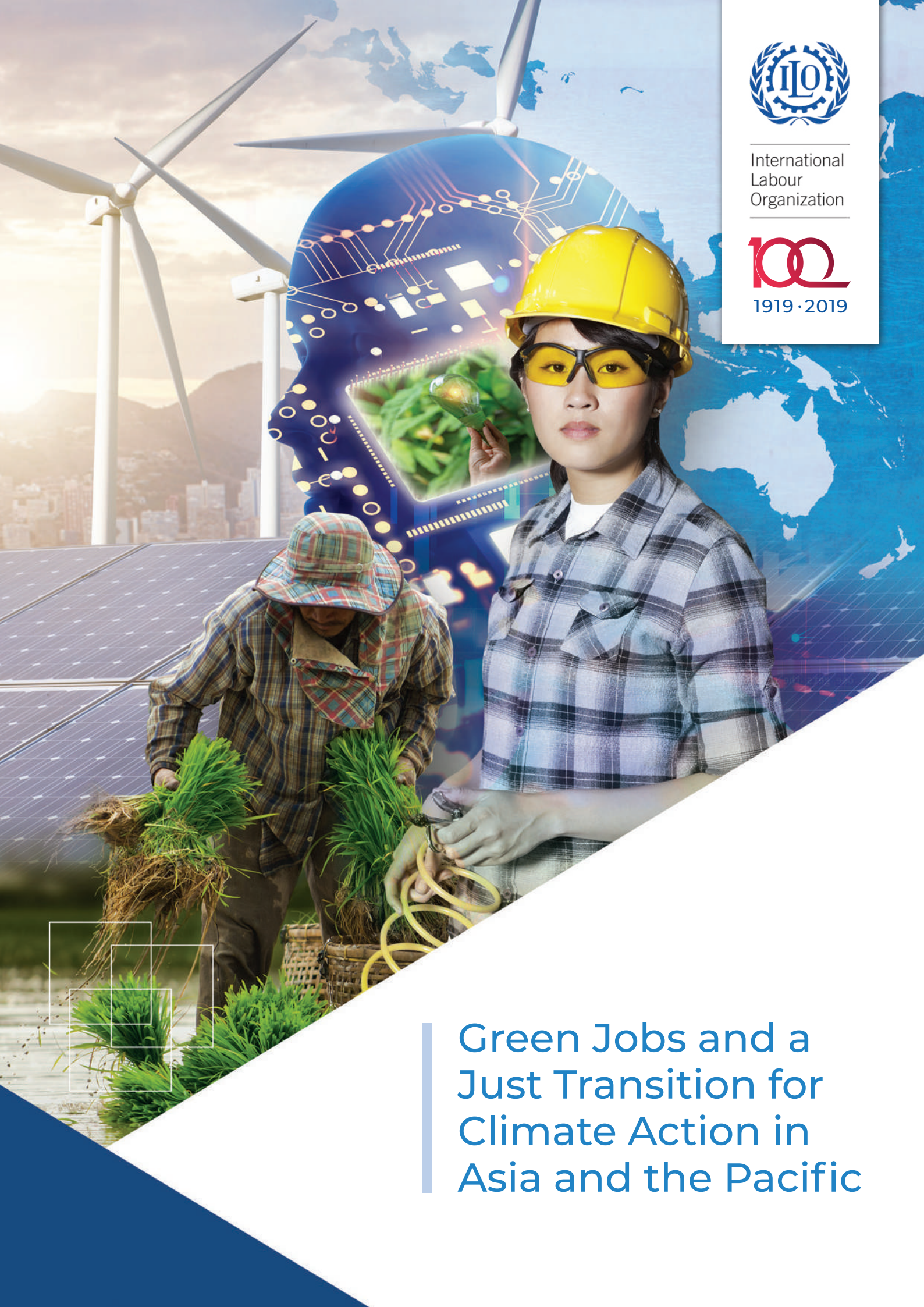




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Green Jobs and a Just Transition for Climate Action in Asia and the Pacific

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Foreword

Advancing climate action for jobs

More than ever the ‘climate emergency’ is calling for action for jobs. As a response, the United Nations Secretary General launched the Climate Action for Jobs Initiative on 18 September 2019. Implementation of the initiative will be spearheaded by the ILO, with support from other partners in the Social and Political Drivers action area, including the B-Team, the International Trade Union Confederation (ITUC) and the International Organisation of Employers (IOE). The initiative provides a roadmap for ensuring that people’s jobs and well-being are at the center of the transition to a carbon-neutral economy. As the United Nations Secretary-General Antonio Guterres noted “some 1.2 billion jobs or 40 per cent of world employment rely directly on a healthy and stable environment. Jobs cannot be sustained on a dying planet”.

The Asia-Pacific region is leading the world as the region with the best green jobs outlook if investments and policy reforms are realized. According to the ILO (2018a), up to 14.2 million net green jobs can be achieved by 2030. But the jobs will not be generated automatically – we must learn to recognize the opportunities and design strategic policies and interventions, driven by respect for the environment and the Decent Work Agenda.

This publication, the first of a series of reports investigating green jobs and environmental sustainability in the Asia-Pacific region, aims to further this agenda through the imperatives of a *Just transition towards environmentally sustainable economies and societies for all*. This transition is analyzed within this report through three different lenses: regional; sector-based; and policy coherence.

There is an urgent need for green employment

policies to be developed, focused on the prevention and mitigation of, and adaptation to, the impacts of climate change. This change in work processes will require the combined efforts of governments, employers and workers through social dialogue.

Policy coherence is vital to ensure a just transition and the convergence of all interrelated actions. More efforts are needed to ensure this policy-coherence between all levels of government, together with business leaders, workers, financial institutions, research institutions and local communities. The alignment of employment, education, environmental, energy, climate and finance policies can accelerate climate responsive actions and speed up a just transition to more sustainable societies. We must also turn our efforts and attention to creating jobs that are decent, jobs that have quality, and jobs that develop our human capital with the skills to meet today’s needs and provide tomorrow’s employability.

This report stresses the commitment of the ILO to help develop greener and more decent jobs in the Asia and Pacific regions. Celebrating the Centenary of the ILO, through partnerships with member States across the Asia-Pacific region, we have come a long way since our founding in 1919, and are continuing to foster decent work and job-rich developments.

We call on member States to join the Climate Action for Jobs Initiative to formulate national plans for a just transition, creating decent work as well as green jobs, and setting out specific measures for inclusion in these plans. We stand ready to help develop and deliver solutions with green and decent jobs for everyone.



Tomoko Nishimoto
ILO Assistant Director-General and Regional
Director for Asia and the Pacific



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Executive summary

This report on green jobs and environmental sustainability in the Asia-Pacific region is the culmination of research and input from a range of worldwide sources. These inputs include numerous reports developed for various Conference of the Parties (COP) meetings, especially COP 23 under the Presidency of Fiji, and the creation of the ILO Employment and Environmental Sustainability Factsheet series for each of the 36 Asia-Pacific countries.

This report is divided into five chapters. Chapter 1 discusses green jobs. These jobs are central to sustainable development and resource productivity, and provide mechanisms to respond to the global challenges of environmental protection, economic development and social inclusion. Green jobs create decent employment opportunities, enhance resource efficiency and help build a low-carbon sustainable society. The first chapter highlights how the Asia-Pacific region is at a crossroads where better jobs can be developed in response to climate change. It also outlines how the region could accelerate transformation through job creation related to clean energy and climate change mitigation arenas - if the local populations, especially younger people, are given the right skills and training.

The following three chapters examine the experience of green jobs through three different lenses: i) geographical analysis of green jobs and a just transition in a specific region; ii) sectoral analysis of green jobs and a just transition in the textile and garment industry; and iii) developing policy coherence to support a just transition at the national level. These lenses highlight the complex and interactive drivers that both support and inhibit green job creation. These drivers

include technology, innovations in products and processes, and industrial systems operating at a range of geographic levels, from the local to the global. Policy systems are also operating at these multiple levels, combining local ambitions and needs for development and adaptation, with national commitments to global agreements (for example, the Paris Agreement).

Chapter 2 looks at the eleven Blue Pacific member States (the Blue Pacific Big Ocean States or BOS) of the ILO in terms of their high susceptibility to climate change impacts. However, it also looks at the opportunities for green and decent job development, which can help transform this region. The impact of climate change and increased natural disasters in the region is investigated, including impacts on the labour force in the region. The chapter outlines what actions could be taken to create green jobs for particularly vulnerable communities and employment sectors. The importance of appropriate and suitable levels of training for these jobs is highlighted. Existing policies and processes that will help support a just transition are also analysed, and the importance of joint policy development as well as knowledge sharing is explored. The chapter concludes with a summary of recommendations to help ensure a just transition, for governments and donors.

Chapter 3 examines the textile and garment industry in Asia. This sector is particularly significant for many Asian countries in terms of employment numbers, female employment rates, global production and direct foreign investment. However, the sector also creates significant negative environmental impacts, through its resource intensity in water and energy use, as well as use of chemicals, including toxic chemicals. The sector

generates large quantities of highly polluted wastewater, and is highly carbon intense in its transportation needs due to its globalized supply chains. This chapter details these environmental impacts and highlights the wider impacts of these on local communities and decent work, and the compounding effect that climate change will have on the sector. The chapter concludes with an overview of cleaner production activities in the sector and what the future directions are for policy, technology and industrial development.

Future jobs will need to be created with the guiding principles of a just transition, which are designed to promote decent work on a large scale and to ensure social protection for vulnerable employees. This concept is explored in Chapter 4, where we see how the Just Transition Guidelines also include mechanisms for social dialogue between governments and workers' and employers' organisations during policy-making processes. Chapter 4 presents lessons learned from the just transition pilots in two countries - the Philippines and Uruguay - and looks at how to promote the incorporation of the just transition principles into the work of the ILO in the Asia-Pacific region.

A just transition is a demanding challenge for policy actors. The issues can be summarized as:

- The choice between intervention on a large and comprehensive scale in only a few countries, or spreading resources more evenly across a larger number of countries, using more targeted projects.
- Diversifying research and experience into other relevant sectors, not just the shift to clean energy; noting that the most strategic sector(s) on which to focus initially will vary from country to country.
- Climate adaptation and climate mitigation deserve the most immediate attention. In many developing countries, especially

those that are particularly susceptible to the adverse impacts of climate change, tying the promotion of decent work to climate adaptation may be the highest priority.

- While the most vulnerable groups deserve precedence, it may be more difficult to incorporate them into an effective tripartite process, thus increasing the risk of obtaining disappointing results. The challenge is to balance targeting the most vulnerable workers with targeting a group for whom the prospect of a successful intervention is greater.

Actions required to make progress with a just transition can be grouped into five strategic areas: a) policy and institutions; b) training and capacity building; c) social dialogues and collaboration; d) awareness raising; and e) financing. The key ingredients for promoting and applying a just transition include: awareness raising; social dialogue; safety nets; and technical assistance.

Chapter 5 concludes the report and reflects on the way forward for the Asia-Pacific region and the importance of green jobs to ensure environmental sustainability, particularly in the face of threats from climate change. The chapter summarizes the actions identified throughout the report that are required to support a just transition and create green jobs in the Asia-Pacific region.

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Green jobs and a just transition in Asia and the Pacific

“The role the ILO must take up is to promote the considerable potential for the creation of decent work associated with the transition to a low-carbon sustainable development path and to minimize and manage the inevitable dislocation that will accompany it.”

