



International
Labour
Organization

Technical Paper:

A just transition to climate-resilient economies and societies: Issues and perspectives for the world of work

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Introduction

The Paris Agreement on climate change entered into force on 4 November 2016, committing countries to hold the increase in the global average temperature to well below 2 °C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 °C.

Action against climate change is central to the 2030 Agenda for Sustainable Development. It is addressed specifically under the Sustainable Development Goal (SDG) 13. Clearly, climate change is relevant to virtually all other SDGs, including Goal 8 on decent work and economic growth. Uncontrolled climate change will not only compromise the ability of countries to achieve this goal, but could reverse gains in economic prosperity, social progress and poverty reduction. Economic sectors particularly vulnerable, such as agriculture, are among the biggest employers. Besides, risks tend to be greater for workers and communities already in situations of vulnerability, including workers in the informal economy, indigenous and tribal peoples, migrant workers, women and youth.

This technical paper firstly addresses the negative impacts of climate change, such as through natural disasters, heat waves or droughts on employment and livelihoods. Second, it explores how climate-related policy, investment and consumption responses taken by countries, enterprises, workers and communities to mitigate and adapt to the effects of climate change can affect labour markets in their entirety with overall job gains. Finally, in view of the social and economic consequences of climate response measures, this paper concludes by stressing the need of accompanying social and economic policies to achieve a just transition for all that leaves no one behind and promotes decent work.

Box 1: Key messages

1. Climate change presents significant challenges, with major implications for economic growth, jobs, health and livelihoods. Uncontrolled climate impacts will cause damage to infrastructure, disrupt business activity, and destroy jobs and livelihoods on an unprecedented scale.
2. On the other hand, transitions to low-carbon, environmentally and socially sustainable economies – driven in particular by massive investments in clean energy, energy efficiency and employment intensive approaches in public works – can become a strong driver of job creation, job upgrading, social justice and poverty eradication, allowing climate-resilient economic growth and sustainable development.
3. While the job creation potential outweighs the risks of job losses and positive labour market outcomes can be expected overall, specific policies to ensure an active engagement of the world of work, notably through social dialogue and promoting social protection, are indispensable for a just transition for all, leaving no one behind.

1. Climate impacts: risks for decent work

The risks arising from climate change range from economic and welfare losses, damage to health and labour productivity, and forced labour migration. The interrelation of these various types of risks translates into significant challenges for decent work. In many instances, jobs in sectors characterised by informality and decent work deficits are further undermined by climate impacts due to higher vulnerability of workers and communities in those sectors such as agriculture.

1.1. Economic losses

The Stern Review (2006) suggests that in a business-as-usual scenario long term climate change will reduce welfare by an amount equivalent to a reduction in consumption per head of between 5 and 20 per cent globally. Economic sectors most impacted by climate change include agriculture, forestry, energy, transport, manufacturing and building and construction. Together, they employ more than half of the global workforce. For instance, agriculture alone provides jobs to 1.3 billion people, which is close to 40 per cent of global employment, most of them working poor.

One billion people live and work in low-lying flood prone areas directly affected by sea level rise and floods (USGS, 2013). The World Bank estimates global flood losses of population and property value to increase from \$6 billion in 2005 to \$52 billion a year by 2050 causing massive labour migration. In 2014, Typhoon Hagupit hit the Philippines, affecting 800,000 workers and many of whom were forced to migrate. The 2011 drought in East Africa affected 13 million people mainly farmers and pastoralists, with devastating impacts on local incomes, jobs and livelihoods.

1.2. Climate impacts on health and labour productivity

Excessive workplace heat is a well-known occupational health and productivity danger: high body temperature or dehydration causes heat exhaustion, heat stroke and in extreme cases, death. A worker's natural protection is to slow down work or limit working hours, which reduces productivity, economic output, pay and family income¹.

The IPCC's 5th Assessment Report confirmed that labour productivity impacts could result in output reductions in affected sectors exceeding 20% during the second half of the century. Overall, the global economic cost of reduced productivity may be more than 2 trillion USD by 2030². As the IPCC report suggests, "Particularly at risk are agricultural and construction workers as well as children, homeless people, the elderly, and women who have to walk long hours to collect water."³ Beyond productivity losses, impacts on human health occur. These effects are dominated by malnutrition, diarrhoea, malaria and heat-related cardio-respiratory disease.

¹ Kjellstrom, T *et al.* 2016. Climate change and labour: Impacts of heat in the workplace. Issue Paper. Geneva.

² Kjellstrom, T *et al.*, op. cit. p. 3.

³ IPCC, op. cit., p. 71.

1.3. Climate-induced labour migration

Environmental degradation caused by climate change disproportionately affects the poorest segments of the world population who have the fewest resources at their disposal to mitigate and adapt to its effects. In 2014, 19.3 million people were forced to flee their homes due to natural hazards, the majority of whom were located in the global South. Over the coming decades, climate change is expected to increase the incidents of acute disasters, livelihoods loss and social disorder, all of which will increase displacement and migration.

