

4 Protecting workers and the environment

KEY FINDINGS

Climate change and other forms of environmental degradation undermine people's livelihoods; effective and tailored measures are required to protect workers and their families.

Ensuring a just transition requires a package of benefits and services. Income support measures should be supplemented by job placement, skills retraining and support for relocation. In particular, unemployment protection schemes can play a key role in supporting a just transition for workers who lose their jobs in the shift to a more environmentally sustainable economy.

Cash transfer programmes can compensate for the loss of income experienced by households as a consequence of adverse environmental events or structural changes resulting from the implementation of green policies.

Public employment programmes have become crucial policy tools that combine economic, social and environmental objectives in support of adapting to and mitigating environmental degradation and climate change.

If carefully designed and implemented, payments for ecosystem services schemes can offer cost-effective protection for the environment, while at the same time supporting household incomes.

Projections show that policies that extend transfers (such as unemployment benefits, cash transfers, public employment programmes and payment for ecosystem services), strengthen social protection and support green investment are financially viable and conducive to higher growth, employment creation and fairer income distribution.

Introduction

Social protection policies safeguard and promote human rights. They are an essential foundation stone for ensuring a just transition to a green economy and protecting workers against the detrimental effects of climate change and other forms of environmental degradation. They are central to economic and social development strategies, at both national and international level, as recognized in the Sustainable Development Goals (SDGs). Social protection consists of social and economic measures that protect people over the life cycle in the face of events that jeopardize their ability to earn income or access essential services¹ (ILO, 2017). Universal social protection has highlighted the importance of combining contributory and non-contributory schemes, integrating a set of policies designed to ensure income security and support to all people across the life cycle – paying particular attention to people in poverty and the vulnerable (ILO and World Bank, 2015). The combination of comprehensive social protection and employment policies can ensure that people enjoy income security throughout the life cycle.

The need for comprehensive and integrated social protection systems is also likely to increase because of the ongoing negative impact of climate change, such as rising temperatures, changes in precipitation patterns and the increased frequency and magnitude of natural disasters (see Chapter 1). This will be reflected in stagnant incomes for most households and a chain of deflationary effects on consumption, investment and tax revenues. Through their support for incomes, and for economic security in general, social protection systems contribute to a just transition to a green economy and to environmental action in two distinct ways.

First, social protection facilitates the adaptation of individuals and families to environmental degradation and climate change. The term “adaptation” refers to measures aimed at preventing environmental degradation from causing too much environmental damage (e.g. building dams through public employment programmes) or measures that aim at reducing the social and economic consequences of environmental disasters (e.g. financial assistance through cash transfers). For instance, social protection can be used to protect populations who are victims of adverse environmental events such as droughts, typhoons, heatwaves or floods. Cash transfers and public employment programmes can help families affected by extreme climate events or the progressive degradation of the environment (such as soil erosion and biodiversity loss). This chapter reports evidence that many countries are adapting their social protection systems or developing new schemes to ensure that they offer support that is adapted to the situation of people affected by environmental disasters or climate events (ILO and AFD, 2016a and 2016b). In addition, coverage for employment injury benefits for workers who become victims of an environmental hazard at work, including heatwaves, is a fundamental right as evidenced in international standards for workers’ compensation dating back to the early days of the International Labour Organization (see Chapter 3). For example, construction workers in countries experiencing extremely high temperatures acquire health conditions that necessitate medical treatment and sometimes income replacement if they become disabled and unable to work. The policies and measures to ensure the right of workers to compensation are integral to several of the Multilateral Environmental Agreements.

Second, social protection contributes to the mitigation of environmental degradation and climate change. As shown in Chapter 2, green policies and the transition to sustainable forms of economic growth will inevitably cause job losses and lead to the elimination of sources of income for some households. For example, the closure of mines, as being planned in the Philippines, or limitations on the exploitation of forests, as imposed in China at the end of the 1990s, entail the reduction or suppression of the main or sole source of income for thousands of households (ILO and AFD, 2016c and 2016d). Similarly, the elimination of fuel subsidies, as was recently done in Egypt, is certainly good for the environment, but it has a long-lasting negative effect on households in poverty that depended on these subsidies to buy the fuel needed for their own consumption (ILO and AFD, 2016e). These green policies may therefore not be socially acceptable unless they are accompanied by social protection measures (such as unemployment protection and social assistance) to support a just transition to a more environmentally sustainable economy.

In addition to social protection policy tools, the present chapter analyses payments for ecosystem services schemes. If carefully designed and implemented, these environmental programmes can

1. Social protection includes (i) family allowances to ensure that families have sufficient resources to provide good nutrition, education and care for their children; (ii) social health protection to ensure that ill health does not push people into poverty; (iii) unemployment benefits to secure household income in the event of loss of jobs; (iv) old-age pensions to ensure that older persons can live in dignity; and (v) employment injury benefits to protect workers in case of accidents or disease resulting from employment.

offer environmental protection while at the same time supporting household incomes. This follows the approach of Chapter 3, which discusses environmental laws, regulations and policies that include elements of the Decent Work Agenda.

In this context, this chapter first discusses the close relationship between poverty, social protection, income security and the environment. It then analyses four policy areas that can contribute to adaptation and mitigation measures: unemployment protection, cash transfer programmes, public employment programmes and payments for ecosystem services. While the examination of unemployment protection and cash transfer programmes recalls the need for strong social policies to protect people from adverse environmental impacts and to ensure a just transition to a green economy, public employment programmes and payments for ecosystem services offer the potential to explore the combination of economic, social and environmental objectives within one policy measure. After reviewing experience in these areas, a macroeconomic simulation projects the impact of an increase in environmentally oriented social protection on the global economy.

A. The link between poverty, social protection, income security and the environment

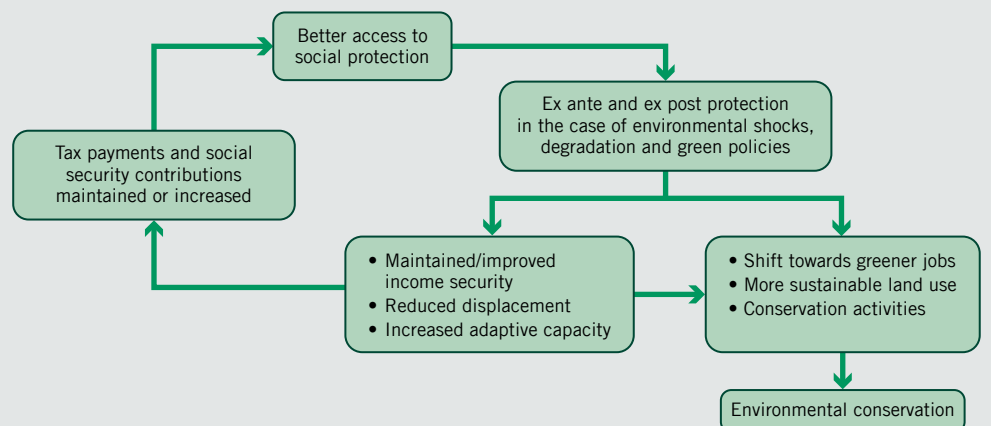
As noted in Chapter 1, people in poverty, indigenous and tribal peoples and other vulnerable population groups are particularly exposed to the risks and damages associated with environmental degradation as they tend to have lower capacity to mitigate the social, physical and economical damage. Moreover, they often rely more heavily than others on ecosystem services for their livelihoods and well-being, which therefore depend directly on a stable environment. This is particularly the case in rural areas (Suich, Howe and Mace, 2015).

Some of these groups also often find themselves locked into environmentally damaging activities, such as communities for whom deforestation is the only available source of both income and fuel. Social protection can therefore help to protect vulnerable groups from the effects of environmental degradation and reduce their reliance on activities that are detrimental to the environment (Duraiappah, 1998; ILO, forthcoming).

Confronted with multifaceted forms of insecurity that are exacerbated by environmental factors, along with inadequate access to social protection in rural areas, many women and men have been migrating to urban areas in search of income-generating opportunities. While migration can be an adaptation strategy, it can nevertheless leave migrant workers vulnerable to discrimination and exploitation in destination areas, especially urban areas, where they tend to find employment within the informal economy. Moreover, relocation to urban areas often also entails living in slums that lack access to basic social services and resilient infrastructure. In numerous urban centres, slums or informal settlements are highly vulnerable to environmental shocks and the impacts of climate change. In this context, adequate access to social protection for workers in urban areas can play a vital role in disaster risk reduction as well as in providing further opportunities for enhancing adaptive capacity, improving resilience, income security and positive health outcomes.

Figure 4.1 shows that social protection and environmental sustainability are inextricably linked. Social protection reduces the financial impact of environmental degradation, natural disasters and environmental laws and policies. It also provides a secure income and increased adaptive capacity which mitigates poverty and protects the environment while at the same time increasing tax payments and social security contributions. For example, if rural households have a guarantee of stable incomes, they are better able to invest in tools and land use practices that have a positive impact on soil and water quality and increase carbon sequestration. A well-preserved ecosystem, in turn, makes them less vulnerable to the negative consequences of environmental effects, shocks and disasters (Schwarzer, Van Panhuys and Diekman, 2016).