Guy Ryder, ILO Director-General

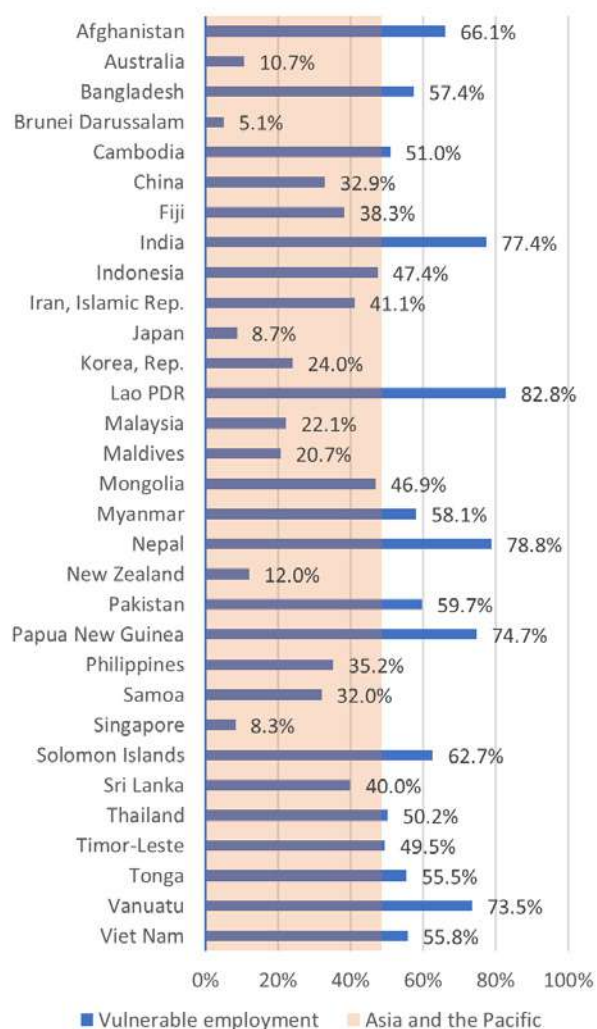
The Asia-Pacific region is an economically and culturally diverse area. More than 60 per cent of the global workforce is found in this region. On average, the population is growing, and 10 per cent of the employed population live on an income that is below the extreme poverty level of US\$1.90 per person per day. A just transition within this region will require countries to undertake climate change response actions that are linked with job creation and social justice. The transition of such a large region to an environmentally sustainable one will be accompanied by major societal changes and not insubstantial economic risks. However, not making the transition would be a greater risk. The latest report from the UN Intergovernmental Panel on Climate Change (IPCC) states that climate change is forecast to exacerbate many of the challenges currently faced in Asia, including rapid urbanization and agricultural expansion, and there will be continued pressures on natural resources and the environment (Hijioka et al, 2014). Climate change impacts on the Pacific will also directly affect livelihoods.

The recent report of the Intergovernmental Science-Policy Platform on Biodiversity and

Ecosystem Services (IPBES) highlights that the great richness in biodiversity and ecosystem variety that exists in the Asia-Pacific region - both of which have contributed significantly to economic activity and the rapid economic growth experienced in the region over the past decades - are under threat from climate change (IPBES, 2018). These pressures will adversely affect the ability of the region to develop sustainably.

Across the region, almost 50 per cent of employment is classified as 'vulnerable', with the Lao People's Democratic Republic having the largest concentration of vulnerable workers at 83 per cent of their workforce, most likely due to its large reliance on agriculture. Other countries in the area with over 70 per cent of their workforce classified as vulnerable include India, Nepal, Papua New Guinea and Vanuatu (Figure 1). At the other extreme are those countries with less than 10 per cent of workers classified as vulnerable, which are Brunei Darussalam, Japan and Singapore. Among other factors, these lower levels of vulnerability may be due to the fact that they have lower reliance on agriculture.

Figure 1. Vulnerable employment rate, 2018



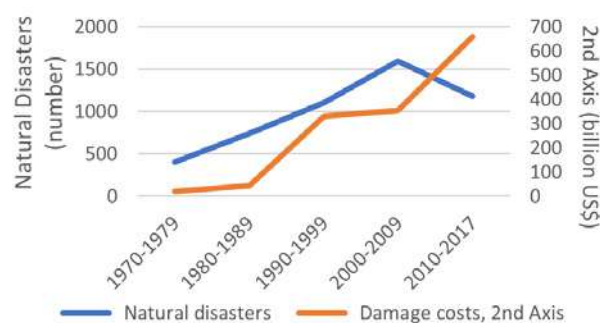
Source: ILO estimates and compilation using *ILOStat*, 2018, www.ilo.org/ilostat [accessed 6 Feb. 2019].

The region is highly exposed to climate change impacts. According to the World Risk Report (2017); of the world's top 20 countries most susceptible to disaster risk, 12 of these are Asia-Pacific countries. This risk level indicates that they are more exposed to natural hazards and do not have the economic and social resources to cope well with any disasters.

According to the Emergency Events Database, there has been a general increase in natural disasters and associated damage costs each decade since the 1970s (Figure 2). When natural disasters occur, vulnerable workers and people living in poverty are the most affected due to their poor financial and social

situations, which limit their capacity to cope and adapt. This results in the displacement of people in search of better opportunities. Decent jobs can be created by developing preventative measures to limit infrastructure and property damage and by increasing institutional capacity to respond to climate events, particularly for small businesses.

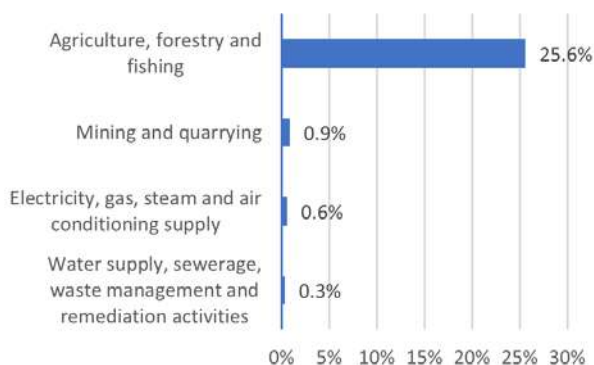
Figure 2. Natural disaster occurrence and damage costs in Asia-Pacific countries



Source: EM-DAT: *The emergency events database*. Universite catholique de Louvain, 2018, www.emdat.be [accessed 6 Feb. 2019].

Within the Asia-Pacific region, 25.6 per cent of employment is in the agriculture, forestry and fishing sectors (Figure 3). This provides opportunities for additional job creation in the transition to more sustainable production methods. There can also be increased job prospects in other sectors of the green economy where employment is currently much lower, such as new green jobs in natural resource management and protection, and public administration of natural resource utilization. Greater reliance on renewable energy sources and a shift towards more energy efficient production and consumption will profoundly impact the creation of green jobs. This will need to be accompanied by education system reforms, the provision of more teachers and trainers with expertise in new green areas, and ensuring that workers, particularly younger people, have the necessary skills to take up emerging green jobs.

Figure 3. Employment in sectors with strong green jobs potential, Asia-Pacific region



Source: ILO estimates and compilation using *ILOStat*, 2018, www.ilo.org/ilostat [accessed 6 Feb. 2019].

Better data collection relating to the green economy and the environmental sector would be very valuable for policy makers in the Asia-Pacific region. Without sound data it will be difficult to determine what policy changes are needed to ensure a just transition to environmental sustainability and to monitor progress going forward.

1.1 What are green jobs?

Green jobs are central to sustainable development and resource productivity. They respond to the global challenges of environmental protection, economic development and social inclusion. Such jobs create decent employment opportunities, enhance resource efficiency and build a low-carbon sustainable society (refer Annex).

Green jobs¹ contribute to the preservation and restoration of the environment, be they in traditional sectors, such as manufacturing and construction, or in new, emerging green sectors, such as renewable energy and energy efficiency. At the enterprise level, green jobs can produce goods and provide services that benefit the environment, such as green buildings or clean transportation. These green outputs (products and services),

1. See <http://www.ilo.org/global/topics/green-jobs/>; ILO, 2015.

however, are not always based on green production processes and technologies. Green jobs are also distinguished by their contribution to environmentally-friendly processes. For example, green jobs can reduce water consumption or improve recycling systems (see Figure 4). Green jobs defined through production processes do not necessarily produce environmental goods or services.

Figure 4. Green and decent jobs targets



Source: ILO, 2017a.

Green jobs must be quality, decent jobs and in line with the four strategic objectives at the heart of the decent work agenda, which seek to:

- set and promote standards and fundamental principles and rights at work;
- create greater opportunities for women and men to obtain decent employment and income;
- enhance the coverage and effectiveness of social protection for all; and
- strengthen tripartism (government, workers' and employers' organizations) and social dialogue.

Achieving environmental sustainability in Asia and the Pacific is unlikely without

major societal changes and economic risks. Mitigating and adapting to climate change and reducing greenhouse gas emissions while confronting other environmental challenges, such as resource management, are only the start. Large segments of the workforce still depend on environmentally-sensitive industries and sectors to create environmental sustainability and decent work. Energy, agriculture, forestry and fishing are all key sectors that can help improve environmental sustainability and decent work opportunities.

1.2 A region at the crossroads of better jobs and climate change

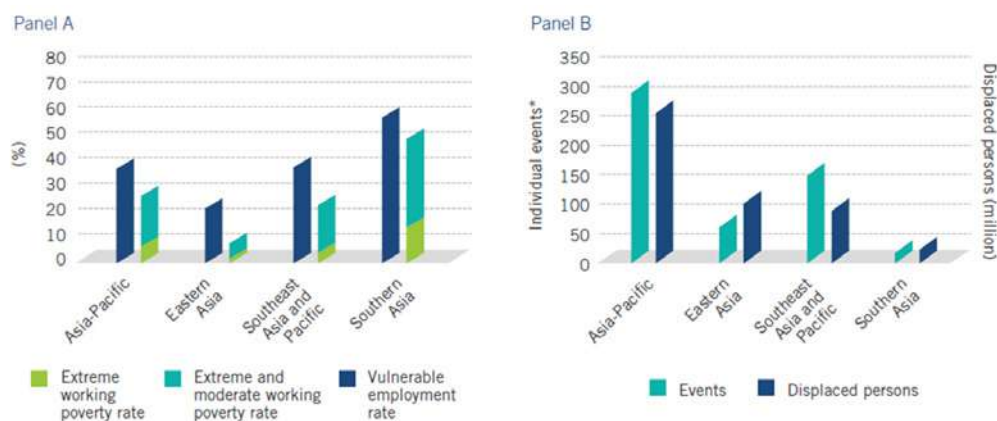
The Asia-Pacific region accounts for nearly 60 per cent of the global workforce, equivalent to more than 2 billion people.² However, 10 per cent of the workforce, or 182 million workers employed in the region, live on an income that is below the extreme poverty threshold of US\$1.90 per person per day, with a further 18 per cent (318 million people) on the

margins of poverty (Figure 5A).³ More than half of the workers in this region are classified as being in vulnerable employment, as this classification includes own-account workers or unpaid family workers, and these workers are without access to social protection.

1.2.1 Natural disasters and displaced people

Under current climate change trends, in even the most optimistic scenarios, the frequency and intensity of natural hazards will increase. This includes rapid onset events such as typhoons, and slow onset events such as unhealthy levels of air temperature, changes in precipitation patterns and sea-level rise. When natural disasters or other exogenous shocks occur, it is the vulnerable workers and people living in poverty with limited savings and no social safety net who bear the brunt of the devastation. According to the Internal Displacement Monitoring Centre, in 2016 the Asia-Pacific region accounted for around half of all recorded cases of geophysical shocks

Figure 5. Working poverty rates (%) and displacement from climate events, 2016



Source: Panel A: ILO, 2017b; Panel B: Internal Displacement Monitoring Centre, *Internal displacement database*, 2016, <https://bluehub.jrc.ec.europa.eu/> [accessed 13 Mar. 2019].

*Note: climate events refer to cyclones, tropical storms, floods and other extreme weather events.

2. ILO, 2017b.

3. ILO, 2017b.

or natural hazards. As a result, 82 per cent of all natural-hazard-induced displaced persons worldwide in 2016, or more than 250 million people, lived in Asia or the Pacific (Figure 5B).⁴

Figure 6 highlights the ten countries with the highest number of people newly displaced by the sudden onset of natural disasters in 2016.

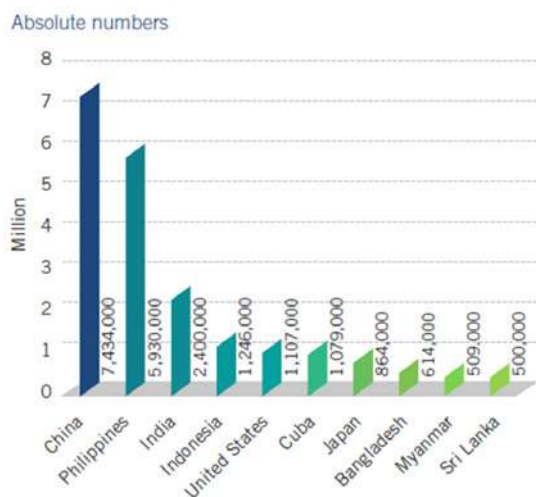
According to the 2016 World Risk Report,⁵ 12 Asia-Pacific countries are among the top 20 countries globally that have very high exposure and vulnerability to natural disasters and environmental damage, but limited institutional capacity to respond to these. It is estimated that from 300 to 410 million urban dwellers and 341 million inland residents will be at risk of coastal flooding by 2025;⁶ and most of them are in Asia and the

Pacific. Small island States are likely to be disproportionately affected.

Although only 8 per cent of the total land area in the region is lower than 5 metres above sea level, 10 per cent of the region's total population lives in this area.⁷ With natural disasters and the value of resulting damage increasing continuously since the 1970s (Figure 2), developing preventative measures to limit infrastructure and property damage, and increasing institutional capacity to respond to climate events, particularly for small businesses, will be a source of decent job creation while building resilience.