Migration has become an important safety valve for communities coping with extreme weather events. Past experiences have shown that when people do move, they eventually enter the labour market to support themselves and their families. When regular migration pathways are not available, migrants may choose to use irregular channels where they often enter into the informal economy. While migration, and in particular labour migration, can help communities adapt to and mitigate the effects of climate change events, unregulated mobility exposes migrant workers to costly recruitment fees, forced labour and other forms of exploitation, while potentially displacing native workers and exerting excess pressure on the labour market. Where migration is already occurring from climate affected areas, high costs of movement may undermine the full contributions migrant workers can make.

2. The nature of employment changes in labour markets arising from climate action: opportunities and challenges for decent work

A global transition towards a low-carbon and sustainable economy entails both positive and negative impacts on employment. Generally, output and employment in low-carbon industries and services will grow, while energy and resource-intensive sectors, on the other hand, are likely to stagnate or contract. Yet, evidence suggests overall job growth resulting from the transition process.

From a conceptual perspective, employment will be affected in four different ways as climate policies reorient the economy toward greater environmental sustainability. Firstly, the expansion of greener products, services, and infrastructure will translate into higher labour demand across many sectors of the economy, thereby leading to the creation of new jobs. Examples include jobs in renewable energy; in energy efficiency (in manufacturing, transportation, building construction and operations, etc.); in organic agriculture; in various employment-intensive adaptation measures intended to protect and restore ecosystems and biodiversity, and in infrastructure and green (public) works intended to adapt to climate impacts and build resilience. Improving rural infrastructure, through the development of irrigation schemes, flood prevention measures, soil stabilization, reforestation works, rural transport maintenance and improved land tenure may enhance agricultural productivity and contribute to the world's food supply and local energy production. In addition to direct jobs are those in the supply chain (indirect jobs). As the incomes generated are spent across the economy, they create further employment (induced jobs).

Secondly, some of the existing jobs will be substituted as a result of shifts in the economy from less to more efficient, from high-carbon to low-carbon, and from more to less polluting technologies, processes, and products. Examples include, a shift from truck-based transportation to rail, from internal combustion engine manufacturing to electric vehicle production, or from landfilling to recycling and refurbishing. These shifts can be gradual or sudden, and will likely take place both within and across different industries. They have implications for occupational profiles and skill needs.

Thirdly, certain jobs may be eliminated, either phased out or massively reduced in numbers, without direct replacement. This may happen where polluting and energy- and materials-intensive economic activities are reduced or phased out entirely. The continued large-scale mining and burning of coal, in particular, is incompatible with a stable climate. Greater energy, materials, and water efficiency (along with boosts in recycling of materials and reuse of products) could lead to substantial job losses in the primary sector. As is the case with job creation, there are indirect and induced effects.

Finally, many, and perhaps most, existing jobs (such as plumbers, electricians, metal workers, and construction workers) will simply be transformed and redefined as day-to-day workplace practices, skill sets, work methods, and job profiles are greened. For instance, plumbers and electricians working in the brown economy can in principle be reoriented to carry out similar work in the green economy. Automobile workers will produce more fuel-efficient (or electric) cars. Farmers will apply more climate-appropriate growing methods.

Predictions of positive net effects are often based on assumptions of perfect labour markets where workers are mobile between jobs and locations and where there is sufficient supply of labour with the necessary skills. But this is not the case in the real world. In reality, workers are not always mobile and do not necessarily have the right skills. Without policies to address these issues, net employment effects of the transition to a green economy may be negative.

2.1 Job gains and substitutions

Most studies that have investigated the net impact on employment of environmental policy measures suggest it is positive. A review of 30 studies (covering individual countries and economic regions) finds that meaningful employment gains have either been achieved or are possible through the pursuit of climate policies (ILO and ILS, 2012). Most of the studies indicated net employment gains of 0.5–2 per cent, or 15–60 million additional jobs globally.

The energy sector stands out. Rising investment and falling costs have been the drivers behind an expansion of renewables, with wind power and solar PV the most dynamic sectors. Global employment has grown substantially in recent years; reaching an estimated 8.1 million jobs⁴ in 2015 (IRENA, 2015). Most renewable energy employment is found in China, Brazil, the United States, India, and members of the EU. It is important to note that this growth has, to

⁴The estimates reflect annual data collection efforts based on a wide range of sources, including government agencies, industry and NGO studies, academic reports, and interviews with experts. Inevitably, the underlying methodologies vary, however, and data gaps remain.

⁵ IRENA. 2016. *Renewable Energy and Jobs. Annual Review 2016*. Available at: http://www.se4all.org/sites/default/files/IRENA_RE_Jobs_Annual_Review_2016.pdf

date, supplemented jobs in the fossil fuel sector, rather than replacing them due to the additional energy needs of emerging economies. This may well change if GHG emissions are cut as strongly as called for by climate science, in other words, if there is a comprehensive transition from fossil fuels to renewables (and to energy efficiency).

