued economic activity by international and national policymakers, who, until recently, criminalized ASM (Childs 2013, 1). The Fairmined Ecological Gold Standard is a more rigorous version of the Fairmined Gold Standard. It goes a step further by requiring ASGMs operations to not use toxic chemicals and to rehabilitate native ecosystems upon completion of mining operations. At the same time, it offers a greater financial premium.

Only ASGM operations that work in the formal sector are eligible for Fairmined certification. In some cases this may lead to a disproportionate focus on already-licenced ASGM operations and neglect the more marginalized and impoverished miners who work in the informal economy (Fisher 2018, 82). However, the benefits of the Fairmined Standard can act as an incentive for formalization where there may otherwise be none. Fairmined guarantees miners a fair price for gold and adds an additional premium as a market incentive to cover the costs of certification and to invest in mining operations, social development and environmental protection. Furthermore, Fairmined facilitates direct access to international markets and supply chains, as well as to a network of miners, experienced allies and mining support organizations (Fairmined 2018). In addition, Fairmined
serves as a powerful legitimizing agent, as the certification helps miners be recognized as participants in a responsible and valued economic activity by international and national policymakers, who, until recently, criminalized ASM (Childs 2013, 1). In this way the Fairmined Standard acts as an incentive for informal ASGM operators to register their businesses, address decent work deficits and improve their environmental performance.

In many cases the process of formalization in the ASGM sector is complex and costly. Without support, smaller mining operations may be unable to comply with the requirements. In these cases the ARM supports ASGM organizations and enterprises by providing training and capacity building, facilitating access to markets and advocating reforms at national and international policy levels to promote responsible ASGM practices. ARM works with the ASGM organizations directly or through an NGO to provide guidance, assistance and support in reducing the use of mercury, increasing the number of workers with written labour contracts, expanding social security payments, introducing adequate OSH equipment and management systems and creating spaces for dialogue between workers and employers (ARM 2018). By addressing both the institutional environment and building informal ASGM operators’ capacity, ARM provides the support at multiple levels required to ensure that operators in the informal economy are able to formalize and upgrade their practices.

Three of the six currently certified ASGM mining organizations are located in Colombia. Mining in Colombia dates back to pre-colonial times. In the 20th century, the country was one of the world’s largest gold producers. Today mining continues to be a driver of Colombia’s economic growth, and gold is the third most extracted mineral in the country. The majority of gold mined in Colombia comes from the informal ASGM sector. Nearly three quarters of all mining operations in Colombia are classified as ASM, and almost two thirds of all ASM operations are informal and lack legal mining concessions (Echavarria 2014, 8). Over the past decades, Colombia’s governments have attempted to address the challenges related to informality in ASM. This resulted in a highly complex regulatory regime surrounding formalization in the sector.

In 1988 Colombia introduced a mining code that differentiated between small-, medium- and large-scale operations. The 1988 Mining Code outlined a simplified titling process for small-scale mining operations, which required ASM organizations to present only a report on exploration activities and an outline of the work programme following the exploration phase. However, in 2001 the 1988 Mining Code was replaced by Law 685, which eliminated the differentiation among mining scales and instead required all mining activities, regardless of their size, to undergo the same processes for titling and registration. Small-scale operations were unable to comply, as the requirements exceeded their technical and financial capacities. Furthermore, the requirements for registering ASMs under traditional mining also were complex, and few operations were able to register in this way (ARM 2014, 59–62).

Recognizing the challenges faced by ASM operations, the 2011–2014 National Mining Development Plan acknowledged that ASM units were distinct from illegal mining operations and required support to undergo the formalization process. The plan prioritized enabling ASM operations to work under legal title, adjusting regulatory mechanisms and guidelines, providing occupational training and education for ASM miners, enabling social inclusion and development in mining communities, ensuring relevant and timely quality information for miners on the formalization process, delivering technical, organizational and entrepreneurial support of ASM, and securing resources and promoting effective incentives (UPME 2012). The plan, which was based on multi-stakeholder dialogues between the Ministry of Mines and regional stakeholders, also adopted an approach that treated formalization as a process rather than as an immediate result (Echavarria 2014, 10). In 2013 Decree 933 simplified the definition of conventional mining, and the Law on Mercury defined new ways to move towards formalization through reduction in the use of mercury and integration of workers in the ASM sector into formal value chains (ARM 2014, 62).