1.3 A positive outlook: Asia-Pacific region leads job creation in clean energy

Figure 6. Countries with the highest number of new displacements due to disasters, 2016



Note: Disasters triggered by sudden-onset hydro-meteorological and climatological hazards include floods, storms, wildfires and extreme winter conditions, while geophysical hazards refer to earthquakes, volcanic eruptions and landslides (IDMC, 2017).

Source: IDMC, 2017.

The development of more renewable energy sources and the shift towards more energy efficient production and consumption are fundamental processes for the transition to a greener economy. These processes will have profound implications for the world of work and the creation of green and decent jobs. Globally, total employment in the renewable energy sector grew by 8.1 per cent per year between 2012 and 2016 (IRENA, 2017).

The region already accounts for more than 5.8 million jobs in renewable energy, or approximately 60 per cent of the 9.8 million employed in the sector worldwide (with 40 per cent in China and around 9 per cent in India).⁸ Employment in the renewable energy sector will most likely continue to grow, signifying a net gain in job opportunities that will outweigh losses in traditional energy sectors, such as coal production.

4. IDMC: *Internal displacement database*, 2016, <https://bluehub.jrc.ec.europa.eu/catalogue/dataset/0041> [accessed 13 Mar. 2019].

5. Bundnis Entwicklung Hilft and United Nations University: *World risk report 2016* (Berline, 2016).

6. HM Treasury: *Stern review on the economics of climate change* (London, 2006).

7. Asia-Pacific average calculated (with four countries excluded) from World Bank, *World development indicators*, <http://data.worldbank.org/> [accessed 1 Feb. 2019].

8. IRENA: *Statistics dashboard: Renewable energy employment, by technology* (Abu Dhabi, 2017).

The region shows the largest number of renewable jobs in the subsector of solar photovoltaics (43 per cent), followed by large-scale hydropower (17.5 per cent), solar heating/cooling (11.6 per cent) and wind energy (9.7 per cent) (Figure 7).¹⁰ According to ILO estimates, a scenario of global climate change mitigation would expect to see job creation in the following sectors: manufacture of electrical machinery; construction; and renewable energy subsectors like hydropower, solar and wind power.¹¹ However, employment in these areas constitutes just one component of the potential future growth in green jobs.

ILO estimates indicate that 14.2 million new jobs could be added in the region by 2030 if countries adopt changes in energy use that limit global warming to 2 degrees Celsius.⁹

These changes include: a shift to renewable energy sources; construction to increase energy efficiency; and transition of the auto industry to electric vehicles. The creation of decent work and environmental sustainability can accelerate the achievement of the 2030 Agenda for Sustainable Development in Asia and the Pacific.

1.3.1 Jobs to be created by climate change mitigation

The ILO estimates that reducing climate change through mitigating the rise in global temperatures would have a positive net impact on jobs worldwide. The International Energy Agency's (IEA) two degrees Celsius (2°C) scenario is an energy system development pathway and emissions trajectory designed to limit average global temperature increase by two degrees Celsius by 2100.

When looking at related industries such as the production of electric vehicles and the construction sector, it is estimated that achieving the 2°C goal would result in a net addition of 18 million jobs worldwide by 2030, compared with business-as-usual conditions, which are more likely to see a 6°C increase scenario by 2100. The vast majority (79 per cent) of these new jobs would be in the Asia-Pacific region. In fact, the net increase for Asia and the Pacific is estimated to be around 14.2 million jobs, offsetting the smaller losses derived from the reduction of carbon-emitting industries in the Middle East and Africa as well as within the Asia-Pacific region (Figure 8).¹²

However, mitigation alone will not stop the impacts of climate change. Adaptation and the development of coping capacities will be equally necessary. These adjustments to the natural and human systems also have the potential to moderate harm and create new economic opportunities.

Adaptation and coping capacities include infrastructure and services, such as transport, water and waste management and emergency response services, as well as the management of environmental resources, including water supply, marine and terrestrial protection and biodiversity preservation.

These adjustments will carry with them both opportunities and challenges which, with appropriate policy action, can be shaped to build economic, environmental and social resilience.

Agriculture is just one sector outside of renewable energy production that is impacted by climate change mitigation and adaptation strategies, but at the same time, agriculture

9. Just transition on the world of work, see ILO: *World employment social outlook: Greening with jobs* (Geneva, 2018).

10. IRENA: *Statistics dashboard: Renewable energy employment, by technology* (Abu Dhabi, 2017).

11. Just transition on the world of work, see ILO: *World employment social outlook: Greening with jobs* (Geneva, 2018).

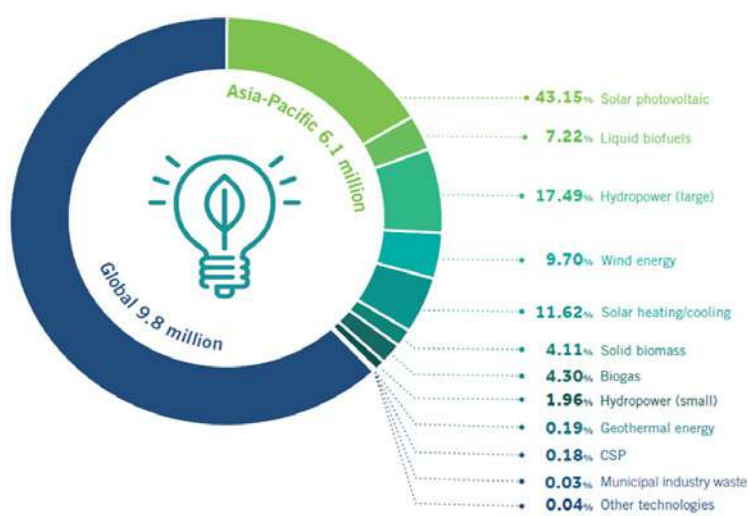
12. Just transition on the world of work, see ILO: *World employment social outlook: Greening with jobs* (Geneva, 2018).

is a major contributor to greenhouse gas emissions (including methane from rice paddies and cow dung or land use change) and accounts for around a third of all workers in Asia and the Pacific.

The impact on job creation or destruction will depend on a country's approach to sustainability, with some approaches having a positive impact on employment, and others limiting employment growth. For

example, countries could adopt conservation agriculture techniques, which may be more labour intensive, or apply quotas to certain fisheries, which could have the impact of declining employment in the sector. At the same time, there is the potential to bolster decent work in other sectors as part of the transition to a greener society, particularly in construction, the circular economy (waste management and resource extraction) and transport.

Figure 7. Renewable energy employment by subsectors, 2016



Note: Asia-Pacific total from 16 countries with available data.

Source: ILO calculations using IRENA: *Statistics dashboard: Renewable energy employment, by technology* (Abu Dhabi, 2017) [accessed 28 Aug. 2019].

Box 1. Green and decent jobs in waste management

There is an absence of wastewater treatment in many emerging and developing countries in the Asia-Pacific region. In fact, for 29 Asian-Pacific countries with available data, only 19 have some sort of wastewater treatment. Of these, only seven countries have more than 35 per cent of their wastewater treated.^a In addition to the health benefits, there are potential socioeconomic benefits to be derived from the expansion of wastewater treatment, particularly for employment. Jobs can be generated in the expansion of plants and systems for the reuse of wastewater treated to “fit-for-purpose” levels and in a range of water-dependent sectors, especially agriculture. In India, for example, wastewater could irrigate an estimated 1 million to 1.5 million hectares of farmland annually, generating up to 130 million person-days of employment.^b

^a ESCAP Online Statistical Database, based on data from the United Nations Environment Programme and the Global database of National Wastewater Treatment (8 July 2016), http://data.unescap.org/escap_stat/ [accessed 15 Aug. 2019].

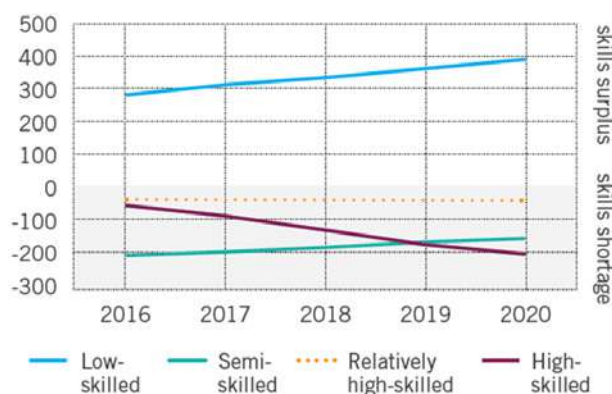
^b ILO, 2017c.

Figure 8. Net change in employment in the climate change mitigation scenario, 2030



Note: Climate change mitigation scenario refers to the IEA 2°C scenario, which compares with a baseline 6°C scenario. Source: ILO: *World employment social outlook: Greening with jobs* (Geneva, 2018).

Figure 9. Skills shortage and surplus in selected Asian countries, 2016-20 (thousand)



Note: Forecast employment by education approximates the skills supply, and the forecast employment by occupation approximates the skills demand. The figures presented are sums based on estimates for the selected countries. The positive numbers capture skills surplus, while the negative numbers capture skills shortage. Selected countries: Bangladesh, Cambodia, India, Indonesia, Mongolia, Pakistan, Philippines, Thailand, Timor-Leste and Viet Nam.

Source: Matsumoto, M. and R. Bhula-or. 2018. "Problem of skills mismatch in Asia and the Pacific: How useful are the existing measurement for future skills strategies?", in International Labour Organization (ILO). 2018a. *Skills and the future of work: Strategies for inclusive growth in Asia and the Pacific* (Bangkok).

1.3.2 Greening jobs and skills are necessary for all economic sectors

A major challenge for greening labour markets and job creation is to make sure that workers, especially youths, have the right skills. More than eight in every ten workers in the Asia-Pacific region are in either low-skilled

occupations (16 per cent) or medium-skilled occupations (67 per cent). Many countries in Asia and the Pacific will experience a surplus of low-level skilled workers by 2020 (Figure 9). Skills shortages will continue to increase, particularly for jobs requiring highly skilled workers. Skills shortages already present a major hurdle for the just transition to environmental sustainability, particularly for certain sectors and occupations such

as: wind, wave and tidal power; renewable energies for manufacturing, construction and installation; expansion of environmental industries; and the green building and construction sector.¹³

A just transition also needs to include reforms of educational systems and to address the lack of teachers and trainers in new green areas. For less developed countries, modernizing their skills production systems, both in the general education system and in the specialized vocational training system, is a complex exercise in which horizontal policy coordination across ministries of education, labour and environment is needed.

The following chapters look at three specific examples of how green jobs are being conceptualized and planned for, and how issues and challenges are being addressed, including limited data availability, requirements for building institutional capacity, and creating policy coherence. The next chapter looks at the geographical region of the Pacific, the Blue Pacific Big Ocean States. This chapter aims to understand how geography and the spatial distribution of industries provide specific challenges for a just transition and the creation of green jobs.

Chapter 3 examines the challenges of a just transition and green job creation in the textile and garment sector. This sector has one of the highest environmental impacts of any sector, after the oil and gas sector, yet is also responsible for rapid industrial development and formal employment creation, particularly for women, in many countries within the region. This sector highlights the conflicting tensions at the centre of sustainable development, but also outlines how, through social dialogue, policy settings and investment, these tensions can be resolved.

Chapter 4 focuses on policy coherence and how planning for a just transition, in this case

at the national policy level, can develop and harness policy coherence to accelerate green transitions.

The final chapter identifies the way forward. This report is anticipated to be the first in a series of reports and information resources on a just transition and green jobs in the Asia-Pacific region. The final chapter sets out the priorities that will be covered in future reports.

13. ILO, 2011.

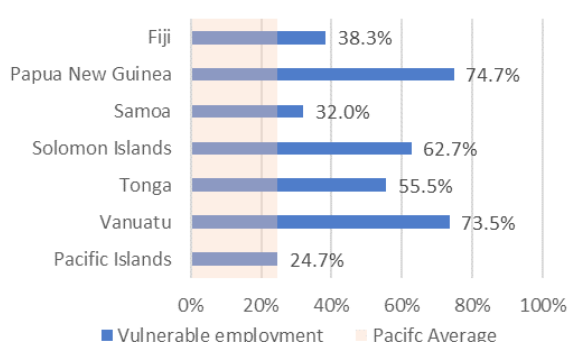


Climate change and decent work in the Blue Pacific Big Ocean States

The Pacific Islands region is an economically and culturally diverse area, but one sharing similar challenges and opportunities across countries. On average, the population is growing and 62 per cent of the population is of legal working age (ie. aged 15-64 years). The majority of employment is in services and agriculture.