The potential for jobs creation is not confined to the energy sector. Agriculture, the biggest employer in the world, offers many opportunities both in the context of mitigation and adaptation to climate change. Evidence from various countries strongly suggests that low-impact (organic) farming methods tend to be more labour-intensive than conventional farming, therefore opening an opportunity for new workers to be absorbed into agricultural jobs at least in the short to medium term. At the same time, agriculture and forestry also open up opportunities to build on traditional knowledge and empower communities that already face several socio-economic vulnerabilities, for instance in the case of indigenous and tribal peoples.⁶ As part of a global assessment, Herren et al. (2011)⁷ ran a macroeconomic model simulating green investments in the agriculture sector concluded that the transition to sustainable agriculture could create over 200 million full-time jobs across the entire food production system by 2050. A study of 1,144 organic farms in the United Kingdom and the Republic of Ireland concluded that organic farms employ 135 per cent more full-time equivalent (FTE) jobs per farm than conventional farms (Morison et al., 2005)⁸.

2.2 Job transformation and redefinition

Most jobs will neither be lost nor newly created but will be redefined in terms of their occupational qualifications and profiles. The greening of economies through public and private investments in the context of sustainable development and poverty eradication will require a mix of macroeconomic, industrial, sectoral, labour market and skills policies.

The buildings and construction sector is already experiencing job transformations at large scale. Buildings are among the biggest users of energy, water, and materials, and they are the single largest emitter of GHGs. They are key due to their enormous potential for improving energy efficiency at no or even negative costs. Worldwide, building construction employs at least 110 million workers in formal jobs, plus an unknown but much larger number of informal labourers, including migrant workers. The renovation of existing structures and the construction of new energy-efficient buildings requires a significant number of workers with additional new skills in green technology and practices to realize the large potential of economic and employment benefits. For example, enhancing skills in plumbing for solar water heater installations, masonry for using alternative construction materials such as compressed

⁶ 'Climate smart agriculture' (CSA) incorporates a combination of traditional and modern techniques, which is one of the most cited and promoted techniques aimed at mitigating, and adapting to, climate change. See FAO: Climate Smart Agriculture: Sourcebook (Rome, 2013).

⁷ Herren H, Bassi A, Tan B and Binns W. 2011. *Green Jobs for a Revitalized Food and Agriculture Sector*. Rome: FAO.

⁸ Morison J, Hine R and Pretty J. 2005. *Survey and Analysis of Labour on Organic Farms in the UK and Republic of Ireland*. International Journal of Agricultural Sustainability.

earth blocks and the installation of rooftop photovoltaic panels is increasing. In addition, building renovation will not only directly create and transform jobs in the construction sector, but also in supplier industries that produce insulation materials and energy efficiency equipment and materials, as well as in energy services requiring additional skills (Syndex, S. Partner and WMP, 2009⁹; Trabish, 2011)¹⁰.

Box 2: Energy efficiency in buildings in Europe and the United States

In the EU, an assessment of the potential impacts of the 2010 Energy Performance of Buildings Directive for the period 2011–2050 concluded that an accelerated pace of renovation could generate 0.5–1.1 million jobs annually (Buildings Performance Institute Europe, 2011)¹¹. A US study found that energy efficiency retrofits of pre-1980 building stock could reduce electricity use by 30 per cent and create more than 3.3 million cumulative job-years of employment (Deutsche Bank Climate Change Advisors and Rockefeller Foundation, 2012)¹².

Employment dynamics in the building and construction sector are mainly driven by government incentives and policies. China achieved significant improvement in energy efficiency leading to important reductions in energy-related emissions (IEA, 2014¹³). China's 13th Five-Year Plan for 2016–2020 seeks a further 18% reduction in carbon intensity compared with 2015 levels by 2020 (Climate Home, 2016¹⁴). These measures point to a growing realization that decoupling economic growth from pollution is possible while creating jobs along the way. To achieve high-performance efficiency goals for buildings, working conditions and skill levels need to be improved for the construction sector to create decent, well-paying jobs.

2.3 Job losses

It is important to note that changes due to climate and environmental policies are only one among several factors leading to job losses. In fact, greening has to date been a minor factor (ILO and ILS, 2012)¹⁵. The principal causes of declining employment in industries such as

⁹ Syndex S Partner and WMP. 2009. *Climate Disturbances, New Industrial Policies and Ways Out of the Crisis*. Brussels, ETUC.

¹⁰ Trabish HK. 2011. *The Multibillion-Dollar Value of Energy Service Companies*. 31 October 2011. Available at: <http://www.greentechmedia.com/articles/read/The-Multi-Billion-Dollar-Value-of-Energy-Service-Companies/>

¹¹ Buildings Performance Institute Europe. 2011. *Europe's Buildings under the Microscope*. Brussels.

¹² Deutsche Bank Climate Change Advisors and Rockefeller Foundation. 2012. *United States Building Energy Efficiency Retrofits: Market Sizing and Financing Models*. New York.

¹³ International Energy agency, 2014, Global energy-related emissions of carbon dioxide stalled in 2014, <http://www.iea.org/newsroomandevents/news/2015/march/global-energy-related-emissions-of-carbon-dioxide-stalled-in-2014.html>

¹⁴ Climate Home, 2016, "China five-year plan hints at deeper carbon cuts", 17/03/2016 <http://www.climatechangenews.com/2016/03/17/china-five-year-plan-hints-at-deeper-carbon-cuts/>

¹⁵ ILO and ILS (International Institute for Labour Studies). 2012. *Working Towards Sustainable Development: Opportunities for Decent Work and Social Inclusion in a Green Economy*. Geneva, International Labour Organization.

mining, fossil energy, or iron and steel have been relative and absolute price changes, the increasing automation and rising labour productivity that have been occurring over several decades. For example, hard coal mining in France, Germany, Poland and the UK became simply too costly to be profitable.