According to Hallegatte et al. (2016), forward-looking scenarios suggest that unmitigated climate change could drag 100 million people into poverty by 2030. This figure could be reduced substantially to 20 million through the adoption of climate-informed development and pro-poor social protection

Figure 4.1**Socio-economic and environmental challenges are intricately interlinked**

Source: ILO Social Protection Department.

policies (ibid.). Drawing on this analysis, the following sections critically assess the merits of four policy instruments, which can be specifically (re)designed to address environmental and social issues and thereby offer an efficient means of achieving progress towards the environmental, social and economic sustainability objectives embedded in the SDGs. The four instruments are, as mentioned above: unemployment protection; cash transfer programmes; public employment programmes (PEP) with environmental components; and payment for ecosystem services (PES) with social components.

B. Unemployment protection and structural transformation in the context of climate change

As discussed in Chapter 2, efforts to mitigate the root causes of climate change, and particularly to reduce GHG emissions, may not only improve energy and resource efficiency, but also open new job opportunities in sectors that will benefit from the green transition. However, as countries face difficult choices when phasing out carbon-intensive activities, workers whose livelihoods depend on less environmentally friendly practices require active support to shift towards more sustainable means of production. Measures are therefore necessary to provide workers with the right skills (see Chapter 5), facilitate re-employment through job placement services and relocation grants, and protect those who lose their jobs by means of income compensation measures in the form of unemployment benefits, social assistance or public employment programmes. Regarding the crucial issue of financing, governments should – in consultation with social partners and taking into account the economic and fiscal capacities available – articulate long-term financing needs and establish sustainable funding mechanisms for the implementation of these measures.

Unemployment protection provides income support over a determined period, as well as facilitating access to skills development and job placement services for unemployed workers or people who are looking for a new job (ILO, 2017). This includes workers who lose their jobs due to environmental laws, regulations and policies such as banning forest exploitation, introducing a fishing moratorium or closing down polluting and unsustainable industries (for example, in the mining sector). By guaranteeing unemployed workers and their families income security in the event of job loss, unemployment protection schemes contribute to preventing poverty, reducing vulnerability and facilitating the transition to new jobs, particularly if they are combined with skills development, job placement support,

and relocation grants. Unemployment protection is a fundamental measure in any social protection system, as recognized in the ILO's Social Protection Floors Recommendation, 2012 (No. 202). Where they exist – putting aside for the moment questions of resourcing, coverage and effective implementation – unemployment protection schemes involve the provision of employment services such as job matching and counselling, entrepreneurship support and access to enhance, update and develop skills necessary for workers transitioning from unsustainable means of livelihood to new jobs (ILO, 2014 and 2017; Peyron Bista and Carter, 2017).

Unemployment protection not only plays an important role at the individual level, but also contributes to stabilizing employment and aggregate demand, providing safeguards against informality and facilitating structural change in the economy (Berg and Salerno, 2008). As countries go through processes of structural transformation, there may be broad population shifts, including rural-to-urban migration and employment shifts from low-productivity and labour-intensive sectors (such as subsistence and non-mechanized agriculture) to high-productivity and skills-intensive sectors (industry and services). These types of resettlement and sectoral shifts often entail increased urban unemployment and informal employment. Adequately resourced and effectively implemented systems of unemployment benefits can therefore support structural transformation towards a greener economy, higher levels of productivity and inclusive economic development (Behrendt, 2013), as well as a just transition towards a more environmentally sustainable economy.

In recent years, unemployment protection schemes have been used to soften the effects of job losses in unsustainable industries by ensuring income security and supporting the reskilling of displaced workers. Several country examples are relevant. For instance, when in 1998, in an effort to reduce deforestation, the Government of China imposed bans on logging in natural forests, unemployment protection measures were used to provide financial assistance to those affected. Workers were also offered lump-sum payments, together with training to assist them to open their own businesses. Those still unable to find work elsewhere received basic unemployment benefit (ILO and AFD, 2016d). There is also the case of Poland, which – in a bid to mitigate GHG emissions and promote the transition to renewable sources of energy – is currently closing uncompetitive coal mines in compliance with European Union aid regulations and with a view to transitioning towards more sustainable energy sources. As around 100,000 people work in the Polish coal industry, financial support (1.9 billion euros) is being provided to those affected by job losses to help in their adaptation to changing labour market demands in the context of the transition to a more environmentally sustainable economy.² Similarly, following Romania's decision to close two uncompetitive coal mining units by 2018, financial support totalling 54 million euros has been earmarked to provide income support to workers who will become unemployed and to reskill former employees so that they can find jobs in more environmentally sustainable professions.³ In the Philippines, the planned closure of mines has been put on hold until appropriate compensation measures are agreed and implemented to support the workers affected and facilitate their transition to new jobs or locations. These examples show that the transition to a greener economy cannot be undertaken if the resources to cushion the social costs are not specified in advance.

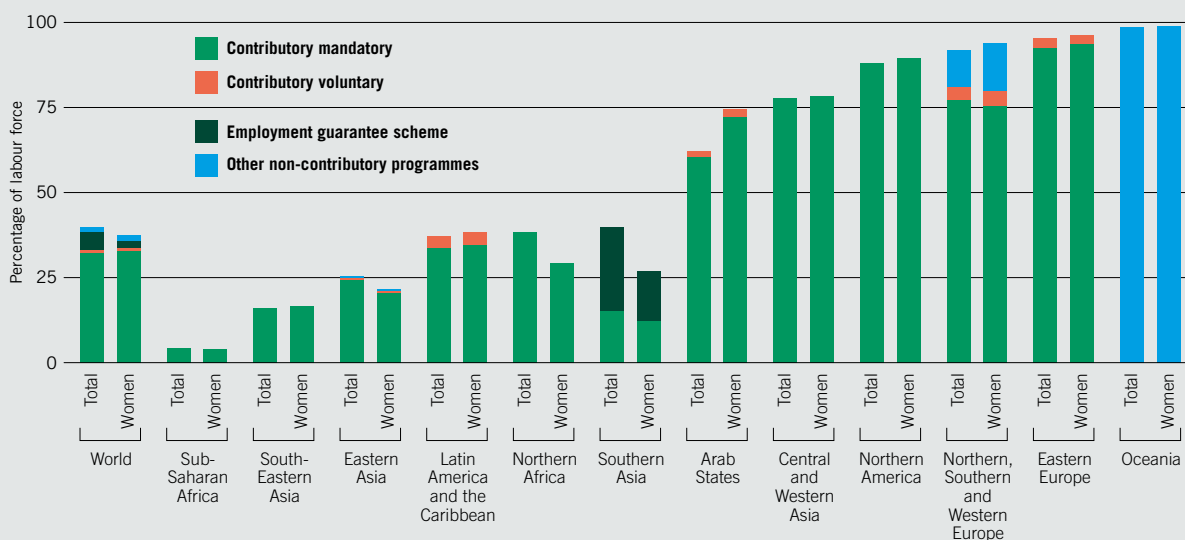
However, the potential of unemployment protection schemes to support the transition to greener economies is severely limited by the fact that such schemes do not yet exist in many countries. Even where they exist on paper, the schemes may cover only a small proportion of workers, often excluding workers who are underemployed and/or engaged in non-standard forms of employment, indigenous and tribal peoples, ageing populations and smallholder farmers, all of whom consequently have to rely on informal community or family support systems. Figure 4.2 shows that only around one-third (38.6 per cent) of the global labour force is covered by unemployment protection under national legislation, mostly through mandatory contributions. Legal coverage ranges from 4.2 per cent in sub-Saharan Africa to over 80 per cent in Europe, Oceania, and Northern America, with women being less likely to be legally covered in Eastern Asia, Northern Africa and Southern Asia. In this context, increases in non-contributory social assistance such as cash transfers (discussed in the next section) simultaneously compensate, at least in part, for non-existent or low coverage of unemployment protection during the transition to a green economy and strengthen the adaptive capacity of households in the case of slow and rapid-onset natural disasters. A gender-sensitive approach is required to compensate for existing disparities and to prevent their emergence in the first place.

2. See <https://www.reuters.com/article/us-poland-coal-subsidies-eu/eu-clears-1-9-billion-polish-support-for-mine-closures-idUSKBN13D16Y>

3. See http://europa.eu/rapid/press-release_IP-16-3981_en.htm

Figure 4.2

Percentage of workers covered by unemployment protection schemes, by region, latest year available



Note: Regional estimates are weighted by the labour force.

Sources: ILO, 2017, figure 3.16, based on World Social Protection Database; ISSA/SSA, Social Security Programs Throughout the World; ILOSTAT, completed with national statistical data for the quantification of the groups legally covered.

Link: <http://www.social-protection.org/gimi/gess/RessourceDownload.action?ressource.ressourceId=54640>

C. Cash transfer programmes

A second set of policy instruments, cash transfer programmes, can play a significant role in strengthening the adaptive capacity and resilience of individuals in response to climate change. They can also support a just transition to a green economy by protecting people from possible loss of income caused by the implementation of environmental policies. The concept refers to non-contributory schemes providing cash benefits to individuals or households, usually financed out of taxation, other government revenue, or external grants or loans. Programmes that provide cash to families subject to the condition that they fulfil specific behavioural requirements are referred to as conditional cash transfer (CCT) programmes.

Cash transfer programmes and adaptation strategies

Cash transfer programmes have expanded considerably over recent decades, particularly in low- and middle-income countries. They are typically designed to address the everyday deprivation faced by households in poverty, or by certain categories of the general population. In the context of climate change and environmental degradation, the role that cash transfers can play in strengthening the adaptive capacity and resilience of individuals and households is widely recognized, particularly in developing countries, where existing social protection is inadequate (Wood, 2011; Béné et al., 2014).