As a result of these changes in policies, workers in the ASGM sector were more willing to undertake the process of formalization. Fairmined certification served as an additional incentive (ARM 2014, 66). With the support of the ARM, three
mines in Colombia are now Fairmined-certified. At the beginning of 2018, Fairmined certified the Sociedad Minera La Cascada. La Cascada has been operating for over 50 years. Most of its gold processing and recovery involved mercury. The use of mercury recovered only 40 per cent of the gold mined, while over 50 informal gold panners worked downstream from La Cascada in search of the remaining gold. With support from Fairmined, ASM, organizations such as the Better Gold Initiative, environmental agencies and other government ministries, La Cascada took the initiative to address decent work deficits and reduce its environmental impacts. This included instituting health and safety measures, miners’ training, a joint committee to encourage workers to discuss work-related issues, written contracts upon recruitment and phasing out use of mercury so as to reduce environmental impact and increase recovery rates.

These case studies show that there are encouraging efforts that support formalization and improvements in the informal ASM sector and its impacts on the environment. They also show that a comprehensive set of actions is required. These include legal and regulatory frameworks that take into account the specific needs and challenges of small enterprises, incentives (such as those of the Fairmined Standard) and tailored capacity-building (for example, on safer use of mercury).

5.3. Construction

The construction industry is the second largest source of informal employment worldwide, after agriculture. Rural-to-urban migration and population growth are driving growth in the construction sector. Of the 180 million construction workers in the world, 75 per cent of them are from or in countries of the global South, and the majority of workers and enterprises in construction are in the informal economy (ILO The Lab 2018, v). In some countries, such as India, up to 97 per cent of workers in the construction sector are in informal employment. Despite the high levels of informality and decent work deficits, the sector is an important source of work for low-skilled workers and the landless poor. The sector also employs large numbers of internal migrants. While most workers in the sector are men, women can also constitute a large proportion of the construction labour force. In India, for example, 30 per cent of construction workers are women (WIEGO 2018). Female construction workers often perform important but unskilled tasks for considerably lower pay than men.

Construction workers in the informal economy are often exposed to decent work deficits across all four pillars of the Decent Work Agenda. In terms of employment and income, earnings in the construction sector can be low and are often irregular. In many countries casual work is the most common form of wage labour for temporary workers in the construction sector, and workers rarely have formal contracts or job security and social security. Workers are either put under pressure to work long hours or they choose to do so in order to earn as much as possible while work is available. Workers in the construction sector are often at risk of abuse and exploitation and can be subject to forced labour for a variety of reasons, including the informality of the sector, precarious contracts, and lack of organization. Because of the high degree of risk involved in construction work and the limitations to enforcing compliance with OSH requirements, the sector is characterized by inadequate safety and health protection of workers. Problems related to lack of training and capacity building, inadequate protective gear and non-existent safety and health protocols are compounded by common exposure to risks and limited social protection. Workers in the construction sector are also exposed to the physical elements. Combined with poor application of OSH standards, this often makes them particularly vulnerable to the effects of climate change, including heat stress and storms. In terms of trends, while mechanization and the introduction of new technologies are resulting in productivity gains, they also are displacing workers in the informal economy, especially women (WIEGO 2018).