Across the Pacific islands, 24.7 per cent of employment is classified as vulnerable. Papua New Guinea and Vanuatu have the highest levels of vulnerable employment, at around 75 per cent, most likely due to their heavy reliance on agriculture (Figure 10). Own-account and contributing family workers are more likely to experience low job and income security than employees and employers, as well as having lower coverage by social protection systems and employment regulation.

Figure 10. Vulnerable employment, 2018



Source: ILO estimates and compilation using *ILOStat*, 2018, www.ilo.org/ilostat [accessed 6 Feb. 2019].

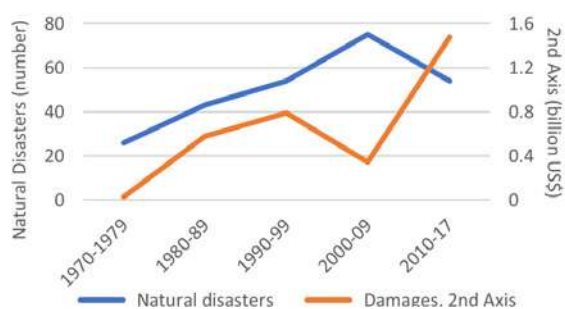
Report, five Pacific countries are among the top twenty countries that are globally most at risk from disaster. This is due to their high level of exposure to natural hazards and their poor economic and social situations, which make them particularly vulnerable. Of concern is that 14.7 per cent of the total land area in the Pacific islands region is less than 5 metres above sea level and 12.6 per cent of the total population lives in this area.

Vanuatu and Tonga have the highest disaster risk levels worldwide. In terms of regions, Oceania has the highest World Risk Index values. Nine of the fifteen countries bearing the highest risk worldwide are island states, including six Blue Pacific Big Ocean States (BOS): Vanuatu; Tonga; the Solomon Islands; Papua New Guinea; Fiji; and Kiribati (Bündnis Entwicklung Hilft, 2018).

As outlined in Chapter 1, for the Asia-Pacific region, there has been a general increase in natural disasters and associated damage costs each decade since the 1970s in Pacific countries, based on data from the Emergency Events Database (Figure 11). Natural disasters affect vulnerable workers and people living in poverty the most, because their poor financial and social situations limit their capacity to cope and adapt. However, decent jobs can be created by developing preventative measures to limit property damage and by increasing the ability of small businesses to respond to climate events.

The region is highly exposed to climate change impacts. According to the World Risk

Figure 11. Natural disaster occurrence and damage costs in Pacific countries

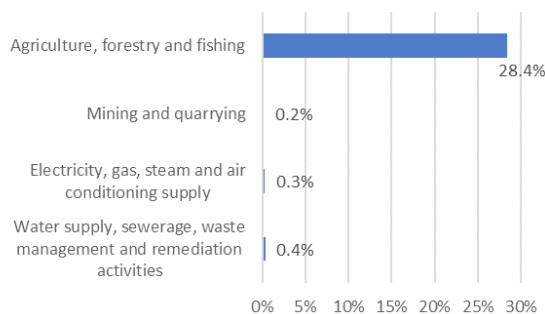


Source: EM-DAT: *The emergency events database*, Université catholique de Louvain, 2018, www.emdat.be [accessed 6 Feb. 2019].

As countries in the Pacific region prepare for, and respond to, climate change impacts, green job creation can help with these response measures. According to recent data, 28.4 per cent of total employment in the Pacific region was in the agriculture, forestry and fishing sector (Figure 12). Although reliance on agriculture is significant, there are opportunities for job creation in sustainable production and organic farming. There will also be increased job prospects in other sectors of the green economy where employment is currently much lower, such as new green jobs in resource management and protection, and natural resource utilization within public administration.

The development of larger renewable energy capacities and a shift towards more energy efficient production and consumption will profoundly impact the creation of green jobs. This increase in green jobs will need to be accompanied by related education system reforms, including addressing the lack of teachers and trainers in new green areas, together with ensuring that workers, particularly younger people, have the necessary skills. In the Blue Pacific BOS, the lack of local skills development and employment creation in renewable energy projects in the region is an ongoing issue.

Figure 12. Employment in sectors with strong green jobs potential, Pacific region



Source: ILO estimates and compilation using *ILOStat*, 2018, www.ilo.org/ilostat [accessed 6 Feb. 2019].

Specific policies and measures are needed to overcome the environmental and socio-economic challenges existing in the Pacific region to enable a green and just transition that can create more quality jobs and green jobs.

2.1 How climate change and green jobs are affecting labour markets in the Blue Pacific Big Ocean States¹

The eleven Pacific member states² of the Blue Pacific BOS are a diverse group of countries in terms of population size, land area and economic development (Table 1 and Figure 13). At one extreme, Papua New Guinea (PNG) officially has a population of over 8.2 million - although unofficial estimates are higher - and a land area of 462,840 square kilometres (km²). The country contains rich mineral and gas resources, and vast forests. At the other extreme, Tuvalu's population of around 11,000 people lives in the world's fourth smallest country and relies heavily on ocean resources and offshore employment to make a living. As an atoll country, Tuvalu is at high risk from natural disasters, including cyclones and tsunami, and has a longer-term

1. The ILO refers to its Pacific Island member states as the Blue Pacific "Big Ocean States" (BOS). This term emphasizes the enormous exclusive economic zones of ocean that these countries control, especially compared to their mostly small land areas. However, the term is not currently used by other institutions. In this report, the terms "Blue Pacific BOS" and Pacific Island countries are used to refer to the same group of countries.

2. Cook Islands, Fiji, Kiribati, Palau, Papua New Guinea, Republic of the Marshall Islands, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu.

risk from rising sea-levels related to climate change.

Kiribati has the lowest gross domestic product (GDP) per capita among the Blue Pacific BOS. Kiribati consists of 32 low-lying atolls and one raised limestone island with an Economic Exclusive Zone (EEZ) of 3.5 million km² (see Table 1 and Figure 13). The vast distances between some of its island groups and from major markets are significant constraints. Kiribati has few natural resources and tourism is negligible. Exports are mainly limited to coconut products and fish.

Palau's GDP per capita is more than eight times higher than that of Kiribati. Palau is associated with the United States of America (USA) under the Compact of Free Association. As a result, Palau receives a high level of per capita development assistance and Palauans have residential and work rights in the USA. The special relationship with the USA and a successful tourism industry are behind Palau's relative economic success.

The Blue Pacific BOS include both countries that are highly dependent on remittances (such as Samoa and Tonga), while remittances are negligible in the Melanesian countries (Fiji, Papua New Guinea, the Solomon Islands and Vanuatu) (Table 1).

Overall economic activity is concentrated in a few sectors where the Blue Pacific BOS have comparative advantages, including agriculture (most Blue Pacific BOS), fisheries (most Blue Pacific BOS), and tourism (particularly the Cook Islands, Fiji, Palau, Samoa, Tonga and Vanuatu). Mining and logging are important in Papua New Guinea and the Solomon Islands.

Despite these enormous differences, most Blue Pacific BOS share some characteristics including distance from major markets, geographical dispersion, high transport and utility costs (partly as a result of remoteness

and dispersion), and exposure to natural hazards and climate change impacts. As a result, most Blue Pacific BOS face significant development challenges.

Table 1. Selected statistics for the Blue Pacific Big Ocean States

	Land area (km ²), 2018	Population ('000), 2017	GDP per capita (current USD), 2017	Remittances as % of GDP, 2016
Cook Islands	n/a	n/a	n/a	n/a
Fiji	18 270	905.50	5 589.39	1.7
Kiribati	810	116.40	1 594.29	9.6
Marshall Islands	180	53.13	3 843.12	14.6
Palau	460	21.73	13 338.10	0.8
Papua New Guinea	462 840	8 251.16	2 488.90	0.0
Samoa	2 840	196.44	4 280.84	17.3
Solomon Islands	28 900	611.34	2 132.12	1.7
Tonga	750	108.02	3 959.08	20.0
Tuvalu	30	11.19	3 549.97	11.9
Vanuatu	12 190	276.24	3 123.61	2.4

Source: ILO: *Pacific Islands Factsheet* (data compiled from World Bank Indicators for population, land area and GDP per capita), <https://data.worldbank.org/indicator> [accessed 1 Feb. 2019]. Data from Asian Development Bank, *Basic 2018 statistics*, 2018, for remittances as % of GDP, <https://www.adb.org/sites/default/files/publication/419891/basic-statistics-2018.pdf> [accessed 1 Feb. 2019].

Figure 13. Map of Pacific Island region



Source: www.ilo.org/suva/about-us/lang--en/index.htm

Labour markets in the Blue Pacific Big Ocean States

Across the region, most of the population is engaged in agriculture (Table 3), largely on a subsistence basis. Other important industries for employment are tourism and fishing (Table 2).

The regional labour market is characterized by considerable gender inequality, which

is shown by several indicators, including a much higher labour force participation rate of men (Table 3), while women are more likely to be unemployed or in vulnerable employment.

Table 2. Labour force by industry

	Labour force (15+) ¹ (year)	Labour force by selected industry (total number)		
		Agriculture (ILO modelled estimates for 2019) ²	Commercial Fisheries (2015) ³	Tourism (2014) ⁴
Cook Islands	8 000 (2016)	n/a	65	n/a
Fiji	342 000 (2016)	135 000	3 658	41 500
Kiribati	39 000 (2010)	n/a	1 094	2 200
Marshall Islands	13 000 (2011)	n/a	2 674	n/a
Palau	9 000 (2014)	n/a	46	n/a
Papua New Guinea	3 336 000 (2011)	758 000 ⁵	11 440	24 000
Samoa	47 000 (2017)	2 000	327	n/a
Solomon Islands	414 000 (2013)	n/a	2 356	6 500
Tonga	36 000 (2006)	n/a	142	2 000
Tuvalu	4 000 (2016)	n/a	185	n/a
Vanuatu	100 000 (2009)	n/a	228	10 500

ILO compilation from sources and notes:

1. Various national sources, based on ILO: *Department of statistics*, ILOStat, 2019, <https://www.ilo.org/ilostat> [accessed 6 Feb. 2019].
2. ILO: *Department of statistics*, ILOStat, 2019, <https://www.ilo.org/ilostat> [accessed 6 Feb. 2019].
3. Forum Fisheries Agency: *Economic and development indicators and statistics: Tuna fisheries of the Western and Central Pacific Ocean 2016* (Honiara, 2016).
4. Perrottet and Garcia: *Tourism* (Washington DC, 2016).
5. The estimated number of Papua New Guineans engaged in agriculture appears low, compared to data from PNG's 2011 Census when 2,482,610 Papua New Guineans were engaged in agriculture, hunting and fishing (National Statistical Office Papua New Guinea, 2013). ILO's estimate is likely to exclude millions of subsistence farmers.

Table 3. Labour force participation rates and gender gap in selected Blue Pacific Big Ocean States countries, 2016

	Total	Men	Women	Gender gap
Fiji	54.3	71.2	37.0	34.2
Papua New Guinea	70.4	71.1	69.6	1.5
Samoa	41.2	58.1	23.2	34.9
Solomon Islands	67.3	73.5	61.1	12.4
Vanuatu	71.0	80.5	61.7	18.8

Source: ILO Office for Pacific Island Countries, 2017a.

Note: The small gender gap in Papua New Guinea is a result of the majority of Papua New Guinean's working in subsistence agriculture. If only formal employment was considered, it would be much larger.

Migration

Past and present migration and overseas employment opportunities differ greatly between the Blue Pacific BOS nations. The Cook Islands, Fiji, Samoa and Tonga have experienced considerable emigration (Table 4). New Zealand has specific migration schemes for Samoans, Tongans, Fijians, and very small numbers of Tuvaluans and people

from Kiribati, known as I-Kiribati, while Cook Islanders are New Zealand citizens with full residential and work rights in New Zealand.

Palau, the Marshall Islands and the Federated States of Micronesia have free access to the USA under the Compact of Free Association.³ There are few migration opportunities for Papua New Guineans and Solomon Islanders.

3. The Compact of Free Association is an international agreement governing the relationship between the United States and the three northern Pacific Island nations of the Federated States of Micronesia, the Marshall Islands, and Palau. The Compact has been implemented since the countries' independence (1986 for Marshall Islands and Federated States of Micronesia, and 1994 for Palau).