Wood (2011) identifies various channels through which cash transfer programmes contribute to adaptive capacity in the context of climate change. First, by helping people in poverty to meet their basic needs, cash transfers contribute to the reduction of short-term vulnerability. Second, they can provide support for households affected by climate-related hardship, such as extreme weather events and

slow-onset environmental degradation. Third, they have the potential to reduce pressures to engage in asset-depleting strategies, which weaken long-term adaptive capacity. By helping vulnerable households to consider investment decisions and innovations, cash transfers also increase their adaptive capacity. Finally, in some cases, when climate change makes livelihoods less viable, temporary or permanent migration can be the only response. In this context, by reducing the costs of migration and providing a degree of insurance to migrants, cash transfers can facilitate mobility and thus increase the options available to vulnerable households to improve their adaptive capacity. Another way to facilitate workers' mobility and strengthen their adaptive capacity is to ensure portability of social protection between employers and States.

More recently, certain climate-sensitive features have been added to otherwise pro-poor transfer programmes in countries such as Kenya and Ethiopia. In Kenya, the Hunger Safety Net Programme (HSNP) is an unconditional cash transfer programme that builds resilience and reduces extreme poverty in four arid counties in the northern part of the country. As of November 2017, the HSNP provides regular electronic and unconditional cash transfers to 100,883 households,⁴ which represents about 27 per cent of households in the region. The transfers are worth approximately US\$50 and are paid every two months. Since 2014, systems have started to be built to help the Government of Kenya put in place the capacity to scale up cash transfers to mitigate the effects of drought. Drought conditions are monitored by satellite. If they reach severe levels in any given month, an additional 25 per cent of households in drought-affected areas receive a one-off emergency payment. If conditions worsen to extreme levels, then coverage increases to 75 per cent of all households. During 2015, HSNP scaled up four times to provide emergency cash transfers to over 207,000 additional households beyond its regular beneficiary households. The first three payments were in response to drought and the last payment was made in anticipation of the El Niño weather system. According to the impact evaluation, the majority of beneficiaries used transfers for food and basic needs, but some were able to pay off debts, make modest investments in small livestock and contribute to the costs of schooling their children. There is evidence to suggest that the transfers enabled poorer routine beneficiaries to move towards a better standard of living, which increased their resilience to shocks. However, emergency beneficiaries used transfers almost exclusively to cover basic needs rather than investing in productive assets that may enhance resilience. As 62 per cent of the recipients are women, the programme increased their purchasing power and hence their visibility as economic actors and improved their status within their households (Farhat, Merttens and Riungu, 2017; Otulana et al., 2016).

Similarly, in Ethiopia, a cash transfer component of the pro-poor Productive Safety Nets Programme (PSNP)⁵ provides timely scale-up payments for certain beneficiaries in anticipation of droughts or floods, based on meteorological data indicating the anticipated impact on the food security of beneficiaries. A recent study focusing on the impact of Ethiopia's PSNP on long-term effects of drought indicates that the negative impact of drought shocks on food security persists for up to four years after the drought has ended. The study also shows that receiving PSNP payments reduces the initial impact of drought shocks by 57 per cent and eliminates their adverse consequences on food security within two years (Knippenberg and Hoddinott, 2017). Cash transfer programmes addressing specific climate-related risks are particularly relevant for countries seeking to develop adaptation measures to protect households against the financial losses and damage associated with the impact of climate change and environmental degradation.

Cash transfer programmes and mitigation strategies

Besides helping climate change adaptation, cash transfer programmes have also been part of public efforts to address the root causes of climate change. In addition to the negative effects on employment of the closure of polluting and carbon-intensive industries, some response measures to reduce or sequester GHG emissions may have an adverse impact on people whose livelihoods or consumption patterns are tied to unsustainable practices. Cash transfer programmes have been combined with pro-climate reforms to compensate in part or in full for income losses among those affected by new restrictions on economic activities or energy consumption.

4. Against a total target of 101,354 households (see: <http://www.hsnap.or.ke/index.php/dashboards/at-a-glance>).

5. The major component of the PSNP is a public employment programme (discussed in section D below). However, the direct support component provides cash transfer for those who are unable to work due to disability, illness or age.

For example, when China introduced the ban on unsustainable logging, referred to above, nearly 1 million state forest workers lost their jobs as a result, and the livelihoods of 120 million other rural workers were affected. However, thanks to the introduction of cash transfers and other social protection measures to supplement existing protection, four years later two-thirds of the nearly 1 million workers affected had either found other jobs or retired, and some 32 million rural households began to receive cash payments to perform conservation activities. These measures resulted in the afforestation of nearly 27 million hectares of former farmland and deforested areas (ILO and AFD, 2016c and 2016d). Some years later, in 2013, the Egyptian Government faced drastic and severe fiscal burden because of spending 20 per cent of the budget on fossil fuel subsidies. These subsidies were reduced to balance the budget and bring down wasteful consumption and emissions. According to officials, the removal of fossil fuel subsidies could reduce the country's CO₂ emissions by 13 per cent. The phase-out of fossil fuel subsidies was inaugurated alongside two new cash transfer programmes to help offset the impact of substantial fuel price increases on poor and vulnerable households. These programmes, partially financed by the government savings, were aimed at two vulnerable groups: one was tailored for households in poverty and children (*Takaful programme*) and the second (*Karama programme*) provides social pensions for persons with disabilities or aged 65 and above. While the *Takaful* programme provides monthly benefits of US\$40.50 per month with top-up payments ranging between US\$7.5 and US\$12.5 per child, the *Karama* programme provides a payment of US\$43.50 for each qualifying individual in the household. By 2017, the World Bank estimated that these programmes covered about 1.5 million families (6 million Egyptians) out of the 1.7 million families targeted (ILO, 2017; ILO and AFD, 2016e; World Bank, 2017).

D. Public employment programmes

The social and environmental potential of public employment programmes

The concept of public employment programmes (PEPs) covers any government programme that directly creates employment without expanding the regular civil service. PEPs include emergency public works programmes (PWP) such as the Gonaives programme in Haiti, and employment guarantee schemes (EGS) such as the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) in India, as well as a range of intermediate options. While PWPs are normally a temporary response to specific shocks and crises (although they can also have a longer-term horizon), EGS are long-term, rights-based employment programmes that entitle people to work and offer predictable and stable income while creating needed public assets and services (Lieuw-Kie-Song et al., 2010). PEPs contribute to a fair and just transition.

PEPs target multiple objectives simultaneously, which makes them attractive policy tools. While many combinations are possible, PEPs are usually aimed at: (i) employment creation and income security; (ii) poverty reduction; and (iii) the provision of public and/or social goods and services, such as infrastructure or environmental assets. Many of these environmental programmes, often described as Green Works, are also contributing to building more climate-resilient adaptive infrastructure contributing to disaster risk reduction.

The vast majority of PEPs implemented in recent years, particularly in low- and middle-income countries, have focused on the most vulnerable groups through the enhancement of income security and the development of health-care, educational, environmental and other public services. In general terms, PEPs are social protection tools with the objectives of providing temporary employment and investing in labour-intensive infrastructure in support of the provision of social services (Subbarao et al., 2013; McCord, 2012). At the same time they are extending social protection schemes in countries where there is insufficient or inexistent social protection coverage. The ILO's Social Protection Floors Recommendation, 2012 (No. 202), recognizes PEPs as a means of providing basic social security guarantees. However, while all PEPs include a social component, there are often trade-offs between multiple objectives (employment, poverty reduction and the provision of assets and social services). Thus, policy design and implementation require the prioritization of one function over the others (ILO, 2014), without undermining their potential to achieve secondary or tertiary objectives.

In recent years, there has been renewed interest in PEPs for two main reasons. First, they were part of the recovery plans and used as countercyclical measures in many countries following the Great Recession (ILO and World Bank, 2012). For this reason, they are referred to in the ILO's 2009 Global Jobs Pact as a response to the risk of long-term unemployment and increased informality, and as building blocks for social protection systems. Second, a range of innovations in the design and implementation of PEPs has improved their social, economic, environmental and institutional outcomes. Among these innovative aspects, which include longer-term approaches, broader scale and greater complementarity with social protection programmes, innovations in the type of work provided under the programmes are opening up new opportunities for convergence with other policy areas. In particular, PEPs performing work in the environmental sector have the potential to contribute to climate change mitigation and adaptation (Lieuw-Kie-Song et al., 2010; Philip, 2013).

The main way in which PEPs can contribute to climate change mitigation and adaptation is through the work performed. For example, mitigation components of environmental projects usually include jobs in reforestation, water and soil conservation, while adaptation can be targeted through employment in flood control and erosion reduction measures. Given their local nature, adaptation can also be integrated into projects that enhance community resilience. In vulnerable areas heavily affected by natural disasters and climate change, emergency employment programmes can provide social protection while at the same time reducing the impact of negative shocks. Employment generated through rehabilitation and reconstruction following natural disasters is reactive adaptation. The third way in which PEPs can contribute to environmental objectives is through anticipatory adaptation. As the majority of PEPs involve the construction of infrastructure, it is possible to integrate PEP projects with climate adaptation measures, such as improvements in irrigation and drainage systems, roads and transportation. Mitigation can also be achieved through jobs that target resource efficiency in infrastructure. Importantly, these types of employment offer opportunities to enhance skills for the green transition (see Chapter 5). Last but not least, these employment-intensive schemes use hands-on training to raise and strengthen awareness of the importance of climate resilience and the risks of environmental degradation. PEPs can therefore combine adaptation and mitigation measures with social protection and poverty reduction, while enhancing local participation and the rehabilitation of natural resources (Harsdorff, Lieuw-Kie-Song and Tsukamoto, 2011). Many of these programmes also include a productive component, making them attractive to ensure that they are sustainable and provide the needed livelihoods.