In many cases contractors provide housing on site for construction workers in the informal economy. The living conditions in these establishments are often poor. The accommodations may lack running water, adequate sanitary conditions, adequate shelter and ventilation. Women frequently have no separate facilities.
Environmental impacts in the construction sector occur at all stages, from initiating work on-site through the construction period, operations period and, eventually, demolition. The construction sector is a resource-intensive industry and one of the largest exploiters of natural resources, as it uses large quantities of raw materials, including timber, sand and metals (Ametepey 2015, 19). According to the Worldwatch Institute, building construction consumes 40 per cent of the world’s raw stones, gravel and sand and 25 per cent of wood. Thus, the construction sector drives the demand for renewable and non-renewable resources and so contributes to the environmental impacts of resource extraction. Also, many buildings use harmful materials, such as chlorofluorocarbons for insulation and cooling, which contribute to depletion of the ozone layer (Ametepey 2015, 19).

Once constructed and operational, buildings can also have significant environmental impacts throughout their lifespan. The impacts that buildings will have depend largely on the application of sustainable principles and technologies in design and planning. For example, buildings are responsible for considerable GHG emissions and energy use - 39 per cent of energy-related CO2 emissions and 36 per cent of final energy use. Energy use and related emissions may potentially triple by mid-century as more people in the global South begin accessing improved housing and access to electricity. This makes adopting green building standards and practices essential. Green building certifications and standards, such as Leadership in Energy and Environmental Design (LEED),

provide frameworks for efficient, cost-saving green buildings and cover a wide range of environmentally friendly measures, from window placement to insulation and other building materials to use of water-saving and energy-efficient technology.

In terms of demolition, as well as construction, the construction sector contributes to the accumulation of pollutants in the atmosphere, including dust, nitrogen and sulphur oxides. Furthermore, on-site negligence or mismanagement may cause serious land and water contamination resulting from toxic spillages. Construction activities also contribute to waste generation. In the United States, construction activities contribute approximately 29 per cent of all waste (Ametepey 2015, 19).

Initiatives to promote green building and circularity in the construction sector should seek to ensure that the work created is decent work. Greening the building and construction industry can create significant numbers of green and decent jobs while contributing to environmental sustainability and improving access to quality housing.

Case study 3
Green building and social security in Zambia

The Zambia Green Jobs Programme (ZGJP), implemented by the Government of Zambia and national partners, with technical assistance from the ILO, the United Nations Environment Programme, the United Nations Conference on Trade and Development, the Food and Agriculture Organization of the United Nations and the International Trade Centre, supported sustainable MSMEs along the building construction value chain to become more productive and competitive and to promote greener and better jobs. Zambia was experiencing significant shortages of affordable housing, which increased the demand for building construction. At the same time, the sector was characterized by high levels of informality and decent work deficits. Workers in Zambia's construction sector are prone to accidents and injuries and tend to be among the most vulnerable to ill health and poverty due to the absence of social protection in case of old age, unemployment, sickness, invalidity, work injury or maternity.

The ZGJP adopted an innovative approach to encourage both the growth of enterprises and their adoption of more sustainable materials and practices, as well as to address the sector’s decent work deficits. The multi-pronged approach involved policymaking support, private sector engagement, innovations to extend social security to construction workers and initiatives to improve OSH. At the policy level, it facilitated dialogue-driven regulatory reform to promote the uptake of green and responsible building practices by private and public housing developers. It also supported national counterparts in the development of guidelines, including those on environmental impact assessment. At the meso and micro levels, it collaborated with a range of partners and service providers to facilitate access for MSMEs to business development support services, including services for functional and technical-vocational skills training, sector-specific business services, finance, access to markets and OSH.

The project leveraged private sector participation by making the business case for green, affordable housing and promoted technologies and materials with lower environmental impacts, including through building demonstrations using compressed stabilized earth bricks. In other words, the project highlighted incentives to adopt greener practices, including cost savings and high market demand for sustainable products and processes. The approach resulted in the use of more environmentally friendly, cost-saving materials and provided opportunities for job creation in the supply chain.

In terms of expanding social security coverage, the programme undertook several measures. Firstly, it supported mobile registration campaigns, with flexible administrative measures to encourage the registration of MSMEs in the construction sector.