Climate policies will need to bring about a fundamental change in the global energy mix in coming years and decades. The result will be further job loss in the fossil fuel sector—in coal mining, exploration and production of oil and gas, and among fossil fuel-powered power plants. Coal, as the dirtiest and most CO₂-intensive fuel, will need to bear the brunt of changes to come along with the implementation of the Paris Agreement.

Box 3: Transition in the coal mining industry: the case of Germany

The story of Germany underlines the need for well-planned and –designed and socially fair transition strategies, including active labour market policies, social protection, retraining efforts, and economic diversification of regions most dependent on the coal industry. Total employment in Germany’s coal mining industry has dropped from about 753,000 in the late 1950s to about 33,500 in 2014, an astounding 96 per cent decline. From the 1950s to the 1980s, automation eliminated jobs even while production held roughly even. But the plunge in production from the 1990s on accelerated job loss (Statistik der Kohlenwirtschaft, 2015)¹⁶.

Galgóczy (2014)¹⁷ examines the transformation of the Ruhr region, Germany’s prime hard coal-producing area, for general lessons in managing the transition challenges inherent in such a steep drop in coal employment. Even though resource depletion, automation, and rising competition from imports were the main driving factors, the lessons of dealing with this crisis are useful to consider in the context of climate-driven transitions. A key lesson that emerges is that a successful transition takes time, a strong vision of the future, and adequate resources. Worker co-determination (as part of a cooperative tripartite structure) has been an important factor in the coal sector, facilitating solutions that embraced a range of labour market policies. For instance, for thousands of coal workers an early retirement plan was developed by the state government of North Rhine-Westphalia (NRW) in 1972, with transition payments for up to 5 years, to bridge the time until workers became eligible for pension payments. For younger workers, efforts were undertaken to find other jobs, with the help of personnel development centres and agencies specializing in employment promotion and training. But in establishing higher-education institutions and technology centers, the region did manage to lay the foundations of a knowledge-based economy as an alternative to the coal- and steel-centered economy.

The experiences of countries undergoing job retrenchment in the coal sector highlight both obstacles and encouraging policy lessons¹⁸.

¹⁶ Statistik der Kohlenwirtschaft. 2015. *Der Kohlenbergbau in der Energiewirtschaft der Bundesrepublik Deutschland im Jahre 2014*. Herne and Köln.

¹⁷ Galgóczy B. 2014. “The Long and Winding Road from Black to Green. Decades of Structural Change in the Ruhr Region,” in *International Journal of Labour Research*. Vol. 6, Issue 2, pp. 217–240.

¹⁸ Statistik der Kohlenwirtschaft. 2015. *Der Kohlenbergbau in der Energiewirtschaft der Bundesrepublik Deutschland im Jahre 2014*. Herne and Köln. Galgóczy B. 2014. “The Long and

2.4 Job quality

A dimension equally important as the number of jobs created, lost, or transformed, concerns the quality of employment. Jobs that are not decent today may or may not become more decent or greener with the structural transformation. Again, policies are critical in this respect.

For instance, construction workers generally face poor working conditions and are among the most hazardous in terms of work accidents and occupational diseases, even in the formal sector. Jobs are also often temporary rather than permanent and frequently filled by migrant workers who lack social protection. There are often complex subcontracting arrangements. Particularly among informal workers, this makes for extremely hazardous employment conditions (Poschen, 2015)¹⁹.

Jobs will change in the way they provide adequate incomes and social protection, safe working conditions, respect the rights of all workers and give workers a meaningful voice in decision-making. Research indicate that risks tend to be lower with a move towards a low-carbon economy (Poschen, 2015; UNEP, ILO, IOE, and ITUC, 2008). For example, a shift to renewable energy will avoid many of the severe health dangers associated with coal mining, even though some new hazards need particular attention (workers producing solar PV panels, for example, deal with a number of toxic substances and electrical hazards; thin-film and emerging nanotech-based solar technologies may prompt additional concerns) (SVTC, 2009 and 2014; EASHW, 2011)²⁰.

3. Achieving a just transition to a low-carbon future: climate enabling and accompanying policies and practices

3.1 Climate policy responses

Climate change policies can be divided into two broad categories: mitigation policies and adaptation policies. Mitigation policies aim to reduce GHG emissions whilst adaptation policies seek to adapt to the effects of climate change. Most climate measures not only have a direct impact on the work force but critically depend on it for policies to be successful.

Winding Road from Black to Green. Decades of Structural Change in the Ruhr Region,” in *International Journal of Labour Research*. Vol. 6, Issue 2, pp. 217–240.

¹⁹ Poschen P. 2015. *Sustainable Development, Decent Work and Green Jobs*. Sheffield, Greenleaf Publishing.