In this context, PEPs become crucial policy tools to combine economic, social and environmental objectives through green jobs (box 4.1). Their use is likely to increase over the coming years, as climate change and other forms of environmental degradation add to existing environmental challenges. Increasing numbers of activities related to the mitigation of and adaptation to climate change can be expected.

Examples highlighting the potential of environmental PEPs

Three examples illustrate how PEPs can combine social and environmental outcomes: The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) in India, the Working for Water programme in South Africa, and the Productive Safety Net Programme in Ethiopia. All these examples promote adaptation from and mitigation of environmental risks.

The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) in India is aimed at providing social protection and economic security for rural people in poverty, strengthening drought-proofing and flood management and empowering marginalized communities. Through the MGNREGA, each rural household is entitled to 100 days of employment a year. People are employed in unskilled manual work, such as the construction or improvement of community infrastructure, or the generation of ecosystem services that protect environmental resources. According to the Ministry of Rural Development, 60 per cent of the work hours provided through the programme in 2012 involved water conservation and 12 per cent were related to the provision of irrigation facilities (Das, 2013). The programme also increased female labour participation and in some cases women's autonomy in household decision-making by providing higher wages than other rural employment opportunities (ILO, 2017).

The Working for Water programme was introduced in South Africa in 1995 as a response to an invasive alien vegetation species problem that caused damage to the South African economy and its biodiversity, threatened water security and increased soil erosion. Since 2003, Working for Water has been

Box 4.1

High-impact opportunities for environmentally oriented public employment programmes

Lieuw-Kie-Song (2009) identifies six sets of circumstances in which environmental public works programmes can be particularly effective policy options on their own, or when integrated into other activities.

Circumstances of acute environmental distress

Depleted natural capital due to acute environmental degradation, such as deforestation, soil erosion, flash floods and invasive threats, can reduce the productivity level of the poor. In this context, investment in restoring degraded natural capital through PEPs can create employment opportunities and raise productivity in the long term.

Complementing other rural development strategies and schemes

PEPs can complement rural development programmes by raising agricultural productivity and creating livelihoods. Investment opportunities in natural capital can be as diverse as water harvesting, increasing attractive features for tourism, and maintaining catchment areas to improve water supply for local communities, as well as downstream communities or cities.

Offering alternatives for those engaged in destruction/over-harvesting

PEPs can provide alternative employment with better working conditions and income for poor persons who are engaged in deforestation and over-harvesting. PEPs can direct their labour towards environmentally sound activities such as reforestation and other agro-forestry activities, instead of environmental destruction.

Urban areas with high concentrations of poverty and unemployment

In urban areas with a high concentration of poverty, PEPs that include environmental activities alongside other components can produce improvements in sanitation, rain-water capture, the insulation of homes and the provision of solar water heaters. Other opportunities could include tree planting, waste management and recycling.

Responses to natural disasters

PEPs implemented in response to natural disasters can have both a short- and a long-term impact. In the short term they can be used to reverse disaster damage, while in the long term they can restore the environment, which can help limit the impact of similar disasters in future. For example, mangrove forests can help reduce the impact of floods and tsunamis, as well as playing a critical role as breeding grounds for many species of fish.

Climate change adaptation

PEPs that include adaptation measures can minimize the impact of climate change and benefit the poor who are directly affected by providing them with additional income through employment. Although effective measures to adapt to climate change are still being identified, this field is developing rapidly and some opportunities can already be outlined, such as watershed management, the construction of dykes or eco-based adaptive measures to protect against rising sea levels and water harvesting.

part of the Expanded Public Works Programme. It is a water-clearing PEP that provides unemployed workers with short-term public contracts to remove water-intensive alien tree and plant species from local water catchment areas. Working for Water is also aimed at poverty alleviation and specifically targets vulnerable groups by seeking to employ 60 per cent women, 20 per cent youth and 5 per cent persons with disabilities. The programme has resulted in the clearance of over 1 million hectares of invasive alien plants since 1995, releasing an additional 50 million cubic tonnes of water a year (Schwarzer, Van Panhuys and Diekman, 2016).

The Productive Safety Net Programme (PSNP) has contributed to improving food security in Ethiopia through land restoration and reforestation, and has become Africa's largest climate resilience programme. The PSNP has benefited 7.8 million persons and supported the restoration of the local environment. Total expenditure under the PSNP between 2015 and 2020 amounts to US\$4 billion.

Evidence shows that PSNP public works have improved the capacity to grow food by increasing land productivity by three to four times, with a positive impact on community resilience. Higher crop yields have been achieved by reducing soil erosion and sediment loss by 50 per cent. The average household food gap (the total number of days during which households cannot meet their food needs) has fallen from 3.6 months to 2.3 months. The PSNP has also contributed to the mitigation of climate change by promoting land use practices that increase carbon sequestration (Fortun, 2017).

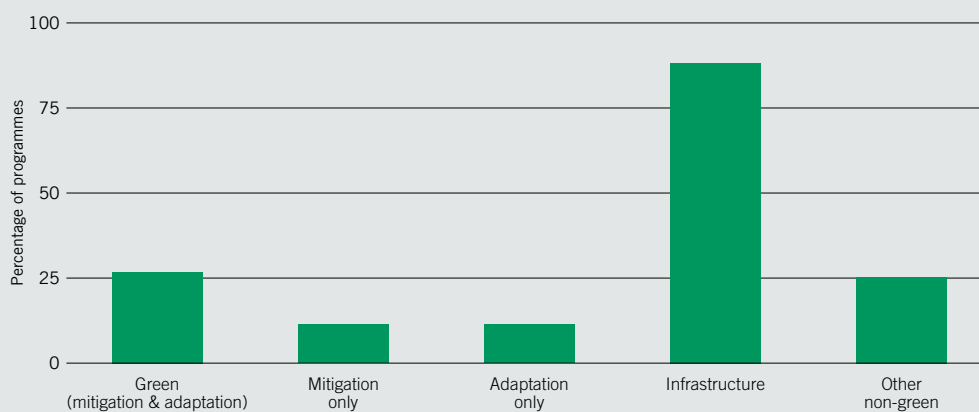
Many PEPs include environmental objectives

While most of the literature focuses on national experiences of integrated PEPs combining social and environmental outcomes, little is known about their implementation at the global level. A rough estimate is made in this chapter by using the available cross-country data on PEPs with a safety net orientation, retrieved from Subbarao et al. (2013).⁶ The available data provide information on 86 PEPs covering 62 countries in five regions.

Figure 4.3 shows that 50 per cent of the PEPs reviewed include an environmental component, whether related to mitigation of or adaptation to environmental risks. While 26 per cent of the sample integrate both mitigation and adaptation components, 12 per cent include only mitigation work and an additional 12 per cent include only adaptation measures. Unsurprisingly, 88 per cent of the PEPs focus on infrastructure. The results also show that 26 per cent of the PEPs provide social services such as health-care and educational services. As each PEP tends to consist of various components, percentage figures do not add up to 100 per cent.

Figure 4.3

Public employment programme components

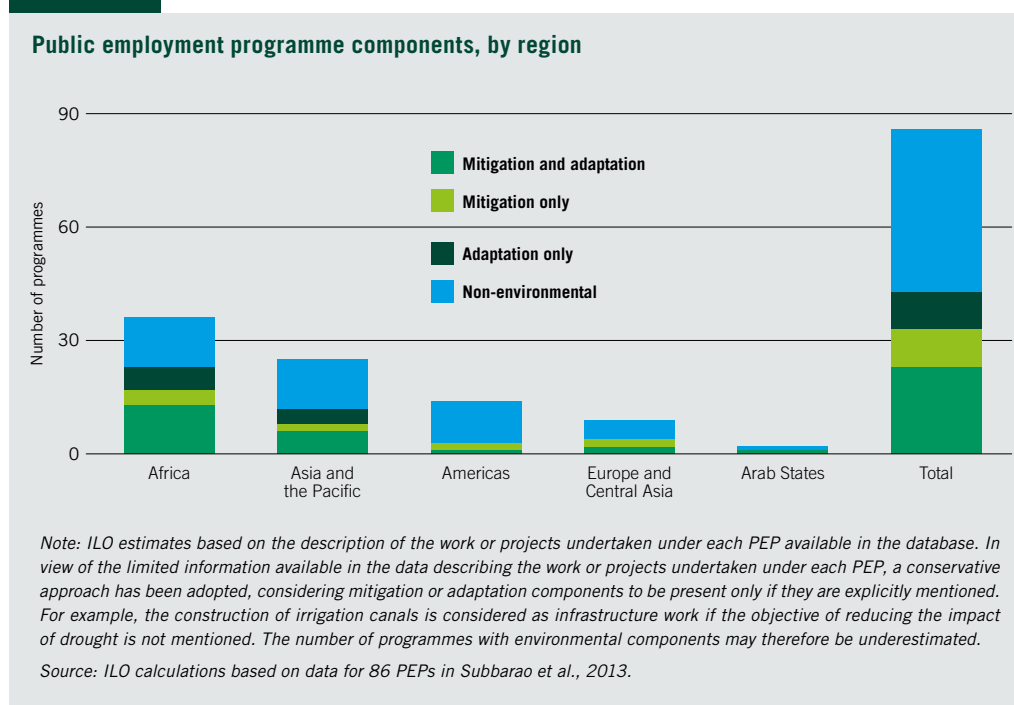


Note: ILO estimates based on the description of the work or projects undertaken under each PEP available in the database. In view of the limited information available in the data describing the work or projects undertaken under each PEP, a conservative approach has been adopted, considering mitigation or adaptation components to be present only if they are explicitly mentioned. For example, the construction of irrigation canals is considered to be infrastructure work if the objective of reducing the impact of drought is not mentioned. The percentage of programmes with environmental components may therefore be underestimated.