Table 4. Outmigration totals

	Total migrant stock, 2017	Migrants as % of population, 2017	Main destination country (%)
Cook Islands	17 488	n/a	New Zealand
Fiji	90 156	10.0	Australia
Kiribati	4 053	3.5	Nauru
Marshall Islands	1 428	2.7	U.S.
Palau	2 958	13.6	Northern Mariana Islands
Papua New Guinea	3 015	0.0	Australia
Samoa	74 861	38.1	New Zealand
Solomon Islands	2 212	0.4	Australia
Tonga	32 666	30.2	New Zealand
Tuvalu	2 350	21.0	New Zealand
Vanuatu	5 060	1.8	New Caledonia

Source: United Nations, Department of Economic and Social Affairs, Population Division, 2017.

Note: Migrant stock does not include the overseas born children of migrants.

In addition to permanent migration flows, seasonal and temporary migration opportunities for Pacific Islanders have developed over the last decade. New Zealand's Recognised Seasonal Employer scheme and Australia's Seasonal Worker Programme attempt to fill seasonal labour shortages in the horticulture and viticulture industries in Australia and New Zealand with workers from the Pacific Islands. These seasonal schemes provide important employment opportunities in terms of the number of participants. In the 2017/2018 season, 8,457 visas were issued under the Seasonal Worker Programme (SWP) in Australia. Vanuatu had the most participants, taking up 40 per cent of that total, followed by Tonga with a 33 per cent share (Howes, 2018).

In July 2018, Australia introduced the Pacific Labour Scheme under which up to 2,000 workers from Nauru, Kiribati and Tuvalu can access low and semi-skilled temporary work opportunities in Australia within the hospitality, tourism and aged-care sectors. These schemes do not offer permanent relocation opportunities. However, by providing income, they reduce the vulnerability of poorer households and communities to the adverse impacts of climate change, and

they contribute to livelihood diversification. Climate change challenges have already intensified migration pressures in the Blue Pacific BOS and there have been associated policy responses (section 4.2).

Impacts of climate change on labour markets in the Blue Pacific Big Ocean States

As a result of its unique environment and fragile economic structure, the Blue Pacific BOS region is particularly vulnerable to the impacts of climate change. While the Melanesian countries of Fiji, Papua New Guinea, the Solomon Islands, Vanuatu and, to a lesser extent, Samoa are comparatively land-rich, the other Blue Pacific BOS have limited agricultural land and their economic activities are mostly concentrated on low-lying coastal areas. In Tuvalu, the majority of the population lives on land that is less than two metres above sea-level and the threat of sea-level rise and storm wave impacts are particularly severe.

Blue Pacific BOS are exposed to a wide variety of natural hazards, including cyclones, droughts, earthquakes, floods, landslides, tsunami and volcanic eruptions. Over the past several decades, extreme weather events

have increased in frequency and intensity and are only expected to increase further. Under current climate change trends, the frequency and intensity of natural hazards will increase. This includes rapid onset events such as cyclones, and slow onset events, such as changes in precipitation patterns and sea-level rise.

The Blue Pacific BOS are already adversely affected by a loss of productive farmland from saltwater intrusion and the substantial financial drain from rehabilitation efforts. For instance, the total economic value of the impact from Tropical Cyclone Pam on Vanuatu in 2015 was estimated to be approximately US\$449.4 million. This included \$270.9 million in damage, and \$178.5 million value attributed to losses. This damage was equivalent to 64.1 per cent of Vanuatu's GDP (Government of Vanuatu, 2015).

To date, no assessment of the impact of climate change on labour markets in the Blue Pacific BOS has been done, although the Asian Development Bank (ADB) published a sobering analysis of the general economic impact of climate change in the Pacific under different scenarios (ADB, 2013). Based on the ADB analysis, the possible scale of the impact of climate change on labour markets is likely to be considerable and will be exacerbated by the low level of economic diversification in the Blue Pacific BOS.

Climate change is expected to affect agriculture, fisheries and tourism in a number of ways (Table 5). While the initial impact on labour markets is likely to be adverse, climate change will also create new opportunities, which is discussed in section 2.3.

Table 5. Adverse impact of climate change on labour markets in major industries

Agriculture	<p>Agriculture is one of the most important industries across the region from an employment perspective.</p> <p>For coastal communities, food production could be hit due to the effects of land erosion, saltwater contamination in groundwater and estuaries, cyclones and storm surges, heat stress, and drought (Barnett, 2011).</p> <p>Climate-induced disasters can destroy crops and the infrastructure that supports the industry (ILO Office for Pacific Island Countries, 2017a). For example, tropical cyclone Winston, which hit the Pacific in February 2016, ravaged Fiji's agricultural industry, causing a total damage to crops, livestock, sugar plantations, fisheries and forestry of F\$542 million, of which F\$80.3 million is attributed to damage costs and F\$460.7 million is attributed to losses (Government of Fiji, 2016).</p> <p>The ADB (2013) expects losses in excess of 50 per cent in key crops in PNG and the Solomon Islands by 2050.</p> <p>As most agricultural workers in the Blue Pacific BOS are not skilled in activities other than farming, the adverse effects of climate change on agriculture may result in increased rural unemployment (ILO Office for Pacific Island Countries, 2017a).</p>
Fishing	<p>Some 22,000 workers (0.5 per cent of the workforce) are employed in the commercial tuna fishing industry (Table 2). Leaving out PNG, 1.1 per cent of the region's workforce is employed in commercial fishing.</p> <p>Climate change is predicted to impact fisheries through shrinking yields, increasing yield variability, reducing profitability and heightening the risks associated with fishing. Catches of skipjack tuna are predicted to decrease by more than 30 per cent in the Western Pacific and PNG (ADB, 2013).</p> <p>Due to these changes, labour demand in the fishing supply chain is expected to become more vulnerable.</p> <p>At the same time, fish is an important resource for food security throughout the region and many coastal communities rely on subsistence fishing. Subsistence fishing will be impacted by productivity loss and climate-induced disasters (ILO, 2014).</p>
Tourism	<p>Tourism is a large employer in many Blue Pacific BOS (Table 2), with a strong multiplier effect on employment indirectly creating a substantial number of jobs. In the six Blue Pacific BOS for which data is available, 86,700 workers are employed in tourism (2 per cent of the workforce, rising to 6.7 per cent if PNG is excluded from the data).</p> <p>The expected effects of climate change in the form of sea-level rises and more severe natural disasters will also directly impact vital coastal tourism infrastructure. Moreover, ocean acidification will lead to coral bleaching, further diminishing the attractiveness of the Blue Pacific BOS as tourist destinations (ILO Office for Pacific Island Countries, 2017a). As a result, the ADB predicts a decline in tourist numbers by one third and an associated decrease in revenues of 27 to 34 per cent for the region by the end of this century (ADB, 2013).</p> <p>Many tourism companies are likely to dismiss workers as a result of declining tourist numbers and also due to increasing operating costs for cooling, insurance, and disaster recovery. Climate change is also likely to alter tourism seasonality and therefore increase demand for casual workers while reducing full-time employment.</p>

Impact on vulnerable people

When natural disasters or negative climate change impacts occur, vulnerable people (including women, youth, children, the elderly, people living with disabilities, and people belonging to ethnic or religious minorities) and people living in poverty are hardest hit. Women and youth are particularly vulnerable because they are overrepresented in the informal economy and are more likely to be unemployed or in vulnerable work. Vulnerable people in all these groups have less access to resources with which to restore their livelihoods or adapt to climate change (ILO Office for Pacific Island Countries, 2017a).

Although there is a lack of systematic data, there is evidence that gender inequality and discrimination against women and girls can place them at higher risk of the effects of climate change and natural disasters (World Bank, 2016b). Studies have shown that disaster fatality rates are much higher for women than for men, primarily due to gendered differences in support to cope with such events and insufficient access to information and early warnings. Furthermore, women's livelihoods often depend on natural resources that are most impacted by rising sea levels, flooding and increased salt-water intrusion. In Vanuatu, for instance, the impact of Cyclone Pam negatively affected women's ability to generate income and provide food for their families (World Bank, 2016b).

There is the risk that climate change mitigation and adaptation could reduce women's share in total employment numbers, as employment gains associated with mitigation and adaptation measures are likely to create jobs in currently male-dominated industries, such as renewables, manufacturing and construction

(ILO, 2018). There is therefore a risk that climate change will at least temporarily widen existing gender gaps.

Green jobs in the Blue Pacific Big Ocean States

The transition to a green economy will inevitably cause job losses in certain sectors as carbon and resource-intensive industries are downscaled. At the same time, there will be new job opportunities in replacement industries. Mitigation policies could support new types of sustainable agriculture and fishing, support eco-tourism activities and moves towards renewable energy and new forms of waste management. In addition, infrastructure projects to mitigate climate change impacts, such as the construction of sea walls, will also create employment opportunities. In the long run, climate change can trigger innovation and create growth, especially if governments adopt mitigation policies that ensure that opportunities are maximized. No estimates of the number of job losses and new job opportunities that may result from climate change are available for the Blue Pacific BOS region.

There remains a need for comprehensive empirical research on the current status and future prospects of green job creation initiatives, sector specific climate change adaptation and mitigation strategies, and for the introduction of coherent policies to ensure a just transition.⁴

Development plans in the Blue Pacific Big Ocean States

Although the Blue Pacific BOS economies are already relatively 'green' in terms of greenhouse gas (GHG) emissions,⁵ there is considerable scope for green economic

4. An important step towards exploiting the links between climate change and decent work is the cooperation between the ILO and the Samoa based Secretariat of the Pacific Regional Environmental Programme (SPREP) which supports action on climate change. The cooperation was formalised with the signing of the ILO-SPREP Memorandum of Understanding (MoU) in July 2018 which provides a framework to foster joint initiatives that link decent work and climate resilience through Green Job creation and green entrepreneurship.

policies. Several Blue Pacific BOS have recognized the urgency to prioritize climate change in their development strategies and plans.

Fiji, for instance, has aligned its 5-year and 20-year National Development Plans with the Paris agreement on climate change and aims to achieve zero-net global GHG emissions by 2050 (Republic of Fiji, Ministry of Economy, 2017). Kiribati (Box 2), Papua New Guinea, Samoa, the Solomon Islands, Tonga and Vanuatu have also included objectives on environmental sustainability and climate change resilience in their respective development strategies or plans. However, employment generation has not explicitly been linked to environmental action in any of these plans. Therefore, there is scope to promote the link between the environment and employment under the process of a just transition.

2.2 A just transition in the Blue Pacific Big Ocean States: What does it mean?

The rationale for a just transition comes from evidence that transitioning to low-carbon economies can create green and decent jobs, despite comprehensive restructuring in sectors such as energy extraction and production, manufacturing, agriculture and forestry. According to the Guidelines for a just transition towards environmentally sustainable economies and societies, adopted by the ILO in 2015, decent work can be advanced if social dialogue is maintained and if there is a mix of coherent macro-economic, labour market, social protection, occupational safety and health, and environmental policies (Annex).

Box 2. Policies in Kiribati

Being one of the few nations in the world that consists almost entirely of coral atolls, Kiribati is extremely vulnerable to climate change. Environmental threats include pollution of the lagoons, build-up of solid waste, depletion of water, pollution of water from salinity and waste products, deforestation, depletion of inshore fisheries, coastal erosion and threats to marine life from pollution and plastic wastes.

The Government of Kiribati has recognised the threat of environmental degradation and climate change and has responded strongly. **The Kiribati Joint Implementation Plan for Climate Change and Disaster Risk Management 2014-2023** sets out a holistic approach to integrate climate change and disaster risks into all sectors and to coordinate priorities for action. Among others, significant efforts on solid waste management have been made with donor partner support. The Phoenix Islands Protected Area has also been closed to all commercial fishing, which will contribute to the conservation of fish stocks and to food security. The Kiribati Development Plan 2016-19 includes the goal to facilitate sustainable development through approaches that protect biodiversity and support the reduction of environmental degradation as well as adapting to and mitigating the effects of climate change (Government of Kiribati, 2016).

5. Pacific Island countries are contributing a mere 0.003% of the global GHG emissions but are the most vulnerable group of countries to climate change. In the Blue Pacific BOS, electricity generation and transportation are the two biggest GHG emitters. Agriculture is also among the five top emitting industries in many Blue Pacific BOS (ILO and ITC, 2018).

Fiji has emerged as a respected advocate for sustainable development and ocean preservation. It led negotiations on climate change at the COP23 meeting in Bonn, Germany in 2017 and has taken on a leadership role to address climate change issues at the local, regional and global levels, with the plight of small island developing states at the centre of its concern. A working group on just transition and decent work was created under the Fiji Presidency of the COP23 Climate Action Pacific Partnership.