Secondly, existing social protection schemes were adjusted to meet the specific needs and nature of work in the construction industry, which is typically project-based. Innovative mechanisms included a flexible start date for registration of MSMEs in social protection schemes that exempted employers from paying penalties for the period prior to the ZGJP when they were not registered. In addition, nil return systems and flexible payment plans allowed MSMEs to pay
contributions only when they were working on a construction project (ZGJP 2016, 12).

Thirdly, requirements for social security registration were simplified to cater to the technical and financial capacity of MSMEs in the construction sector. This portion of the project was carried out in collaboration with two of Zambia’s social service providers, the National Pension Scheme Authority and the Workers’ Compensation Fund Control Board. In the first campaign, 300 workers were registered with the work injury and pension scheme. Subsequent mobile registration campaigns were conducted among members of the Copperbelt Sawmillers and Timber Growers Association and Zambia’s National Association for Sawmillers.

The green building and social security components of the ZGJP demonstrate the value of an integrated, multi-pronged approach, which simultaneously addressed the challenges related to the environment, informality and decent work in the construction sector. ZGJP was able to do so by working at both the policy and enterprise levels and by contextualizing its proposed solutions to the nature of work in the construction sector in Zambia.

5.4. Agriculture

Agriculture is the sector with the highest level of informal employment (93.6 per cent) around the world (ILO 2018a, 20). Even contract farmers who work in formal enterprises engage in informal agricultural activity as well (Weng 2015, 5–12). Over 80 per cent of the world’s farms are engaged in smallholder farming (Cohn et al. 2017, 355). While there is no agreed definition of smallholder farmers, smallholder systems tend to be characterized by a gendered division of labour, a dependence on agricultural production for both food security and income generation and the cultivation of small areas, usually less than 10 hectares, often with the involvement of contributing family workers (Donatti et al. 2018, 1). Smallholder systems employ over 60 per cent of the world’s agricultural workforce and produce over 80 per cent of all food consumed in countries of the global South, thus constituting an important component of both national employment and food security (Avery et al. 2017, 355). The vast majority of smallholder farmers operate in the informal economy and rely on informal networks to access markets.

It is estimated that rural women comprise about two fifths of agricultural employment at the global level, with the proportion varying significantly across regions, from 46 per cent in sub-Saharan Africa and 39 per cent in Southeast Asia to 21 per cent in Latin America and the Caribbean (FAO et al. 2020). Often the labour burden of rural women is greater than that of men, as women engage in unpaid household work such as preparing food and collecting water and fuel, which are also essential functions of the smallholder production unit (FAO 2011). Also, women are over-represented in informal agricultural work, as they are more likely engaged in unpaid, seasonal and part-time work, and, when paid, they are paid less than men for the same work (FAO 2011).

Agricultural markets and supply chains often place smallholder farmers at a disadvantage. Volatile world food prices mean that the incomes of smallholder farmers are often fluctuating and uncertain. Many smallholder farmers have difficulties accessing markets due to constraints on their mobility related to transport cost, rural infrastructure and – for women – gender roles and norms, in addition to economic and sociocultural constraints (Arias et al. 2013, 4). In addition, many value chains start with informal agricultural transactions upstream, and formal arrangements and associated rights and benefits come into play only in later stages of the supply chain. This system contributes to the high levels of informality (Went 2015, 14). Smallholder farmers face other specific constraints when compared with medium and large farmers. They often encounter difficulty obtaining production inputs, such as seeds, fertilizers and technology, and they have limited access to finance and education. They may also experience challenges related to formal land titling systems (Donatti et al. 2018). The majority of smallholder farmers in the global South are not covered by social protection, leaving them highly exposed to the effects of income losses and fluctuations and to risks related to illnesses, occupational injury and old age.
Climate change and environmental degradation can exacerbate the “already precarious life conditions” of smallholder farmers (Donatti et al. 2018, 1). Smallholder farmers are recognized as one of the groups that is most vulnerable to climate change and environmental degradation due to both their low adaptive capacity (resulting from limited incomes and limited access to resources and services, productive assets and social protection) and their heavy dependence on natural resources (Donatti et al. 2018, 1). Smallholder farmers are vulnerable to both slow and sudden onset climate events and environmental hazards. Because smallholder systems tend to be rain-fed, smallholder farmers tend to be significantly affected by erratic rainfall patterns, floods and droughts (ILO 2018b, 20). This has important implications for both rural livelihoods and for food security, as rain-fed agriculture provides around 60 per cent of the world’s agricultural production and accounts for 96 per cent of cultivated land in sub-Saharan Africa, 87 per cent in South America and 61 per cent in Asia (ILO 2018b, 24).