Source: ILO calculations based on data from 86 PEPs in Subbarao et al., 2013.

6. The data were obtained from a review of existing research on specific public works programmes implemented over the past 20 years. The data are supplemented by a survey of PEP implementation conducted at the South South Learning Forum: Making Public Works Work, held in Arusha, United Republic of Tanzania, in 2010. In addition, as explained by Subbarao et al., 2013, the work focuses on safety net-oriented PEPs.

Figure 4.4



At the regional level, figure 4.4 shows that Africa has the highest incidence of PEPs that include environmental components, with 23 out of 36 PEPs including mitigation or adaptation activities. Africa is also the region for which data are available on the largest number of PEPs. In Asia and the Pacific, 12 of the 25 PEPs considered include an environmental component, with six programmes undertaking both mitigation and adaptation activities, two programmes including only mitigation and four only adaptation work. In Latin America and Europe, the prevalence of environmental components is lower, with three out of 14 PEPs including an environmental component in Latin America and four out of nine in Europe. In the Arab States, the data cover only two programmes, of which only one includes both mitigation and adaptation activities.

E. Payments for ecosystem services

In line with the discussion on environmental policies that comprise elements of the Decent Work Agenda (see Chapter 3), this section turns to the fourth selected policy instrument, namely payments for ecosystem services (PES), as a concrete example of an environmental policy with the potential to achieve social outcomes. With the growing need for integrated policy measures that address social, environmental and economic challenges, innovative policy tools such as PES are raising considerable interest. While the previous section discussed the possibility of including environmental components in PEPs which are primarily designed with a social objective in mind, this section focuses on the integration of a social dimension into PES schemes originally designed with an environmental objective.

Designing PES with poverty alleviation objectives

Ecosystem services are the benefits to humans provided by the ecosystem. They include: provisioning services (such as the supply of food, water and timber), regulating services (including the regulation of air quality, climate and flood risks), cultural services (such as the recreational, aesthetic and spiritual

benefits of ecosystems) and supporting services (including soil formation, pollination and nutrient cycling) (MEA, 2005). As Chapter 1 shows, environmental degradation limits the ability of ecosystems to provide these services, threatening individual health and well-being and economic activity. As most ecosystem services are not priced, they therefore constitute implicit subsidies to those that enjoy them, with no liability if their provision ceases (Smith et al., 2013). Adequate pricing, which can include the benefits that ecosystem services bring to jobs, can go a long way towards generating incentives for the services to be maintained, in addition to providing revenue for individuals and communities (Barbier and Markandya, 2013; Gómez-Baggethun et al., 2010; Pagiola, Arcenas and Platais, 2005). In this context, PES have attracted considerable interest as a means of preserving ecosystem services through markets (Daw et al., 2011; Jayachandran et al., 2017; Schwarzer, Van Panhuys and Diekman, 2016). In recent years, many studies have highlighted the potential positive effect of PES on the livelihoods of smallholders (Grieg-Gran, Porras and Wunder, 2005; Pagiola, Arcenas and Platais, 2005; Wunder, 2008; Zilberman, Lipper and McCarthy, 2008).

The basic principle behind all PES is 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 benefits⁷ (Mayrand and Paquin, 2004; Pagiola and Platais, 2002).

In this context, a growing body of evidence demonstrating that people in poverty are providers of environmental services means that PES have the potential to combine their initial environmental objectives with social objectives. The specific characteristics of PES programmes (see [box 4.2](#)) and the areas in which they are implemented are likely to play a critical role in the relationship between PES and poverty (Pagiola, Arcenas and Platais, 2005). While in some cases PES can achieve both objectives in a cost-effective manner, in others their socio-economic and institutional context is such that poverty alleviation and environmental protection objectives compete. If the poverty alleviation components of PES programmes come at the expense of the environmental service, the programmes may fail, in which case neither the environmental conservation nor the poverty reduction objectives will be achieved (Wunder, 2005). For instance, when people in poverty and vulnerable people are included in PES programmes, they are often relatively low-cost providers of environmental services. The economic opportunity cost for poor participants is lower than for others, in view of the lack of viable alternative economic opportunities. This makes them attractive participants in PES schemes. However, the ecological impact of the services they provide may be limited in comparison with ecological assets for which opportunity costs are much higher (such as the prevention of industrial-scale land development). When the socio-economic and institutional context allows, the issues related to trade-offs between environmental and social objectives can be addressed by the design and implementation of the programmes.

The integration of economic, ecological and social criteria into the design and implementation of PES makes them more complex, but may in some cases lead to them supporting sustainability by promoting economic resilience, environmental integrity and social development (FAO, 2011). A key question when designing such programmes is whether any constraints prevent people in poverty from entering them. If formal land title is not secured, PES that require land ownership or a minimum land size for participation are likely to exclude the landless poor and smallholders (Pagiola, Arcenas and Platais, 2005; Wunder, 2005). Similarly, complex and/or expensive application processes may lead to the exclusion of people in poverty. It is therefore important to keep the application process as simple as possible and, if necessary, to provide free (or low-cost) assistance. If the programme is to be effective in reducing poverty, the financial impact of the payments has to be sufficient to increase the total income of the participants. For this to be the case, the net payments made have to exceed the opportunity cost, which includes income from previous land use and transaction and investment costs. This is often assumed to be the case, as providers supposedly enter PES contracts on a voluntary basis. However, opportunity costs need to be carefully considered and estimated in order to determine the appropriate level of compensation (Schwarzer, Van Panhuys and Diekman, 2016). A PES scheme can also strengthen – or lead to the creation of – community associations, especially if the contracts are signed with the community, or if agreements are negotiated on a collective basis. In the latter case, coordination between potential providers at the community level can give individuals more bargaining

7. In recent decades, the definition of PES has been the subject of intense debate. Wunder (2015) revisited his work to take into consideration the criticisms and analyses made in the literature. According to the new definition, PES are “voluntary transactions between service users and service providers that are conditional on agreed rules of natural resource management for generating offsite services”. In practice, many PES schemes do not meet all these criteria. The difficulty in reaching consensus on the definition of PES reflects the great variety in their design.

Features of payments for ecosystem services (PES) schemes

Types of environmental services provided:

- Carbon sequestration and storage, usually in accordance with climate change mitigation objectives. For example, polluting companies in industrial areas can pay farmers in the tropics to plant more trees and maintain forests to offset their carbon footprint.
- Biodiversity protection, with the aim of maintaining or increasing biodiversity against a variety of land uses. For example, farmers are paid to set aside their land for conservation or to reduce their agricultural activity on such lands. Environmental service buyers of this type are often conservation organizations, ecotourism or wildlife companies, or governments (Wunder, 2005).
- Watershed protection, to reduce the negative impact of upstream water users on water quantity and quality. For example, downstream water users (which may be companies or households) pay upstream farmers to adopt sustainable land use practices.
- Landscape beauty, to maintain biodiversity and ecosystem qualities that contribute to natural beauty. This type of PES scheme often includes tour operator companies on the demand side and farmers or foresters on the supply side.

A majority of PES schemes target single environmental services, but some target multiple services. For example, the National Payment for Environmental Services programme in Costa Rica rewards forest owners for the four types of services mentioned above (Schwarzer, Van Panhuys and Diekman, 2016).

Sectors financed:

- Public PES schemes are managed and financed, often through taxes, by a local or national centralized public administration acting as a buyer on behalf of the public or a group of private end users. These programmes are often large scale, nationwide and include side objectives, such as livelihood impacts, community development and pro-poor action.
- Private schemes are often on a smaller scale and focus on a local area, in which buyers pay service suppliers directly (or through intermediaries, such as forestry funds, commodity funds or NGOs).
- Donor-led schemes are encouraged and financed by international donors, such as the GEF, the World Bank, IFAD and CARE. These schemes tend to support smaller scale and more locally focused programmes within larger initiatives

covering more than one country, such as the IFAD Rewarding Upland Poor for Environmental Services (RUPES) programme.

In practice, PES schemes are often a combination of the above. Government-financed PES schemes may receive partial funding and technical support from international organizations, and donor-led programmes tend to incorporate private companies with the aim of the contracts being taken up by private users after the donations fade out (Ezzine-de-Blas et al., 2016).

Forms of land use:

- Use-restricting, whereby areas under conservation or protection are set aside, and service providers receive compensation for the opportunity cost of not using the resource. For example, under China's Sloping Land Conversion Programme (SLCP), farmers in erosion-prone areas volunteer to set aside part of their cropland and receive compensation that is higher than the opportunity cost.
- Asset-building PES schemes, through which payments are made for efforts to improve environmental services (for example, through afforestation and reforestation).

While "use-restricting" can by definition generate additional income through compensation, it limits the creation of new economic activities. In contrast, "asset-building" allows the creation of new jobs and innovative value aggregation chains, and therefore develops sustainable "exit doors" and provides better safety nets for households (Schwarzer, Van Panhuys and Diekman, 2016).