²⁰ SVTC (Silicon Valley Toxics Coalition). 2009. *Toward a Just and Sustainable Solar Energy Industry*. San Jose, CA.; SVTC. 2014: *2014 Solar Scorecard*. San Jose, CA.; EASHW (European Agency for Safety and Health at Work). 2011. *Foresight of New and Emerging Risks to Occupational Safety and Health associated with New Technologies in Green Jobs by 2020: Phase II—Key Technologies*. Luxembourg.

Vulnerability to climate change is socially differentiated and those identified as most vulnerable to climate risk are those already economically and socially vulnerable. Predictions of climate change and its effects pose massive challenges to governments both in developed and developing countries. The poorest and most vulnerable are the ones least able to adapt and new initiatives are needed to build climate resilience while promoting sustainable livelihoods at the same time. Careful assessments are needed to design policies that are effective in reaching adaptation and mitigation goals and to fully understand the extent and direction of such impacts on labour markets. Managed well, the transition can not only become a strong driver of job creation and support adaptation and reallocation of existing jobs, but can also reduce inequalities and vulnerabilities, while reducing the carbon footprint.

Policy responses to climate change have been framed under the so-called intended nationally determined contributions (INDCs) that most Parties to the United Nations Framework Convention on Climate Change (UNFCCC) put forward. The INDCs, now considered to be firm national determined contributions (NDCs) following the adoption of the Paris Agreement on Climate Change in December 2015, represent the level of ambition, and form the basis of national action on climate change.

There is growing consensus that, if the right policies are in place, a transition to greener economies can yield positive economic, social and environmental outcomes, acting as a strong driver for job creation, social justice and poverty eradication. The triple benefits of a structural transformation towards a low-carbon economy are: i) climate resilient economic growth and prosperity; ii) reduction of GHGs emissions; and iii) more productive, gainful and decent jobs.

Such policy responses to climate change imply important structural transformations that will affect national economies, enterprises, foreign and domestic workers and their communities. The success of climate policies thereby depends on enabling policies to ensure that the transition towards inclusive green economies is just and fair, maximizes opportunities for economic prosperity, social justice, rights, and social protection for all, and leaves no one behind.

Box 4: Just transition issues in coal mining: the case of China

The bulk of the world's energy system still relies on fossil fuels, which accounted for 78 per cent of global final energy consumption in 2014. To date, adverse employment changes in fossil fuels have been the result of industry restructuring and consolidation, and rising mechanisation. China's production rose steeply in the decade to 2013, but has since fallen by 6 per cent. On the other hand, India, Australia, and Indonesia, the next-largest producers, have seen a strong rise in their output. China alone, which produces nearly half the world's coal, is estimated to employ some 6.5 million coal miners today. Recently, the Chinese government announced a plan to close thousands of coal mines (to reduce overcapacity and address climate change). This policy will lead to the loss of an estimated 1.3 million jobs in the coal sector, along with 500,000 jobs in the steel industry—equivalent to about 20 per cent and 11 per cent of China's total workforce in these two sectors (Yan, 2016)²¹. This is a second example of the coal mining sector after Germany. Issues of just transition do not come across very clearly.

²¹ Yan S. 2016. China Plans to Cut 1.8 Million Coal and Steel Jobs. CNN Money, 29 February. Available at: <http://money.cnn.com/2016/02/29/news/economy/china-steel-coal-jobs/>

3.2 The ILO's Just Transition Guidelines

At the International Labour Conference in 2013, governments, workers' and employers' organizations discussed and adopted the key guiding principles for a just transition towards environmentally sustainable economies and societies.²² The conclusions and resolution on sustainable development, decent work and green jobs, adopted by the Conference, provided a policy guiding framework. In October 2015, a tripartite meeting of experts produced draft guidelines for a just transition towards environmentally sustainable economies and societies for all, which the ILO Governing Body adopted in November 2015.²³

Climate change negotiators and policy makers have equally paid attention to the importance of managing well the potential implications on labour markets of policy responses to climate change. The Paris Agreement on Climate Change adopted in December 2015 recognizes "*the imperative of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities*". In addition, at Paris, the 21st Conference of the Parties (COP21), adopted a work programme on the impact of the implementation of response measures, comprising two areas: (1) economic diversification and transformation; and (2) just transition of the workforce, and the creation of decent work and quality jobs.²⁴ This work item is being carried out under the "improved forum on response measures".

Box 5: The Guidelines for a just transition towards environmentally sustainable economies and societies for all covers the following policy areas:

- **Policy coherence** and institutional arrangements for mainstreaming sustainable development and ensuring stakeholder dialogue and coordination between policy fields
- Establishing mechanisms for **social dialogue** throughout policy-making processes at all levels
- Employment-centred **macroeconomic and growth policies**
- Environmental regulations in targeted **industries and sectors**
- Creating an enabling environment for **sustainable and greener enterprises**
- **Skills development** to ensure adequate skills at all levels to promote the greening of economy
- **Occupational safety and health policies** to protect workers from occupational hazards and risks
- **Social protection policies** to enhance resilience and safeguard workers from the negative impacts of climate change, economic restructuring and resource constraints
- **Labour market policies** that actively pursue job creation, limit jobs loss and ensure that adjustments related to greening policies are well managed

²²International Labour Conference, 102nd Session, 2013, Resolution concerning sustainable development, decent work and green jobs.