Increasing average temperatures can be expected to adversely affect agricultural production, as temperatures may rise above the range for optimal growth in many countries (Cohn et al. 2017, 356). It is predicted that a rise in average temperatures of over 2 °C above twentieth-century levels will reduce yields of crops crucial to smallholder livelihoods, including maize, wheat, rice, cocoa, coffee and tea (ILO 2018b, 24). Rising temperatures may also reduce soil moisture, increase irrigation needs and make it more difficult for farmers to store food crops after harvest (Cohn et al. 2017, 356). In some areas rising temperatures and reduced precipitation may contribute to longer dry seasons and more intense and prolonged drought, which also reduce agricultural production. These resulting risks, particularly crop failure, can further expose farmers to income insecurity, with consequences compounded by lack of social protection. Workers may also have to work under conditions of heat stress. It is estimated that by 2030 agricultural workers will account for 66 per cent of global hours lost to heat stress (ILO 2018b, 27).

Case study 4
Protecting the vulnerable and fostering resilience in the agricultural sector

The issue of protecting farmers and rural workers against a range of risks and life transitions has long been a critical one, not just in the context of
climate change but more broadly. Rural populations often face higher risks of poverty, as well as work-related injuries, natural disasters and climate change. Faced with low and irregular incomes, many rural workers continue working when sick, and, when they experience income loss, they may resort to harmful coping strategies such as selling their assets (ILO and FAO 2021). Lack of social protection coverage in the informal rural economy underlies these behaviours. Putting in place a social protection floor and ensuring social protection coverage for rural workers can play a central role in fostering resilience. On one level, access to social protection can help to prevent rural workers from plunging into or getting trapped in poverty due to shocks (such as ill health, loss of incomes) and, thus, from reducing their capacities to respond to climate change impacts. On another level, if environmental and climate considerations are built into social protection systems, they can support rural workers, particularly those in the agricultural sector, to adapt to climate change. In particular, social protection systems must be able to deliver relief quickly in the face of climate-related disasters to offset income and livelihood impacts.

In the Philippines an approach linking disaster relief, social protection and public works was implemented through the Integrated Livelihood and Emergency Employment Program, which was rolled out in the aftermath of Typhoon Haiyan in 2013. The programme was led by the government, with technical assistance from the ILO. It provided emergency employment opportunities to affected populations, and it affiliated participants to national health insurance schemes. Nearly 80,000 programme participants benefited, and it included specific components for disadvantaged workers and for seaweed farmers and fishers (ILO 2018d).

Public employment schemes are not only relevant in the context of climate-related disasters but can also play an important role in the context of adaptation to climate change and mitigation more generally. In India the Mahatma Gandhi National Rural Employment Guarantee Act is a central element of India’s extension of social security. It is a key facet of India’s national social protection floor and also a public employment scheme on a massive scale, guaranteeing 100 work days to households that request them. The scheme is universally accessible to rural populations, and it is not only open but also explicitly designed to address the needs of people engaged in the rural informal economy.13 While providing employment and income support, the programme develops infrastructure and rural assets. In recent years increasing attention has been paid to works and assets that support climate change adaptation and environmental sustainability. These include watershed management and rainwater harvesting systems, flood protection and afforestation, among others. Implementation has not been devoid of challenges, but the scheme has been highly important in addressing the disadvantages and vulnerabilities of a huge rural population, particularly those in the informal economy, and it has made a meaningful contribution to promoting resilience.