Forms of payment: payments under PES schemes can be in cash or in kind, or a combination of both:

- Cash payments can be one-off payments from buyers to an intermediary fund, which are then distributed to service providers during contract periods or paid on a more regular basis, for example as a wage to conservationists and foresters.
- In-kind payments can take many forms, ranging from the provision of planting materials and tools to capacity-building, training and technical assistance. A more indirect channel of in-kind payment is through social services such as education, health care and infrastructure development.

Spatially, schemes can vary from local (ranging from very small programmes to medium and large sizes) to schemes carried out on a national scale.

power and reduce transaction costs (Grieg-Gran, Porras and Wunder, 2005; Pagiola, Arcenas and Platais, 2005; Schwarzer, Van Panhuys and Diekman, 2016; Wunder, 2005).

Another concern that needs to be addressed is the potentially negative impact of PES on the non-participating poor. First, there may be a drop in employment opportunities if the alternative land use promoted by the scheme is less labour intensive (Wunder, 2005). However, Chapter 2 shows that sustainable methods of production can be more labour intensive. Second, people who are not participating in a PES scheme may be priced out of the services it provides, in the sense that they may now have to pay for the service which, since it is now priced, may become unaffordable. They may also be affected indirectly through a rise in the cost of living resulting from higher food prices (Schwarzer, Van Panhuys and Diekman, 2016).

Growing interest in PES schemes with social objectives

In recent years, as the interest of policy-makers has grown in the potential of PES schemes to address environmental degradation as well as poverty reduction, some countries have begun to change the design of PES. For example, the Payment for Environmental Services (PPSA) scheme in Costa Rica and the Payment for Hydrological Environmental Services (PSAH) scheme in Mexico did not originally have an anti-poverty objective, but have become pro-poor over time. In other countries, social dimensions have been included in existing PES schemes from the outset, such as the Social Forest programme in Ecuador and the *Bolsa Verde* in Brazil, which link an existing social protection programme with a PES approach.

At the global and regional levels, there are several multi-country actions and learning initiatives to promote the development of local PES schemes with an anti-poverty focus. The most important are global initiatives, such as Reducing Emissions from Deforestation and Forest Degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks (REDD+) and Ecosystem Services for Poverty Alleviation (ESPA), as well as regional initiatives such as Rewarding Upland Poor for Environmental Services (RUPES) in South-East Asia and Pro-poor Rewards for Environmental Services in Africa (PRESA). All these initiatives cover regional action sites in different countries, combined with a focus on research and a platform for the exchange of experience and the development of lessons for future projects. There are also international and regional exchange groups focusing on PES, including the Katoomba Group, an international network serving as a forum for the exchange of ideas and information about PES and for collaboration between practitioners on PES projects and programmes. The East African Forum for Payment for Ecosystem Services is an interactive regional forum for the exchange of knowledge, ideas and experience, which also provides support for ongoing and emerging PES projects in East Africa and beyond (Schwarzer, Van Panhuys and Diekman, 2016).

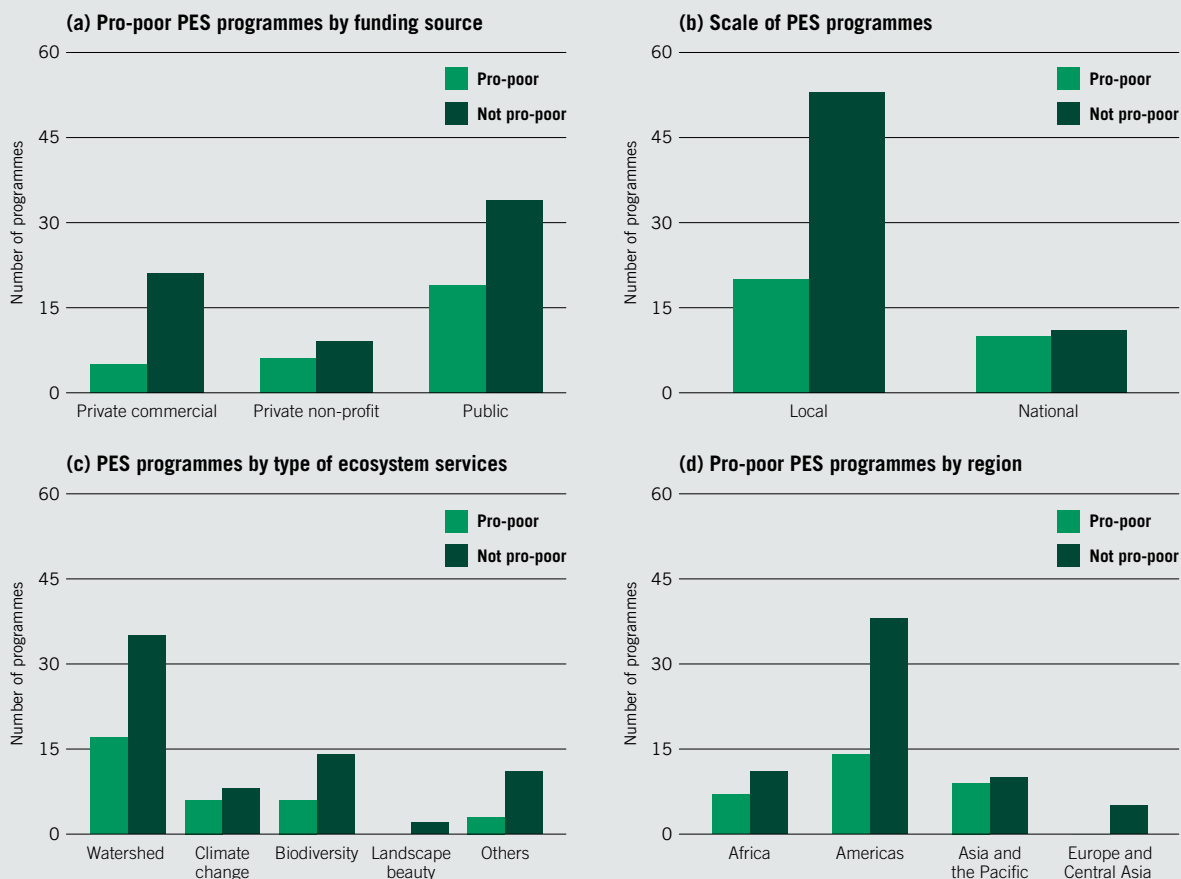
In line with these recent trends, [figure 4.5](#) suggests that PES programmes financed by governments and non-profit organizations are more likely to include a pro-poor objective than privately funded schemes. While 19 per cent of the privately funded PES reviewed include a pro-poor focus, the figures are respectively 40 and 36 per cent for non-profit and publicly funded PES, which also focus on poverty alleviation. It would also appear that 47 per cent of the large national programmes (often financed through public funds) include a pro-poor focus, compared with 27 per cent of local schemes (usually privately financed). The results also suggest that PES that include carbon sequestration are more likely to be pro-poor than those focusing on other environmental services.⁸ At the regional level, PES schemes are more common in Latin America than in other regions. However, a larger share of the schemes have a pro-poor focus in Asia and the Pacific and Africa.

Although estimates suggest that a significant number of PES already include poverty alleviation objectives, monitoring the impact of PES on ecosystems and poverty is crucial to measuring their environmental and social outcomes and longevity.

8. "The nature of the environmental service often determines whether the poor can participate. In the case of watershed services, once a particular catchment has been identified for providing hydrological services, the program is bound to work with the communities that live in that catchment, irrespective of their socioeconomic status. On the other hand, land users anywhere in the world can provide carbon sequestration services. Poor farmers who depend on marginal lands can provide carbon sequestration services more cheaply than farmers in industrialized countries, where land prices and opportunity costs are much higher. Therefore, many carbon projects, such as the World Bank's BioCarbon Fund, are able to target poor communities for providing carbon sequestration services." (Jindal and Kerr, 2007, p. 4).

Figure 4.5

Pro-poor components in payment for ecosystem services (PES) schemes



Note: Data for 94 PES programmes consolidated from Schwarzer, Van Panhuys and Diekman, 2016, and Ezzine-de-Blas et al., 2016. Programmes listed in both sources are combined. Programmes with a pro-poor focus are those that either explicitly mention poverty reduction in their objectives or are assessed as having pro-poor effects in the socio-economic impact sections in the literature. Due to limited data collection from the literature review, a conservative approach is adopted in counting pro-poor programmes, as not all the literature analyses socio-economic impacts. Due to the differences between the two data sets in categorizing financing, the financing sector is defined as public, private commercial or private non-profit, as in Ezzine-de-Blas et al., 2016. Programmes classified as donor-led in Schwarzer, Van Panhuys and Diekman, 2016, are classified as either public (if the majority of funding is from international organizations or provided as aid) or private non-profit (if the majority of funding is from NGOs, foundations or grassroots organizations).

Source: ILO calculations based on 94 PES programmes in Schwarzer, Van Panhuys and Diekman (2016) and Ezzine-de-Blas et al., 2016.

F. Simulation

In this section, a simulation model is applied to help illustrate the overall effect of the social protection policies examined in this chapter. Using the United Nations Global Policy Model, we project the impact of a policy package containing PEPs, PES, cash transfers, unemployment insurance and investment in clean energy on growth, employment and income distribution.