A just transition is of particular relevance in the Blue Pacific BOS due to their vulnerability to climate change impacts and existing decent work shortcomings, with high rates of vulnerable employment. Jobs in farming, fishing, forestry and tourism, which provide employment for the majority of Pacific Islanders, rely directly on the effective management and sustainability of a healthy environment. However, important climate change initiatives in the region have happened without any reference to decent work and employment (see, for example, SPC's Framework for Resilient Development in the Pacific 2017-2030).

Policy responses in the Blue Pacific Big Ocean States

In the Pacific region, the just transition process has been advanced with the organization of the inaugural Knowledge Sharing Dialogue on Just Transition, Decent Work and Climate Resilience in the Pacific Islands, which was held in Apia, Samoa, on 7-9 November 2018. This meeting was attended by the ILO's 11 Pacific member states, and representatives from Australia, New Zealand, the Food and Agriculture Organisation, Secretariat of the Pacific Regional Environmental Programme (SPREP) and the ILO. The dialogue was the outcome of the 2017 ILO Forum on the Future of Work held in Fiji. It focused on exchanging knowledge, experiences and best practice examples, supporting capacity

building, technology transfer and resource mobilization in the areas of green job creation and climate resilience.

At the dialogue, the Blue Pacific BOS shared their countries' actions for climate change adaptation across a variety of fields. See Table 6 for a summary of these actions.

The Knowledge Sharing Dialogue discussed strategies for advancing a just transition at the regional level. Participants considered the value of annual face-to-face dialogues, to understand other countries' policies and strategies linking climate change and the world of work. The host country, Samoa, stated in its final comments that the dialogue had shown genuine partnership between ministries of labour and environment. This showed evidence that green jobs could be the new vehicle by which to address climate change, and that, despite the negative impacts of climate change, it also presented new opportunities.

The Blue Pacific BOS adopted the concept of a Knowledge Sharing Platform on Just Transition, Decent Work and Climate Resilience (Blue Pacific BOS KSP) to advance a just transition. At the dialogue, the ILO was invited to consider developing a Pacific Island focused assessment of green jobs, sustainable employment and the connection between climate change and the future of work. Participants agreed to hold annual dialogues and to rotate them between the Blue Pacific BOS.⁶

Being mostly small countries in terms of population and workforce, the Blue Pacific BOS will benefit from having a platform to share knowledge and experiences as well as shared facilities that are too expensive for individual countries to maintain, such as waste treatment. The platform will also facilitate common applications for regional project funding, including access to financing (Box 3).

6. The next three Dialogues will be hosted by Kiribati (2019), the Cook Islands (2020) and Vanuatu (2021). Participants agreed to consider gaps in collecting employment data associated with climate change-related projects for discussion at the 2019 Dialogue.

Box 3. Green Climate Fund projects in the Blue Pacific Big Ocean States

The Green Climate Fund (GCF) uses accredited entities, which can be private or public, non-governmental, sub-national, national, regional or international, to channel its resources to projects and programmes. In the Blue Pacific BOS region, SPREP is accredited to the GCF. To date, only two of the ILO's member states in the Pacific have accredited entities, these are the Fiji Development Bank and the Ministry of Finance and Economic Management of the Cook Islands. Therefore, currently only Fiji and the Cook Islands can access GCF resources bilaterally, while the other Blue Pacific BOS have to go through SPREP or other accredited entities operating in the Pacific region. During the dialogue held in November 2018, the ILO and SPREP identified five GCF projects in the Blue Pacific BOS that are currently at the design stage for specific ILO interventions. These projects are: the Coastal and Marine Ecosystem Resilience Programme in Vanuatu, PNG, the Solomon Islands, Tonga, Niue, the Marshall Islands with possible extension to Palau, Nauru, and Fiji; GCF readiness support in PNG and Vanuatu; a renewable energy project in Kiribati; a water security and renewable energy project in Palau; and the Palau Energy Loans Programme.

The climate change, decent work and migration nexus

Given that the Pacific Island region is particularly threatened by climate change impacts and that there is a long history of migration in the region, the nexus between climate change, decent work and migration offers the potential for a just transition. The impacts of climate change and environmental degradation are causing people to move in search of alternative opportunities, and in many regions around the world, including the Blue Pacific BOS, climate and environmentally induced migration is already a reality. The United Nations University's Institute for Environment and Human Security found that over 70 per cent of households in Kiribati would opt to migrate in the event of worsening climate change impacts (UNU, 2016). Migration and relocation can either be internal or international (see examples in Boxes 4, 5 and 6).

Rapid onset natural disasters such as cyclones and earthquakes frequently result in immediate displacement, which can be either permanent or temporary. On the other hand, the links between slow onset events such as

sea-level rise and migration are more difficult to establish because climate variables interact with other key drivers, including lack of decent work and employment opportunities.

Several Blue Pacific BOS have sizeable diasporas in the Pacific Rim and remittances from these migrants constitute important contributions to household incomes (chapter 1). However, with the exception of Kiribati, labour mobility has yet to feature as an element in adaptation planning and represents a largely untapped mechanism in this regard (ILO, 2017).

If climate change undermines livelihoods, people may have little choice but to move in search of work. Job creation in destination locations and labour migration governance can help provide alternatives to unsafe and irregular movements. The development of decent and sustainable work opportunities at home can help to make migration a choice rather than a necessity, while safe and regular labour migration pathways can provide an important source of remittances, skills and knowledge that support resilience at home. However, there are limited migration opportunities for the most vulnerable peoples

(ILO Office for Pacific Island Countries, 2017a).

Given the small size of the workforce of many Blue Pacific BOS, a regional approach to a just transition is preferable, so that regional

standards and guidelines can be developed, which can be adjusted to suit individual countries. Some activities could be organized at a regional level in order to take advantage of economies of scale.

Table 6. Sectoral actions by Blue Pacific BOS countries

Agriculture	Several Blue Pacific BOS are taking action towards diversifying their agricultural production or introducing new techniques as part of their climate change adaptation strategy. On Nassau Island in the Cook Islands for instance, cabbage has been introduced in order to diversify from the traditionally grown taro. In Palau, where taro grows in swampy areas, which are now drying, new agriculture techniques have been introduced to plant taro in drier areas.
Tourism	In Palau, waters are being polluted, corals damaged and fish dying due to the effects of sunscreen. The government signed a law that restricts the sale and use of sunscreen and skincare products that contain certain chemicals, which are believed to be toxic to marine life, and can make coral more susceptible to bleaching. Since the beginning of 2018, Palau has also implemented the Pristine Paradise Environmental Fee, under which each visitor is charged \$100. This is part of Palau's move to promote high value tourism and the primary financing mechanism for the Palau National Marine Sanctuary.
Waste management	<p>The issue of waste management was raised at the dialogue by SPREP. Waste management can be exacerbated by climate change, especially when landfills are close to the shoreline and are likely to be flooded as sea-levels rise. This poses high risks of pollution.</p> <p>A Solid Waste Management Project has been implemented in nine Blue Pacific BOS. Under the project, waste material is exported to China. Metal recycling is sustainable in the Pacific due to the density of the material, while it is not commercially viable to ship plastics out of the region.</p>
Renewable energy	<p>Most Blue Pacific BOS have ambitious plans of reaching 100% renewable energy by 2030. The International Solar Alliance between Fiji, Kiribati, Nauru, Tonga, Tuvalu and Vanuatu aims to increase solar applications for agricultural use and solar mini grids for communities.</p> <p>So far, limited local employment has been created during the establishment of renewable power plants and there have been few beneficial employment effects. Moreover, maintenance is mostly done by international experts, adding both to the cost and time involved with maintenance.</p>
Fisheries	Fisheries are affected by climate change and the pollution of oceans. With its fish stock depleting, Palau has decided to take drastic action. In 2015, the Palau National Marine Sanctuary Act, which is one of the world's most ambitious ocean conservation initiatives, was legislated. The Palau National Marine Sanctuary, in which commercial fishing will be completely banned, will encompass over 80% of Palau's EEZ, an area of almost 500,000 square kilometres. The remaining 20% will be reserved for traditional fishing, to serve Palau's domestic and tourism needs. In November 2018, two bills were introduced in the Senate to postpone the implementation of the ban from 2020 to 2030 in order to compensate for falling revenues due to a decline in tourist arrivals, drop in fishing rights fees and low revenue from the Environmental Fee. The decision about the proposed postponement is yet to be made.
Building resilience	The Government of Samoa has adopted a programmatic approach to address the issue of climate change induced flooding. As part of this programme, Samoa has submitted its first proposal to the Green Climate Fund to reduce the impact of recurrent flood related impacts in the Vaisigano River Catchment, which flows through the Apia Urban Area.

Box 4. Village relocations in Fiji and Solomon Islands

The Solomon Islands has made international headlines as five small uninhabited islands have completely disappeared due to rising seas and erosion. But six populated islands had large swathes of land washed into the sea and on two of those, entire villages were destroyed and people forced to relocate. Nuatambu island, home to 25 families, has lost 11 houses and half its inhabitable area since 2011 (The Guardian, 10/5/2016).

In Fiji, the village of Vunidogoloa on Vanua Levu, Fiji's second largest island, has been affected by regular flooding, soil erosion and the unabated rise of water surrounding the village, forcing villagers to ask the Fijian government for help. Between 2010 and 2014, the entire village with its 156 villagers moved two kilometres inland, becoming the first village in Fiji to relocate.

Box 5. Relocation from Banaba (Kiribati)

Banaba, or Ocean Island, is Kiribati's only raised limestone island. Phosphate mining was undertaken in Banaba between 1900 and 1979, stripping away 90% of the island's surface. The British colonial authorities relocated most of the population to Rabi Island in Fiji after 1945, with subsequent waves of migration in 1977 and 1981-1983 (McAdam, 2011). The British colonial authorities also relocated I-Kiribati to what was then the British Solomon Islands Protectorate as it was more sparsely populated than Kiribati. The first wave of I-Kiribati arrived in the Western Province of the Solomon Islands in 1953.

Box 6 . Climate change and migration in Kiribati

In order to fully leverage decent work opportunities abroad as a response to climate change threats, the former President of Kiribati, Anote Tong, established the concept of Migration with Dignity whereby I-Kiribati would have the necessary skills to find decent work abroad. This process is intended to ensure that the population remains at a level that supports Kiribati's climate change adaptation effort (Voigt-Graf and Kagan, 2017; Voigt-Graf, 2016) and simultaneously make sure that people are agents in the migration process. The Government of Kiribati implemented the National Labour Migration Policy, which was adopted in 2015. Its long-term vision is to "provide I-Kiribati with increased opportunities to migrate with dignity by accessing decent work opportunities abroad" (Government of Kiribati, 2015). The Policy recognizes the important role of international labour migration in addressing the lack of local employment opportunities and acknowledges that a permanent relocation of some of its citizens is part of Kiribati's long-term climate change adaptation strategy.

2.3 Green jobs and climate resilience in the Blue Pacific Big Ocean States: Specific challenges in employment creation

Given the exposure of the Blue Pacific BOS to climate change risks, there will be short-term job losses in industries that are directly affected by climate change. At the same time, new jobs could be created in replacement industries and through mitigation and adaptation measures. Climate change also has the potential to induce innovation and developments that will create green jobs and green business opportunities. The challenge for Blue Pacific BOS' governments is to prepare workers and entrepreneurs to fill these new roles.

Potential areas of green job creation

Comprehensive research on green job creation in the Blue Pacific BOS is not available. According to a 2010 ILO study in Fiji, the Solomon Islands, Samoa and Vanuatu, tourism, renewable energy, food production, and recycling and waste management have the most potential for green job creation (ILO Office for the Pacific Islands 2010). Expected impacts of a just transition on major industries are summarized in Table 7.