Looking at specific approaches for addressing the risks of crop failure faced by farmers, an interesting entry point can be found in crop insurance programmes. Conventionally, crop insurance programmes, implemented to help farmers mitigate risks, provide pay-outs based on individual or area yield. However, these programmes have proved to be complex and costly, especially when targeting smallholder farmers in the informal economy. Index-based insurance overcomes some of the challenges related to crop insurance. It is based on an observable index (for example, rainfall or temperature) rather than a smallholder farmer’s individual yield (Cole et al. 2012, vi).

The ILO’s Impact Insurance Facility has started pilot projects using crop insurance based on a weather index. This improves small farmers’ resilience and enables them to invest in their farms thanks to protection from income loss due to crop failure. The insurance schemes often bundle agricultural insurance with other service, such as credit or better farm inputs, to more comprehensively address the challenges associated with

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13 https://www.social-protection.org/gimi/RessourcePDF.action;jsessionid=e78OxpTjGCNM51UxdSx5LHHHnQP9fN8G2dN2-ef-_BuBi77vSY2BI-20330661207id=53326.
informal, small-scale farming. Bundled insurance has benefits for all parties involved – farmers, insurance providers and providers of non-insurance services. For farmers, bundled insurance helps to mitigate risk, to access multiple services through one entry point and to improve access to credit. For the insurer, bundling provides an opportunity to increase penetration and outreach of services and to reduce the cost of distribution. For providers of non-insurance services, bundling insurance schemes allows them to reduce agricultural lending risk, reduce costs and increase their reach (Mukherjee et al. 2017, 4).

Drawing on lessons learned in India, the ILO worked in Sri Lanka with the Sanasa Insurance Company Ltd (SICL), a Colombo-based insurance company of the SANASA savings and credit societies, which are committed to improving the standard of living of low-income populations in rural areas. The SICL supports a cooperative network of nearly 8,400 credit institutions across Sri Lanka with insurance offerings.

In 2008 SICL supported a study, funded by the Microinsurance Innovation Facility with Development International Desjardins (DID), to assess weather-indexed crop insurance in Sri Lanka. The study assessed farmers’ insurance needs, determined how the index-crop insurance model used by BASIX, a livelihood promotion institution in India, could be adapted to Sri Lanka, and created a financial model for the adapted micro insurance project. Following the study, SANASA received a grant from the Microinsurance Innovation Facility to implement the project, with DID as the project coordinator and service support provider and BASIX as the provider of training manuals and consumer awareness plans. The project was implemented in 2010. It started with building farmers’ awareness, knowledge and trust in index-based insurance and distributing insurance through existing cooperative societies. The project was continually modified and improved based on farmers’ feedback and field observations. By its fourth year, 2014, the project covered 12,500 smallholder farmers and provided insurance education to over 25,000 farmer households. New players have started to invest in the weather index insurance market, and four new crops (rubber, maize, coconut and bananas) were brought under the insurance scheme (Prashad et al. 2014).

Organizing farmers is not only important in the context of index-based and bundled insurance, but it also can contribute to improving access to services and greater protection in more general terms. In Georgia in 2019, the Food Processing and Agriculture Workers’ Trade Union, which is affiliated with the Georgian Trade Union Confederation (GTUC), started a pilot project to extend trade union protection and services to smallholder farmers. The union’s initial efforts have helped farmers in three villages in Georgia’s Kakheti region to establish a dialogue with local government representatives to have waste removed regularly, water irrigation systems fixed and the quality of fertilizers and chemicals checked and controlled. Furthermore, the union’s lawyers have helped the farmers to obtain adequate compensation from insurance companies for crops damaged by heavy hail storms. In 2020–2021 the Union planned to extend the pilot project to the entire region by creating a separate unit for smallholder farmers and initiating a full-scale dialogue on the sectoral level with the Ministry of Agriculture and representation at the National Tripartite Social Partnership Commission through help from the GTUC. It also planned to initiate ratification of Convention No. 129 (Labour Inspection in Agriculture) as well as the country’s first research into the OSH situation and vocational diseases in agriculture.