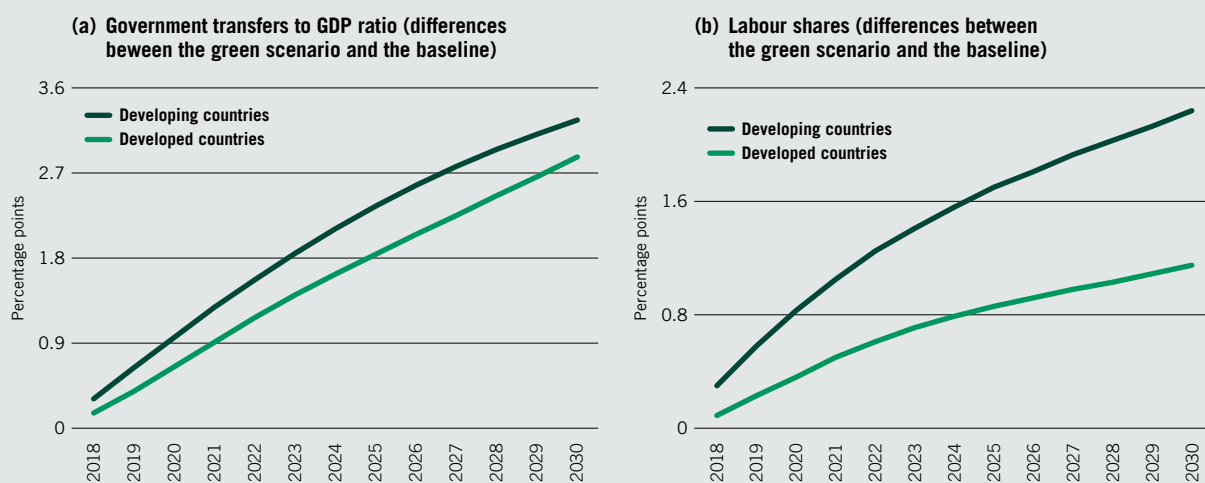
A simulated policy package shows benefits

The simulation covers the global adoption of a policy package in support of household and workers' incomes for the promotion of sustainable growth. The term "sustainability" is used in this context in both an environmental sense, as growth that does not rely on the greater use of fossil fuels, and an economic sense, as a growth pattern that eschews the accumulation of macroeconomic imbalances which may lead to instability. To achieve this double goal, changes are examined in social protection policy, taxation, primary income distribution and energy policy.

Two changes are assumed in social protection policy (figure 4.6). First, social transfers are assumed to increase as a result of payments for environmental services, public employment programmes and cash transfers. The increase is assumed to be faster in countries with a lower ratio of total transfers to GDP (where the ratio is assumed to increase by 1.5 per cent a year), and slower in other countries (0.75 per cent a year). To justify this assumption, one may argue that those countries which have already put in place the relevant programmes to be scaled up have lower needs in terms of extending the coverage or the level of benefits. Developing countries, which often tend to experience higher levels of growth as well as lower social protection system coverage, have more needs to be met and more potential to extend social protection, provided they have the fiscal space and the institutional capacity to do so in the first place. In the short term, this rise in spending is compensated by a rise in direct taxes, with more emphasis on marginal rates. A greater increase on marginal rates contains the impact of direct income support on aggregate consumption. Indeed, a drive towards higher consumption may lead to unsustainable, short-term, high-interest borrowing, which is likely to generate financial bubbles. In the longer term, the increase in social spending pays for itself, as higher growth and employment generate higher tax revenue.

Figure 4.6

Social protection policies for a green economy



Note: The lines in each panel represent differences between the two scenarios. For example, in panel (a) the lines indicate that transfers/GDP ratios are increasingly higher in the green scenario compared to the baseline scenario.

Source: ILO calculations based on the United Nations Global Policy Model.

Figure 4.7

GDP growth rate (baseline scenario vs green scenario), selected countries

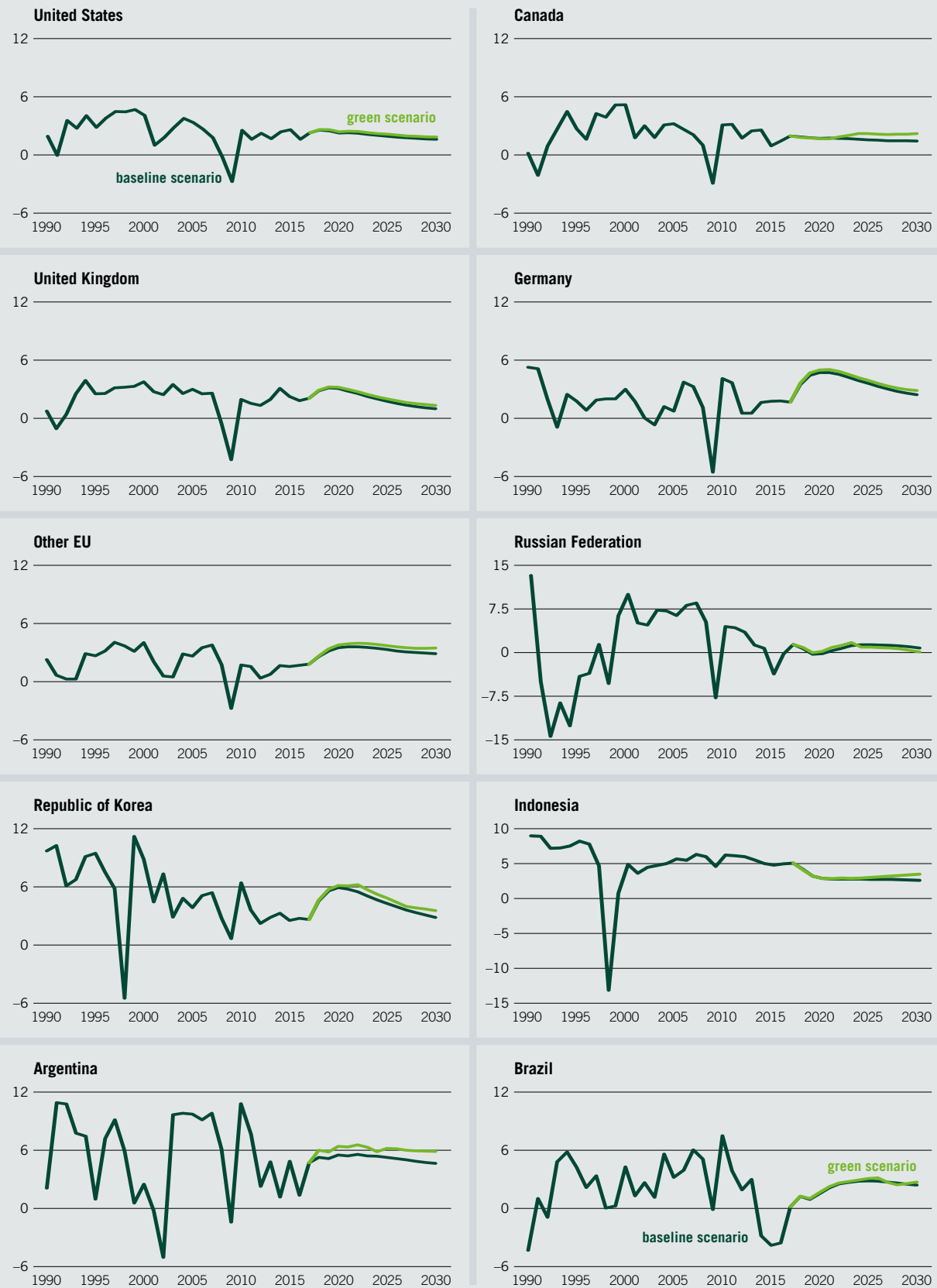
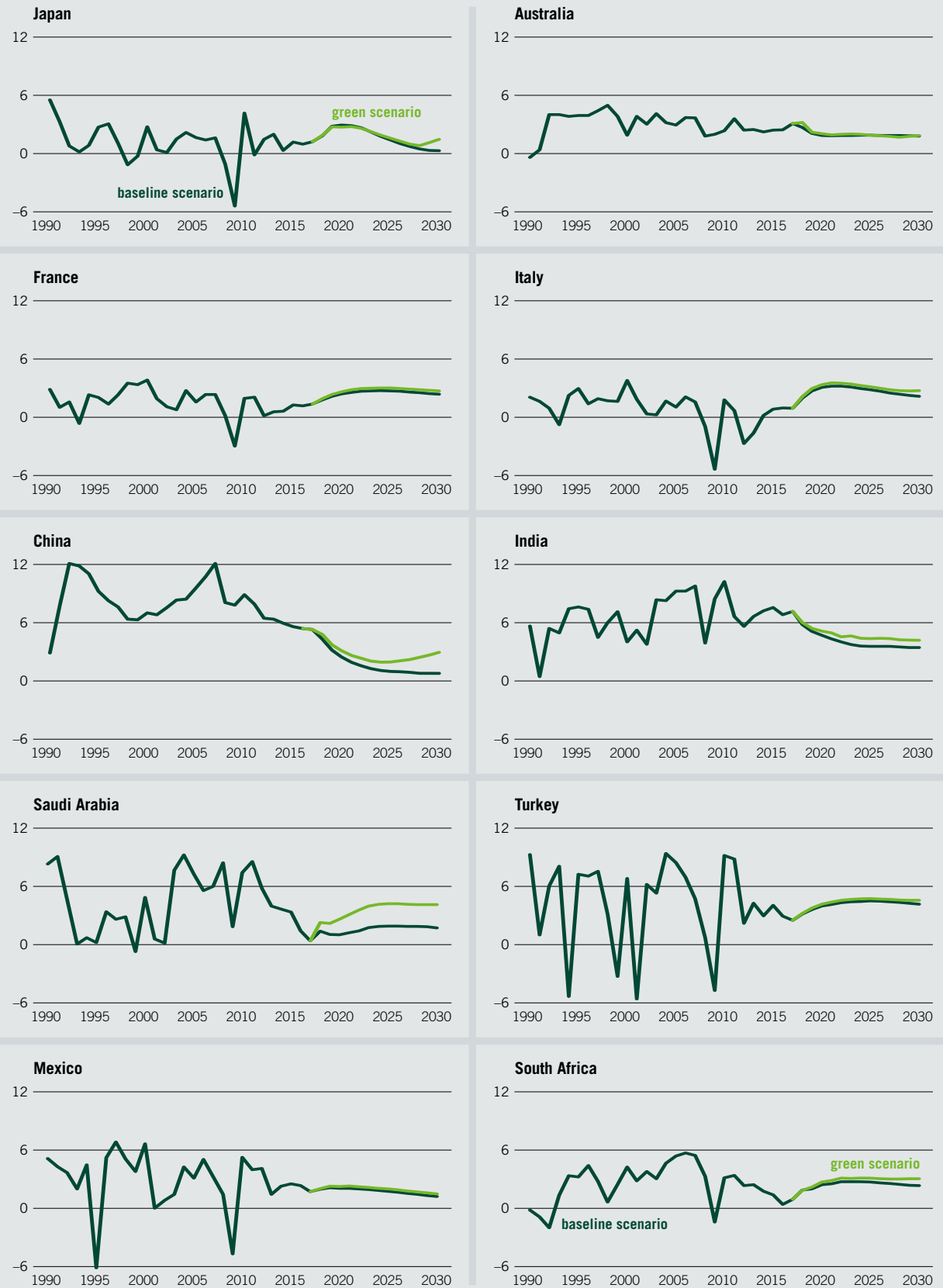
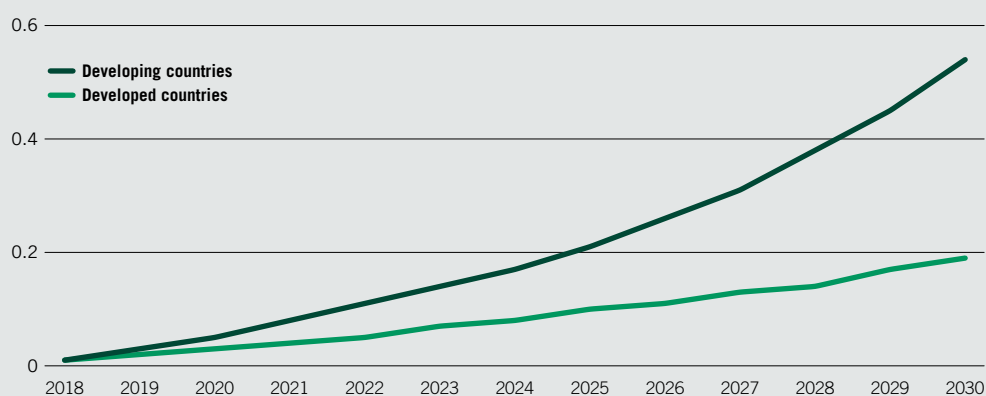