Table 7. Selected impact of a just transition in key industries in the Pacific Islands

		Current situation	Expected impact under a just transition
Industries with expected net employment losses	Forestry / Logging	<p>Illegal logging and logging at unsustainable levels occur particularly in PNG and the Solomon Islands.</p> <p>Working conditions in the industry are poor and there are undocumented migrant workers.</p>	<p>As a result of moving towards sustainable logging, overall employment in the industry will be reduced.</p> <p>Decent work deficits in the industry will be addressed.</p>
	Mining	<p>The mining industry is relevant in PNG and the Solomon Islands.</p> <p>Mining operations have had detrimental effects on the environment such as by polluting rivers thereby negatively impacting on the livelihoods of the local population.</p>	<p>Mining operations and mining employment are likely to decline, if learnings from the Philippines pilot are applied.</p>

Established industries with expected new and different types of jobs	Agriculture	<p>Agriculture is one of the most important industries for employment with the majority of Pacific Islanders engaged in small holder farming.</p> <p>Agriculture is among the top GHG emitting industries in the Blue Pacific BOS.</p>	<p>New types of agriculture can help create green jobs and strengthen food security.</p> <p>The adoption of sustainable agricultural policies can create wage employment in organic farms, and allow smallholders to diversify their sources of income.</p> <p>Strengthening linkages between agriculture and tourism could further strengthen the agricultural sector.</p> <p>Sustainable agriculture can also play an important role in climate change mitigation.</p>
	Fisheries	<p>Waters from the Pacific Island EEZs supply some 34% of the world's tuna catch. More than 60% of this is harvested by foreign vessels and more than 85% is taken out of the region for processing, highlighting considerable scope to develop domestic industry.</p> <p>Current figures indicate that there are around 22,000 jobs held by Pacific Islanders in the sector, including some 11,400 in PNG (Table 2).</p> <p>Fishing is hazardous and the fatality rate of fishers is typically several times higher than for other workers. The ILO Convention on Work in Fishing (C188) of 2007 and the accompanying Work in Fishing Recommendation, 2007 (No. 199) set important standards for safe and decent employment on fishing vessels.</p> <p>Apart from commercial fisheries based upon the tuna industry, fish is a cornerstone of food security for many Pacific communities. Most of the food fish in the region is supplied by overfished coastal fisheries.</p>	<p>In 2015 Forum leaders endorsed the Regional Roadmap for Sustainable Pacific Fisheries with strategies including effective management of tuna fishing in Blue Pacific BOS' waters, continued efforts to reduce illegal fishing, progressive restriction of fishing on the high seas by foreign vessels, establishing high standards for employment, and establishing regional processing hubs in two or three Blue Pacific BOS.</p> <p>In terms of employment, additional processing in Melanesia, and increased Pacific Island crew for fishing vessels, could result in 18,000 new jobs over the next 10 years (World Bank, 2016a).</p> <p>A large number of women are employed in fish processing and a growing fishing industry is therefore likely to increase gender parity in the workforce (ILO and Forum Fisheries Agency, 2016).</p> <p>For PNG, the Solomon Islands and Vanuatu, a gap is expected by 2035 between the recommended levels of fish consumption, and what the coastal fisheries are expected to supply (World Bank, 2016a), posing risks to food security.</p>
	Tourism	<p>The pristine environment and unique cultures are the Blue Pacific BOS's main tourist attractions. Tourism is less subject to factors (such as small and dispersed populations, small land areas, remoteness from markets, and limited natural resources) that are barriers to other forms of economic growth (World Bank, 2016b).</p>	<p>Eco-tourism offers significant opportunities for growth and employment in the Blue Pacific BOS. Low volume-high yield tourism is preferred because it is less damaging to the environment. See case study on eco-tourism below.</p>

Emerging and growing industries	Constructing climate change resilient infrastructure	<p>Globally, green jobs can be created by building sustainable, energy-efficient and climate-resilient infrastructure and barriers against natural hazards.</p> <p>There is at present a lack of local, sustainable employment associated with climate change related projects. See example of Tuvalu in Box 6.</p>	<p>As investment in climate change resilience and adaptation initiatives continues to expand, there is increased opportunity for governments to create local jobs through public projects (ILO Office for Pacific Island Countries, 2014).</p> <p>The use of local labour should be encouraged and, in the case of donor-funded projects, should form part of the political negotiations on aid spending.</p> <p>Additional jobs could be created in maintenance, environmental planning, and monitoring and evaluation.</p>
	Renewable energy	<p>At present, the Blue Pacific BOS lack the capacity to fully utilize their potential with respect to sustainable energy production, and continue to be highly dependent on fossil fuel imports.</p> <p>Some attempts have been made to implement green technologies, such as solar systems, as a means of electricity in rural areas of Fiji and Solomon Islands, leading to green job creation.</p> <p>In general, limited local employment associated with renewable energy projects has been created, making the maintenance of the project dependent on international experts and curtailing the sustainability of the projects.</p>	<p>More green jobs will be created in the renewable energy sectors, particularly solar energy.</p> <p>There is also the need to start planning for the recycling and replacement of solar panels which have a 25 year lifespan, and linking this to waste management.</p>
	Waste management	<p>Green jobs already exist in waste management including plastic and chemical waste.</p>	<p>Additional opportunities will be created around a circular economy to improve waste management and minimising waste.</p> <p>Jobs will also be generated from the expansion of wastewater treatment (ILO, Regional Office for Asia and the Pacific, 2017).</p>

Green job creation in the eco-tourism industry

Tourism is a prime industry example with which to highlight both the risks associated with climate change as well as the opportunities available through adaptation policies that can lead to green tourism growth. The tourism

industry, which is the main export industry in the Cook Islands, Fiji, Samoa and Vanuatu, is vulnerable to natural disasters. Most tourists avoid disaster prone areas or destinations that are not perceived as being safe and secure. Climate change mitigation therefore has to include the development of preparedness

strategies and institutional capacity to respond to the negative impacts of potential disasters. In addition, the industry in the Pacific region is challenged by inadequate conservation of land and marine resources that support the industry. In addition, the industry in the Pacific region is challenged by inadequate conservation of land and marine resources that support the industry. Despite these risks, tourism presents the best opportunity for sustainable economic development and growth in the Blue Pacific BOS (South Pacific Tourism Organisation, 2013).

A partnership has been formed between the South Pacific Tourism Organisation (SPTO) and the United Nations Development Programme (UNDP) to promote green tourism in the region and to assist businesses to transition to be more sustainable (UNDP, 2017). On the one hand, tourism is dependent on a healthy environment, on the other hand it is also an energy and water intensive sector. The joint project by SPTO and UNDP aims to create more eco-tourist style accommodation in Samoa and Fiji, and to work alongside selected communities to create stronger links between the sustainable tourism industry and local communities.

In October 2018, the Environment Impact Assessment Guidelines for Coastal Tourism Development for the Pacific Islands and Territories was launched by SPREP and SPTO (SPREP, 2018), which aims to ensure that the environment is taken into consideration in every coastal tourism development.

Coral reef protection is particularly important from both the environmental and economic points of view. From an environmental perspective, coral reefs on average reduce the wave energy that reaches shores by more than 95 per cent and are the most cost-effective way of stabilizing shorelines.

From an economic perspective, these eco-systems provide food sources and

income to local communities, as well as providing a variety of recreational activities, including snorkeling, diving, fishing and boating for tourists. Across the planet, coral reefs attract 350 million people and in Palau, the lifetime value of a live shark is estimated at US\$1.9 million for dive tourism (see also Boxes 7 and 8).

Box 7. The Tuvalu Coastal Adaptation Project

The Tuvalu Coastal Adaptation Project is the first GCF project in the Pacific. It commenced in June 2017 and is set to be completed in 2024. Under the project, measures are implemented to reduce the impacts of climate-induced sea-level rise and intensifying storm events on key infrastructure by building coastal resilience on three of Tuvalu's nine inhabited islands to protect a total of 2,780 metres of high-value vulnerable coastline. The project is expected to create local employment opportunities (although data is not yet available). The strengthening of human resources and building national capacity for resilient coastal management is also a key focus.

Box 8. Palau's marine sanctuary

In Palau measures to build sustainable tourism will drive employment and support government revenue. In 2015, Palau's Government signed into law the Palau National Marine Sanctuary Act, converting 80% of its territorial waters into a marine sanctuary by 2020, prohibiting commercial fishing, oil drilling, and seabed mining. While this measure impacts on the livelihoods of some Palauans, it is expected that tourism-related activities like diving and snorkelling will provide alternative livelihoods for those affected.

Even in those Blue Pacific BOS countries in which tourism remains underdeveloped, such as Papua New Guinea and the Solomon Islands, there is green growth potential. The Solomon Islands have outstanding dive and World War II historic sites, and a unique culture. The range of nature experiences provides enormous opportunities for eco-tourism (Perrottet and Garcia, 2016). In Papua New Guinea, tourism is negligible as a result of high costs and considerable security risks, especially in the major urban areas. However, the Papua New Guinea Government has declared tourism development a national priority according to the Papua New Guinea Tourism Master Plan, 2007-2017, identifying Papua New Guinea's rich culture and potential for eco-tourism as strategic assets.

While there is considerable potential for green job creation in tourism and the other areas outlined in Table 7, the process will face similar challenges regarding employment generation to those faced more broadly in the Blue Pacific BOS, including a lack of data for evidence-based policies, lack of appropriately skilled workers, a challenging business environment, large distances from markets, and high transport and utility costs.

Given that there is no guarantee that gains from green growth will be evenly distributed, mitigation policies that promote growth in sustainable agriculture and fishing, eco-tourism, renewable energy and other sectors, have to be complemented by inclusive policies to make sure that all segments of the labour force benefit.

New opportunities are also emerging for innovative entrepreneurs and small business development based on investment in natural capital, the production and use of green goods, and services and reliance on green energy.

Skills development and training

Green growth is dependent on technological change, which includes innovation and the development of new technologies, such as the renewable energy sector, and the transfer of existing green technologies. Since most innovation is concentrated in high income countries with enough funding for research, the Blue Pacific BOS and other low-income countries largely rely on technology transfer.

New skills are required to implement and maintain green technologies. Therefore, a major challenge for greening labour markets is to ensure that workers have the skills required by the green economy. Technical and vocational education and training (TVET) systems in the Blue Pacific BOS are currently not well aligned with industry needs, with the partial exception of Fiji. In general, TVET does not provide the quality of training required, and rarely responds to business needs and labour market demands (ILO Office for Pacific Island Countries, 2017b). Consequently, there are widespread skill shortages, particularly in technical and vocational areas. In some Blue Pacific BOS, skills shortages have been compounded by the emigration of skilled workers.

In the green economy, skills shortages are particularly severe in the renewable energy sector and in the green building and construction sector (ILO Regional Office for Asia and the Pacific, 2017). The skills required for green construction can differ substantially from conventional construction. Training is also needed in environmental planning, monitoring and evaluation, and environmental engineering.

As regards skills for sustainable agricultural practices, the main challenge is that of reaching the dispersed and often very isolated populations engaged in agriculture, such as those on remote islands or in the Papua New Guinea Highlands.

One general strategy for aligning skills development with labour market needs is by increasing green industry involvement in TVET curriculum development and quality assurance (ILO Office for Pacific Island Countries, 2017a). Global evidence shows that skills development programmes are crucial for the achievement of a just transition. The ILO surveyed 27 countries (no Blue Pacific BOS countries were included in the survey), of which approximately two-thirds had established platforms through which to anticipate skills needs. In some countries, specific bodies had been established to determine skills requirements for the green transition. While this led to positive changes in training for the sectors directly involved in the transition, such as renewable energy and waste management, they had comparatively little influence on the greening of the economy as a whole (ILO, 2018a).

At present, entrepreneurial skills are lacking across the Blue Pacific BOS region. Micro and small entrepreneurs need business training as well as financial education, and access to financial services, in order to reap the benefits of green entrepreneurship. The green economy could be a focal point for entrepreneurship training.

Any external investment in a just transition for the Blue Pacific BOS should also factor in training and long-term skills development that will enable local job creation as part of its investment strategy. The importance of creating permanent local employment within the green jobs area should be a key component of any funding or investment undertaken in the region. This consideration of socially responsible investment will help to ensure that local communities have a tangible personal engagement in the just transition and green jobs.

Need for information and data

The quality of general labour market data

is poor in most Blue Pacific BOS. No Blue Pacific BOS has established a labour market information system and there are no harmonized labour market indicators with which to compare data between countries or over time. Gaps exist regarding general labour force data, vulnerable and informal employment rates, and participation of women and youths in the labour market. Only Fiji (2015/16) and Samoa (2016) have recently undertaken labour force surveys. Most Blue Pacific BOS rely on their national censuses or Household Income and Expenditure Surveys for labour force data.

Blue Pacific BOS governments require reliable decent work data to inform labour and employment policies and to assess the impact of climate change on employment and the status of and prospects for green job creation. The first step will be for the region to agree on a way to measure green jobs, so that national and sectoral projections as well as regional comparisons can be made. The significant potential for green job creation can only be fully realized with evidence-based policies, strategies and regulatory frameworks.

The challenges ahead for the Blue Pacific BOS can also provide an opportunity to develop much needed infrastructure to increase their knowledge and create a green economy: the talent of Pacific women and men can accelerate the transformations needed to develop better jobs and better lives. Putting 'green talent infrastructure' at the center of development actions (Figure 14) means including skills development plans for local human resources in all climate infrastructure investments. An elevated local skills development training and certification strategy will have greater impact on local job creation and more quickly transform communities in the Blue Pacific BOS.

As this chapter has highlighted, green job creation across the Blue Pacific BOS can

help the region prepare for, and respond to, climate change impacts. However, this shift to green jobs will require associated education reforms and skills development, as well as the creation and implementation of meaningful policies to overcome the environmental and socio-economic challenges in the region.