As these cases illustrate, the challenges faced by actors in the informal rural economy vis-à-vis climate and environmental changes require comprehensive measures. These measures should address root causes of vulnerability typically associated with informality, in particular the lack of social protection coverage, organization and voice. At the same time, it is essential to design or adapt policies, programmes and service delivery modes that address more generally the needs of farmers and rural populations that operate in the informal economy.
6. Conclusions

With over half of the world’s workforce operating in situations of informality, at a value estimated at over US$10 trillion, strategies to move towards a sustainable future of work must include workers and enterprises in the informal economy. This is a necessary condition to manage the environmental impacts of activities in the informal economy and to reduce the decent work deficits and vulnerabilities of informal operators while paving the way towards formalization.

In seeking to address challenges related to informality in the context of environmental sustainability, it is essential to recognize and understand the specific circumstances, constraints and needs of workers and enterprises in the informal economy. Research in this field is still very limited. This paper seeks to outline and articulate key issues and to serve as a basis for further knowledge and policy development efforts. The analysis and sectoral case studies indicate that clear linkages exist between operators in the informal economy and the environment and that the relationship is highly diverse, even within sectors. Despite the complexity of this relationship, some general observations can be made:

First, workers and enterprises in the informal economy tend to be particularly vulnerable to the impacts of climate change and other environmental risks. Their high vulnerability stems from several factors: a high concentration of informal economic activities in resource-dependent sectors or informal settlements; the persistence of decent work deficits, especially those related to OSH and social protection; and a lack of dialogue. These combine with limited adaptive capacity due to limited management and technical skills and limited access to finance and information. International labour standards can help to forge a connection between environmental sustainability and the transition to formality.

Second, high levels of informality can exacerbate adverse environmental impacts as well as limit the potential positive environmental contributions of enterprises and workers in the informal economy. These workers and enterprises typically operate at low levels of productivity and low profit margins, and they have limited technical and managerial capacity. This situation constrains their ability to adopt green technologies or practices and to comply with environmental regulations. In situations where enterprises and workers in the informal economy use sustainable practices or provide environmental services, such contributions are often not recognized, and the barriers to accessing finance, information, technology and markets may limit the possibility to scale them up.

Third, there are promising approaches that integrate the promotion of environmental sustainability and the transition to formality. These typically involve a range of instruments that address the multiple challenges and specific circumstances faced by enterprises and workers in the informal economy. The following considerations appear particularly important:

- **Enabling legal and policy frameworks are crucial.** The ILO Just Transition Guidelines and the Transition from the Informal to the Formal Economy Recommendation, 2015 (No. 204) map out key policy areas and potential entry points: It is essential to ensure that policy instruments are designed and implemented to take into account the specific needs of workers and enterprises of the informal economy. This need emerges clearly in the context of social protection in the rural economy, and it applies to all policy areas and to different policy instruments in different sectors. For example, for operators in the informal economy, complex regulations and administrative processes for registration and compliance can be a significant barrier to formalization and to respecting environmental regulations. Simplifying regulations and procedures and making them more understandable and accessible is an important means to pave the way to formality and to better environmental management. This observation emerges from experience in the building sector in Zambia and in particular in the intervention on facilitating access to social protection for construction workers and employers. In terms of regulatory frameworks
and policies, it is also important to note that legal recognition of the work of informal economy operators can act as a powerful basis to protect their rights, to enhance the visibility and appreciation of their contributions, including environmental contributions, and to advance their concerns in policy processes. For example, in the case of waste pickers in Brazil, legal recognition of waste picking as a profession in the Brazilian Classification of Occupations set the stage for improvements in the sector. It allowed municipalities to work with informal waste pickers, which created a succession of positive changes, including improvements in OSH and incomes.