²³ILO Governing Body GB.325/POL/3 Outcome of the Tripartite Meeting of Experts on Sustainable Development, Decent Work and Green Jobs (Geneva, 5–9 October 2015).

²⁴Decision 11/CP.21, paragraphs 1 and 5.

3.3 Climate enabling and accompanying policies

This section offers guidance on some selected key policy tools to be considered by governments to enable a just transition for workers and enterprises, to maximize the positive impacts and minimize the negative impacts of climate change response measures.

3.3.1 Labour market policies

Labour market policies are critical to ensure that the employment effects of the transition to climate-resilient economies are positive for everyone: the workers negatively affected by restructuring, communities exposed to climate change and population groups disadvantaged by green policies.

Labour market policies comprise all kinds of regulations and policies that influence labour demand and supply, and the interaction between the two. They influence the conditions on the labour market, on which the employment effects of the transition to a low-carbon economy depend. There are active labour market policies and passive ones. Passive policies are concerned with providing replacement income during periods of joblessness or job search, while active policies refer to labour market integration through demand- or supply-side measures. They encompass five broad types of measures: i) training schemes that consist of vocational and on-the-job programmes that target the long-term unemployed, laid-off workers, youth and other vulnerable groups along with special incentives for apprenticeships; ii) job subsidies, which include measures to protect jobs, such as work-sharing schemes and interventions that promote hiring, such as social security exemptions and one-off payments for hiring long-term unemployed; iii) public employment programmes that cover not only traditional public works programmes, but also the new generation of public employment schemes and employment guarantees; iv) entrepreneurship incentives that typically consists of a combination of entrepreneurship training and microcredit; and v) job search assistance and other intermediation services that are provided by public and private employment agencies.

Job search assistance and job counselling aim at improving the match between demand and supply of labour and preventing long-term unemployment. They are relatively cost-effective, but require efficient employment services, are difficult to implement in times of crisis and are more suitable for formal jobs. Public employment services (PES) can inform and stimulate interest in green careers among future workers and unemployed by providing information on vocational training and study routes, businesses and professions in green sectors as demonstrated by the project “Meine Energie hat Zukunft” in Germany. The PES of the Bielefeld area joined forces with a network of 120 companies, higher education institutions and learning providers, and the Association of German Engineers to lead experiments and workshops on solar energy, designing virtual wind farms, as well as taster events in physics (offering an insight into university life) and run question and answer sessions between industry specialists and pupils as well as information events within the local schools. Another

trend is the emergence of web job platform for green industries, such as the renewable energy industry platform.²⁵

Training schemes aim at improving employability and reduce skills mismatches. They provide long-term benefits but are less effective in the short-run and in times of crisis. In addition, skills forecasting is difficult. A number of training centres are delivering vocational training for workers in targeted green industries, such as the China Wind Power Center.²⁶ Retraining of dismissed workers from disappearing industries to place them in green industries is happening at the initiative of local public employment services in cooperation with local businesses. This was the case of the Le Mans region in France where workers dismissed from the declining car industry were retrained in mechanics and electro-mechanics to work in the newly created wind construction and maintenance industry because around 95% of car industry skills are transferable. This helped to foster the development of a cluster of industrial maintenance industries in the region and maintain 30 jobs.

Job subsidies aim at supporting labour demand by preventing lay-offs or encouraging hiring. They can be effective in encouraging green job creation in locations with high levels of unemployment and/or low levels of activity. They are, however, expensive and can have deadweight/substitution effects. Typical examples include cuts to social security contributions for green start-ups.

Entrepreneurship incentives aim to promote entrepreneurship as a way out of under- or unemployment. They are an effective means of targeting the poor, vulnerable groups, but register a high failure rate as it is difficult to build the right skills. In the United States, a growing number of business incubators are specifically designed for green start-ups. For example, the Green Exchange in Chicago provides retail, office and live-work space as well as a variety of marketing services for green businesses. It is located in a historical building in the city-center, which was renovated using the highest environmental standards.

Public Employment Programmes aim to provide income to the poor/vulnerable while increasing employability and supporting labour demand by creating direct jobs. They are very effective post-crisis/disaster/seasonal measures to protect incomes and prevent poverty and offer indirect benefits to households, but they do not provide long-term employment. Green works refer to infrastructure and relate employment-intensive approaches that have direct environmental benefits or in response to a specific environmental context including changes in climate and extreme weather events. They focus on forestry, irrigation, soil and water conservation and flood protection.

The transition to low-carbon and climate-resilient economies and societies is best conceived as a driver of structural economic change. This process of structural transformation is likely to involve imbalances in the number and types of jobs available. Labour market policies play an active role in addressing these imbalances and ensuring a just transition for all. They help workers and employers to make the transition with a smooth reallocation of workers from declining to growing firms/sectors, to reduce the adjustment costs for displaced workers, and

²⁵ <https://www.greenenergyjobs.com>

²⁶ <http://www.cwpc.cn/cwpp/en/training/>

foster eco-innovation and diffusion of green technologies through technical education and vocational training.