Figure 4.7

(cont'd)



Source: ILO calculations based on the United Nations Global Policy Model.

Figure 4.8**Employment rate (difference between the green scenario and the baseline scenario)**

Source: ILO calculations based on the United Nations Global Policy Model. The graph represents the difference in percentage point employment rates between the two scenarios.

Second, it is assumed that social insurance policies, including unemployment insurance, will be strengthened through increases in social security contributions. These increases could represent a larger share of workers being covered against various risks (old age, poverty, work accidents, unemployment, etc.), or higher benefits. This is reflected in the simulation of an increase in the labour share of income, which includes employees' compensation and employers' social security contributions. Even though tax increases rarely enjoy public support, there are a number of examples in recent years suggesting that, depending on national circumstances, increases in social security contributions are feasible. In Brazil and other emerging economies, targeted measures for small and medium-sized enterprises have resulted in an increase in the number of workers being covered by social security. In Spain, self-employed workers were granted the right to unemployment benefit compensation under certain circumstances in 2007, following the adoption of the Self-employed workers' statute (*Estatuto del Trabajador Autónomo*). A survey of 77 countries' response to the financial and economic crisis of 2008 revealed that a large number of them adopted expansionary measures, usually with a limited time frame, such as facilitating and extending access to existing unemployment benefits, increasing the maximum period during which benefits were paid, raising the level of benefits, and adopting work-sharing arrangements (also called partial unemployment benefits) (Bonnet, Saget and Weber, 2012). Two countries – Uruguay and Viet Nam – adopted new unemployment insurance schemes during the crisis period.

Energy policy is represented in the simulation by the ratio of carbon energy to non-carbon energy use. Although admittedly narrow, this measure makes it possible to set ceilings for the expansion of carbon energy use, and the related emissions, reflecting those negotiated in international agreements such as the Kyoto Protocol and the Paris Agreement. However, no specific inference is drawn regarding the application of these agreements. The simulation calls for a reduction of total CO₂ emissions and a decrease in overall energy demand. It is assumed that the fall in overall energy demand is met by increasing the supply of non-carbon energy and reducing that of carbon energy. The general implication of these assumptions is the requirement for the economy to become more energy efficient, reversing a long-standing trend.

Finally, it is important to note that stimulus measures (such as increases in social spending and incentives for green investment) are balanced by countervailing measures (such as increases in taxes) to make sure that growth exceeds the baseline level by at least 0.25 per cent.

The results are encouraging; indeed, 12 years after the introduction of the package, improvements are projected in GDP growth, employment, income distribution and energy efficiency. By 2030, the last year of the projections, all regions and almost all countries show positive effects on GDP growth (figure 4.7). Over the same time horizon, an increase in employment rates of approximately 0.2 per cent is projected in developed countries and 0.55 per cent in developing countries (figure 4.8). The larger increase for developing countries makes sense given the high level of underemployment in these countries. Based on labour force projections, these effects imply the net creation of approximately 2 million jobs in developed countries and 29 million jobs in developing countries. Compared to a projected labour force of approximately 3.7 billion workers in 2030, these figures are not high, but they nevertheless indicate that a "green economy" can be achieved incrementally, without labour being sacrificed.

Conclusions

Social protection systems are the first line of defence against the negative impact on incomes of climate change and environmental degradation. Indeed, social protection and environmental sustainability are inextricably linked. By reducing vulnerability to social risks, providing secure income and better access to health care and other basic services, social protection can reduce poverty and protect the environment. Social protection policies also support the economy by stabilizing household incomes and aggregate demand.

Four policy areas in particular, namely unemployment protection, cash transfer programmes, public employment programmes (PEPs) and payments for ecosystem services (PES), if properly resourced and effectively designed, offer synergies between social protection, environmental policy and macro-economic policy. These programmes can target environmental and social protection objectives in an efficient manner, either simultaneously or as part of a policy mix.

Investing in people through unemployment protection schemes helps to prevent and reduce poverty by providing immediate income replacement for those who lose their earnings as a result of structural change and efforts to mitigate climate change. In addition, unemployment protection schemes provide support to workers for the development of their capacities in the long term by facilitating their access to new jobs in sustainable sectors and strengthening their employability. As a crucial element of structural transformation and a just transition towards sustainable economies and societies, unemployment protection needs to be part of any long-term strategic planning for climate-related action. However, the potential of unemployment protection schemes to support the transition is limited by their low coverage. In this context, increases in non-contributory social assistance such as cash transfers and PEPs may simultaneously compensate for non-existent or low coverage of unemployment protection and strengthen the adaptive capacity of households in the event of natural disasters.

While social protection policies protect households against loss of income resulting from environmental degradation, they also protect them against the possible negative effects of environmental policies on their livelihoods. Well-designed social protection systems can also facilitate the transition to environmentally sustainable methods of production that contribute to slowing the pace of climate change. Ensuring portability of social protection between employers and States as well as implementing cash transfers for victims of the effects of environmental degradation can facilitate mobility and thus increase the options available to poor and vulnerable households to improve their adaptive capacity.

Analysis of the available data on PEPs and PES provides evidence that the integration of a combination of social and environmental objectives in environmental and social policy tools is arousing interest in many countries and regions. The results show that half of the 86 PEPs surveyed in 62 countries include an environmental component, either related to mitigation or to adaptation to environmental risks. Moreover, although PEPs are usually aimed at infrastructure investment, they often provide health care, education and other benefits. They are powerful tools to address the impact of climate change on workers and their incomes, while also enhancing mitigation. Similarly, it has been shown that PES, although originally conceived with an environmental objective, can also be effective in supporting household income. This is already the case in more than one-third of non-profit and publicly funded PES, which target poverty alleviation and environmental conservation simultaneously. In view of the complexity of the linkages between poverty and the environment, and the danger of vulnerable segments of the population being excluded or priced out, it is important to monitor the environmental and social impacts of PES to ensure their durability.

Beyond their beneficiaries, social protection systems also have the potential to benefit the economy and society as a whole. A modelling exercise shows that a policy mix comprising transfers (such as cash transfers, PEPs and PES), stronger social insurance and limits on the use of fossil fuels leads to faster economic growth, stronger employment creation and fairer income distribution, while also achieving lower GHG emissions.

As outlined above, the transition to greener economies and societies requires stronger social protection, including both income security and health protection, based on a life-cycle approach. The strengthening of social protection systems, including social protection floors, is therefore one of the elements of an integrated policy response in support of the just transition toward environmentally sustainable economies and societies for all.

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