It is essential to ensure that policy instruments take into account the specific needs of workers and enterprises of the informal economy.

Tailored capacity building and other support services are necessary to address gaps. Limitations in technical and managerial capacity and in access to information, technology and finance often constrain the abilities of workers and enterprises in the informal economy to adopt more sustainable processes and technologies or to scale up current green practices. Capacity building and other support services that take into account the specific characteristics and constraints of informal economy operators can enable them to improve their environmental performance. This is evident, for example, in the experiences in mining and in agriculture: Training and other services adapted to the needs of small operators, many of whom were in the informal economy, allowed them to make progress towards formalization, decent work and better environmental outcomes.

Incentives play an important role in motivating improvements in environmental sustainability and transitions to formality. Clear benefits for enterprises and workers are more likely to trigger action towards formalization and better environmental management. This is illustrated in the case study on mining, where improved labour and environmental practices and steps towards formalization facilitated access to certification, which in turn yielded benefits in terms of market access and premium prices. Furthermore, as described in the case study on construction, incentives in terms of profitability and market demand were key to leveraging private sector support and collaboration to address decent work deficits and social protection gaps.

Organization, representation and inclusive dialogue mechanisms are instrumental to designing relevant and effective policies and initiatives. Many workers and enterprises in the informal economy are not members of organizations that can represent them, and they seldom can participate in policy processes. Organizing informal economy operators and ensuring their voice is heard in policy processes is key to identifying and advancing their specific needs with respect to environmental degradation, decent work deficits and a transition to formality. It also contributes to solutions that address these issues. This is clear from the experience of waste pickers in Brazil, where stronger, formal representative organizations and their participation in policy forums enabled concrete improvements in the economic and social well-being of waste management workers. It also strengthened the recognition of their work and its environmental contribution. These benefits also emerge from the case of Georgia’s Trade Union Confederation reaching out to smallholder farmers.

Typically, multi-stakeholder approaches are important in delivering comprehensive interventions. The challenges faced by workers and enterprises in the informal economy are complex and diverse, ranging from regulatory constraints, to capacity and representation issues, to conditions of economic and social marginalization. This complexity and diversity calls for initiatives that encompass several measures and that are driven by a range of institutions with distinct comparative advantages. These include different line ministries that are responsible for labour, economic and environmental policies, and employers’ and workers’ organizations, as well as civil society organizations. In the construction sector in Zambia, ZGJP was able to address a series of interrelated challenges by working with the business sector, different segments of the government, unions and
civil society organizations. The value of partnerships among different stakeholders also emerged in the case study on index-based insurance schemes, which involved collaborations among private companies, technical services providers and NGOs to deliver a solution that responded to the multiple problems faced in protecting farmers from climate risks and other vulnerabilities.

Despite the complexity and diversity of the linkages between informality and the environment, and their implications for a large proportion of the workforce in the global South, research on this topic remains quite limited. Given the need for policy solutions grounded in a sound understanding of the challenges and in lessons from experience, it is important to fill this knowledge gap. The following are lines that future research might follow:

1) the intersection between different vulnerabilities, in terms of informality, decent work and climate change, and their underlying factors, including the challenges faced by micro and small enterprises more generally and taking into account gender, age and ability;

2) environmental impacts and contributions by enterprises and workers in the informal economy;

3) reviews of environmental and just transition policies in light of the needs and participation of workers and enterprises in the informal economy and review of formalization instruments in light of environmental sustainability and resilience objectives; and

4) promising initiatives and approaches that integrate environmental concerns into instruments that encourage a transition to formality, and vice versa.

This paper has sought to shed light on the complex relationships between informality and environmental challenges and to identify some promising avenues to advance mutually supportive goals. Countries across the globe are facing mounting pressure to shift towards more sustainable and resilient economies. If the shift is to be a just one, it needs to include and leverage efforts towards formalization and the promotion of decent work among workers and enterprises in the informal economy.
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46 A double transition: formalization and the shift to environmental sustainability with decent work


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