3.3.2 Training and skills development

Skill shortages already pose a major problem for the transition to greener, climate-compatible economies and thus for job creation. Moreover, this is a problem that is likely to grow in the coming years. Poschen (2015) warns that with a lack of skilled and motivated workers in green growth sectors, hopes for creating a climate-compatible economy may not materialize. Shortages are the result of a number of factors, including: underestimates of the pace at which certain green sectors grow; a general shortage of scientists and engineers; a low reputation or limited attractiveness of some economic sectors; and shortages of teachers and trainers proficient in fast-growing sectors such as renewable energy and energy efficiency (Strietska-Ilina et al., 2011)²⁷.

Strietska-Ilina et al. (2011) explain that “the challenge for skills development policy is to integrate environmental awareness and the right technical training for green jobs into education and training provision.” Marrying these two objectives is essential, but difficult. Country studies compiled by the global report on skills for green jobs revealed that while coordination between climate/environmental and skills policies can be comprehensive in some cases, it is fragmented or practically non-existent in others. There is often a lack of cross-ministerial coordination. Efforts by educational authorities to anticipate, identify, and provide skills do not typically include inputs from environment ministries. Vice versa, education and training institutions are typically not involved in shaping climate policies. Safety and health issues are typically addressed separately, as well.

Apart from ensuring that enough labour market entrants acquire the skills needed in the economy of tomorrow, another challenge lies in the need to retrain existing workers. This can be difficult for older workers and especially for low-skilled workers or migrant workers, as it will be difficult for them to “skill up” and compete for new jobs. There is also a spatial challenge in that green economy jobs may be created in locations very different from those suffering job losses. National education and training efforts therefore need to be linked with a regional approach to ensure just transition policy. Disadvantaged workers and communities will need targeted assistance such as integrating skills building, vocational training and retraining into regional economic development strategies. For instance, with regard to agriculture and forestry, indigenous peoples’ traditional knowledge is increasingly being recognized for effective climate action and livelihoods security, but skills shortages and non-recognition of traditional skills continue to be an important challenge.

A number of efforts have targeted the renewable energy sector and have been motivated by the desire to overcome problems brought on by crises in older industries or a lack of economic diversification. Examples include the United States, where wind energy development has

²⁷ Strietska-Ilina O, Hofmann C, Durán Haro M and Jeon S. 2011. *Skills for Green Jobs. A Global View*. International Labour Office.

been seen as a way to inject new life into many abandoned “rustbelt” industrial facilities in Pennsylvania and Ohio, though with somewhat mixed results.

The needed degree of skills change in the workforce ranges from virtually none in some cases (minor changes within a given industry) to high (in the case of entirely new industries and occupations). The most typical case, however, is likely to be somewhere in the middle (where existing jobs are altered due to the adoption of new technologies or workplace methods). Some sets of skills and know-how from occupations in polluting industries are applicable to careers in climate-friendly sectors. For instance, there are overlaps between the conventional and renewable energy industries. Besides, learning or improving certain core skills is likely of greater relevance for a person’s employability than skills that are highly specific to certain occupations or technologies.

Critical to the success of education and training efforts is that governments (at all levels), trade unions, and employers all do their share, and coordinate their efforts. Social dialogue is essential. Countries of course vary in terms of how well-developed their education and training systems are, and how responsive they are to the need to incorporate climate and environmental considerations into training programmes. To be successful, action must take place at (i) enterprise-level (ii) industry-level and (iii) national and regional levels.

3.3.3 Social protection and security

Social protection constitutes one of the pillars of a just transition framework. Only around one quarter of the world’s population has adequate social security coverage and more than half lack any coverage at all. A majority of the world’s economically active population do not benefit from any protection in cases of unemployment, work-related injury, or maternity. Nearly half of all people over pensionable age do not receive a pension, and for those who do, pension levels are often inadequate (ILO, 2016)²⁸.

Informality is common in the majority of the sectors most affected by climate change impacts, such as agriculture, fisheries, forestry or tourism. Migrant workers are overwhelmingly represented in these sectors, as are low-skilled national workers, and vulnerable groups, such as indigenous and tribal peoples, are exposed to discrimination and exploitation in these activities. It is also very frequent in economic sectors that are essential to achieve a low-carbon development such as waste-management and recycling, construction and small-scale industries in all industrial sectors. Providing access to social protection measures to these workers should be an integral part of any climate change policy.

The fifth IPCC Report highlights the importance of assessing the synergies between social protection policies, social development strategies, and disaster risk reduction strategies and

²⁸ ILO. 2016. *World Employment Social Outlook: Trends 2016*. Geneva, International Labour Organization; ILO. 2015b. *Global Flagship Programme on Building Social Protection Floors for All*. Geneva, International Labour Organization. Available at: <http://www.social-protection.org/gimi/gess/RessourcePDF.action?ressource.ressourceId=51737>

climate policies (IPCC, 2014)²⁹. In addition, there is a growing body of evidence that linking social protection and climate change policies plays a double role of enhancing the resilience of workers and their families in times of climate disasters and facilitating the ability to cope with climate consequences.

In addition, mitigation policies may have a negative impact on business and workers in highly emitting sectors such as coal mining, fossil fuel energy production, inefficient industry and others, while new green low-carbon sectors may be benefited. In these cases, formulating accompanying policies through social protection, including unemployment insurance and benefits, social security portability, skills training and upgrading, workforce redeployment and other appropriate measures to support enterprises and workers in sectors negatively impacted by the transition should be part of the policy mix.

Another example where social protection policies are instrumental are in the field of fossil fuel subsidy reform. According to ILO estimations, between 2010 and 2015 overall, 100 governments in 78 developing and 22 high-income countries were reducing or removing subsidies, predominately on fuel, but also on electricity, food and agriculture. These adjustment measures were implemented at a time when food and energy prices were hovering near record highs; if basic subsidies are withdrawn without compensation being provided through adequate social protection mechanisms, food and energy may become unaffordable for many households, in particular, but not only, the poorest ones.

In low and middle income countries, public and private financing supporting national public employment schemes are not only extending the social protection floor, but in some cases they are also contributing to restoring and protecting the productive capacity of lands, building resilient infrastructure, and at the same time, creating livelihood and income security for the most vulnerable usually at the forefront of climate change. Investments in physical, financial, natural and social capital are not only necessary, they also have a significant potential to contribute to climate resilience and disaster risk management.

To design successful climate related social protection systems it should be considered that: i) Developing a social protection system takes a long time, particularly in countries where institutional capacity is limited. Therefore, mitigation actions with potential social impacts, should only be taken once the potential affected population are protected and compensation measures through adequate social protection measures are in place. ii) The large cost savings resulting from mitigation policies should allow countries and regional bodies to develop comprehensive social protection systems and agreements. iii) Mitigation policies may have complex social impacts that need to be properly assessed, and discussed within the framework of national dialogue. Involving tripartite constituents in the definition and implementation of social protection measures is key element to ensure a fair and efficient policy result, where negative socio-economic impacts are well addressed. iv) Taxing natural resource extraction offers great potential for many developing countries. Norway's approach

²⁹ IPCC (Intergovernmental Panel on Climate Change). 2014. *5th Assessment Report. Synthesis report*. Available at: <https://www.ipcc.ch/report/ar5/syr/>

of taxing oil profits and storing the revenues in the Government Pension Fund Global is perhaps the best-known case.

3.3.4 Consultation and social dialogue

Consultation and social dialogue among the most affected by climate change effects and policies are at the core of the just transition framework. The role of dialogue to reach decision by consensus, identify new business and employment opportunities and potential challenges, as well as adaptation of current skills and need of new skills, has placed consultation and tripartism as an essential element of labour relations around the world. In the context of climate change, social dialogue has been identified as an essential tool to anticipating and managing the effects of greening on quality of work and employment (Aumayr-Pintar C., 2015)³⁰.

Social dialogue can take place at regional level, at national level, through cross-industry consultation or at sectoral and company level. It also varies in terms of the purpose of the dialogue, from merely consultation, to coordination of the implementation of a specific policy, to reaching binding agreements. The different modalities and aims are specified by national labour laws.

It is also widely acknowledged that for social dialogue to be effective two elements should be developed: providing technical capacity and adequate and updated information to stakeholders taking part in the dialogue process and ensuring that consultation takes places on an ongoing basis.

According to the ILO Guidelines on just transition, governments should actively promote and engage in social dialogue to discuss the best means to implement social, economic and environmental goals. The Guidelines also recommend for social partners ‘to promote active participation in social dialogue at enterprise, sectoral and national level to assess opportunities and resolve challenges posed by the transition’.

4. Conclusions

The transition towards inclusive green economies must be just and fair, maximizing opportunities for decent work, economic prosperity, social justice, and rights, thus leaving no one behind. The above highlights that for climate policies to be successful they require accompanying and enabling policies that address the social and employment dimensions of climate change in order to maximise the positive employment effects of the transition.

³⁰ Aumayr-Pintar C. 2015. *The Greening of Social Dialogue: Ensuring the Quality of Work and Employment in the Transition to a Green Economy*. Presentation at European Parliament Hearing (Brussels). Eurofound. European Observatory of Working Life. Available at: http://www.europarl.europa.eu/meetdocs/2014_2019/documents/empl/dv/20150324_presentation_eurofound_/20150324_presentation_eurofound_en.pdf

Assessing the labour market implications at macro and sector level of climate change policies, in particular the NDCs, can provide a very solid knowledge basis to inform the policy making process. It is essential that policy coherence is promoted at all levels so that climate change policies are integrated in other policy areas and efforts are coordinated amongst different stakeholder through effective social dialogue. Indeed, social dialogue is a fundamental pillar of the just transition policy framework, bringing together the actors of the world of work, to identify new green business and employment opportunities and means to address the challenges in the transition process.

Promoting labour market policies is critical to ensure that the employment effects are positive for everyone. Enhancing training, for skills building and retraining, is key in order to fully take advantage of the opportunities presented through economic and industrial changes and unleash its employment potential, notably by supporting entrepreneurship development. Besides, social protection policies should not be overlooked as they can enhance resilience and safeguard workers from the negative impacts of climate change, economic restructuring and resource constraints.