Figure 14.





A just transition in the textile and garment sector in Asia

The textile and garment industry supply chain is one of the most complex and globalized supply chains of any merchandise or commodity. Globally, the market for textiles and apparel is US\$2,000 billion annually (World Trade Organisation, 2016). According to the World Trade Organisation, in 2016 the value of world textile and apparel exports totaled \$291 billion and \$445 billion respectively (WTO, 2016).

The top three global exporters of textiles in 2015 were China, India and the European Union (EU) countries, with large textile and garment sectors in Spain, Italy, Poland and Romania. Combined they accounted for two-thirds of global production. The top three exporters of apparel include China, the EU and Bangladesh, accounting for 70 per cent of global production (WTO, 2016). From these statistics, it is clear that Asia plays an essential role in the textile and garment supply chain.

The sector also plays a vital employment role; in 2015 it was estimated to employ more than 60 million people globally (OECD, 2015). The sector has also seen substantial growth in employment in the last two decades. In 2000, the sector was estimated to only employ 20 million people globally (CCC, 2015). As Figure 15 shows, the vast majority of this employment growth has been in Asian countries. For example, in Bangladesh the ready-made garment sector currently employs over 4 million people, up from 300,000 employees in 2000 (ILO, 2017d).

Figure 15 also shows that the sector is an important source of employment for women.

The Clean Clothes Initiative estimates that three-quarters of garment workers worldwide are female (CCC, 2015). The textile and garment supply chains are highly gendered; most workers are women, and the further down the supply chain, the higher the number of female workers compared to male (Hale and Turner, 2005).

Textile and garment production have played a unique and defining role in the economic development of many nations. It was the main industry that led to the first industrial revolution and ever since then, development of a garment industry has signaled more sophisticated industrialization within national economies, most recently in Asia (Anguelov, 2016).

The presence of textile and apparel manufacturing in a country is seen as being a trigger for industrial development in related manufacturing activities such as chemicals. The industry provides a large amount of low-skilled employment, but provides opportunities for workers to move from informal to formal work. The industry also often brings significant direct foreign investment and offers emerging economies an opportunity to participate in global trade, with textiles and apparel making up between 60-90 per cent of total merchandise exports in these economies (WTO, 2015).

All of this highlights the importance of the textile and garment industries for many countries, and for individual businesses and workers within these countries. While it may seem that minimizing the environmental impacts of these industries would be likely

to lessen the development potential of the industries, especially in countries that are relying on them to address poverty within their populations, the opposite is actually true. There are potentially significant opportunities available within the textile and garment industries associated with addressing environmental impacts.

These opportunities include introducing cleaner production activities and sustainable development practices, which contribute to increased productivity and competitiveness. These actions also help develop decent work opportunities by increasing labour force skills and knowledge, as well as contributing to the achievement of sustainable development goals. Implementing these opportunities requires taking a comprehensive view of the supply chain, including design processes and ‘front-of-pipe’ technologies and production processes (Martin, 2013). It also requires strategies to actively upgrade the skills and range of occupations involved in textile and garment production. The following section describes the environmental impacts that occur at different stages of the textile and garment supply chains, and how current trends in globalization, production and consumption systems, as well as climate change, are compounding these environmental impacts.

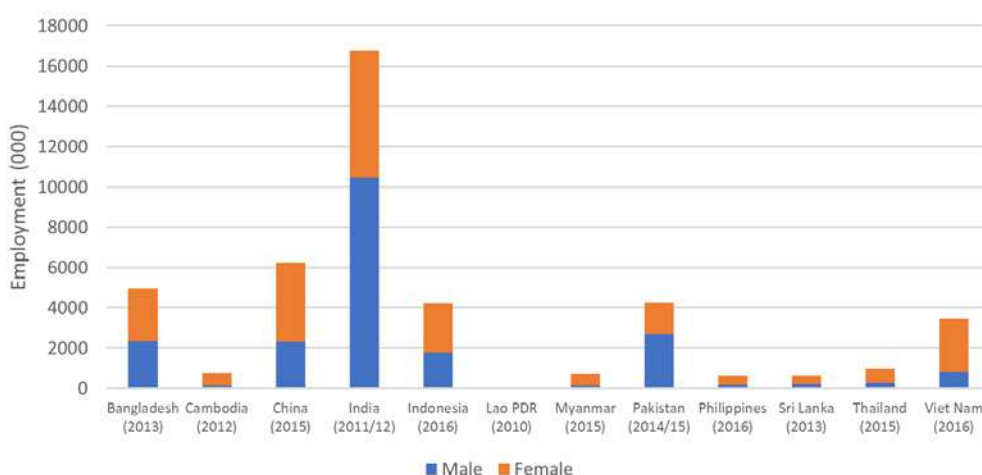
3.1 Environmental impacts in the textile and garment supply chain

The textile and garment industries have three main areas of production:

- Input production, which includes the production of the basic inputs into textiles: cotton growing; and the production of synthetic materials such as polyester, rayon and nylon.
- Textile manufacturing, which includes spinning, weaving and finishing fabrics.
- Garment assembly and finishing, where garments are assembled from textiles. This can involve multiple enterprises, and include activities from garment sewing to the addition of zips and buttons, and final finishing and labelling.

Figure 16 provides an overview of the main components of the supply chain, and highlights where the environmental impacts are concentrated. Aspects of textile and garment production and assembly are labour intensive, therefore production has largely shifted to developing countries, to take advantage of lower per unit labour costs. The globalized nature of production means that often these areas of production happen

Figure 15. Employment by country and gender in the textile and garment sectors in Asia



Note: data inputs are for different years in different countries. Year of data source is shown below each country's label. Source: ILO, 2017d.

in multiple countries, so transport and logistics are also a major component of the effective operation of the supply chain. Most of the transportation is through commercial shipping and road transport.

The following section focuses on the environmental impacts of the textile production and garment assembly aspects of the supply chain. This is not to minimize the environmental impacts earlier in the supply chain. For example, cotton growing has significant environmental impacts because of its high reliance on water and chemical inputs. Cotton production represents approximately one third of global pesticide use, and this in turn can have other damaging effects on the environment when pesticides are badly managed (Pan et al, 2008).

3.1.1 Textile production

There are four stages of textile production: yarn formation; fabric formation; wet processing; and textile fabrication. Yarn and textile formation include spinning, weaving and knitting, and are mostly dry processes, where bales of fibre are spun into thread. Turning a bale of cotton into fabric is a resource intensive process in terms of energy, it is also the strongest value-added link in the production chain (Birnbaum, 2008). Before the cotton can be woven, it needs to be bleached and then mercerized (a process involving dipping bleached fibres into a bath of sodium hydroxide, then neutralizing them in an acid bath). Mercerizing fibres makes them respond better to dyeing processes, so although not all cotton needs to be mercerized, most is (Angeulov, 2016).

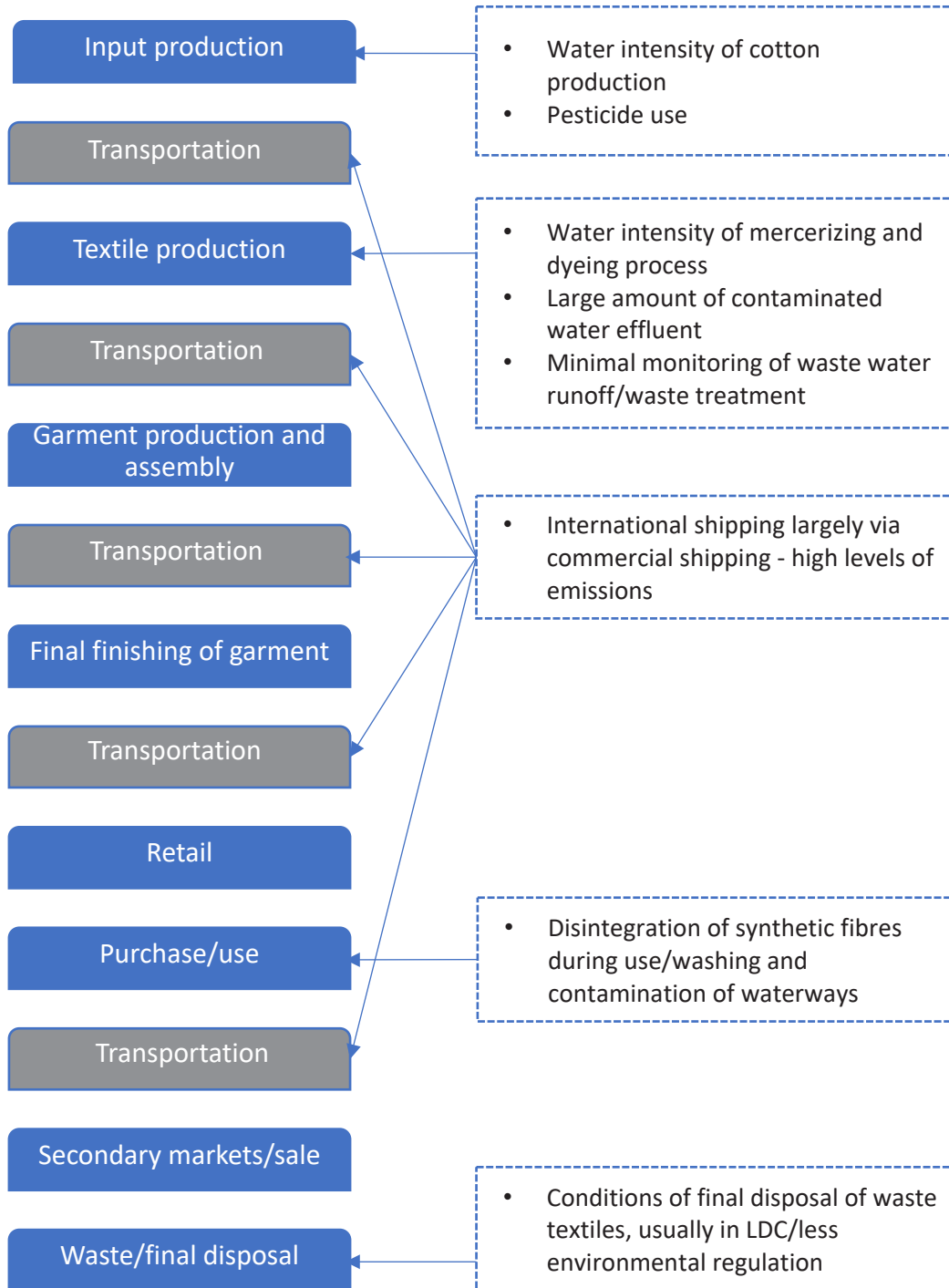
Once mercerized the cotton is spun into yarn and then woven into fabric, which is then dyed. During the spinning process, yarns are treated for fineness and texture, usually through a wet-heating process. The weaving

process also involves the application of starch to the fabric, to provide strength and stiffness. If synthetic fibres are being blended with the cotton, this results in a further heat intensive process. After weaving, fabrics are dyed based on pattern specifications; starch, sodium hydroxide and chemical dyes and wetting agents are used in these processes.

The amount and variety of wetting agents, acids, alkalis and dyes depends on the quality and desired refinement of the textile product. Generally, the higher the quality, and subsequently the price of the fabric, the more chemically intensive the manufacturing process (Anguelov, 2016). An estimated two to four kilograms of chemicals are required per kilogram of finished garment throughout manufacturing. This means that the weight of the chemicals used in garment manufacturing is much more than the weight of the finished garments (Swedish EPA, 2016). Two-thirds of this chemical use occurs in the textile manufacturing phase.

Textile manufacturing is amongst the largest industrial users of water. Water consumption per kilogram of manufactured textile varies between 5 - 500 litres, depending on fibre type and what techniques and technologies are applied (Ozturk et al, 2016; SIWI & Sustainability Outlook, 2016). This results in significant quantities of waste water from the textile manufacturing process, including heated water. This waste water contains liquid effluent from the chemical processes, which is then discharged into the local watershed. The process is also energy intensive, with significant amounts of electricity required to heat the water used in these processes (Muthu, 2014).

Figure 16. Fabric, textile and garment supply chain



There are significant inefficiencies with these processes in terms of water use, chemical use and waste water treatment. Water usage varies widely across the industry, ranging on average from between 50 to 200 tonnes per tonne of fabric. In addition, an estimated 15 per cent of production dyes are lost during the manufacturing process (Ibrahim, 2008).

The most serious environmental impacts come from these wet processes, including bleaching, dyeing, printing and finishing the textile, when waste waters are not treated or are treated inadequately before being discharged. The waste water from wet processes is a major contributor to water pollution, as it is contaminated with bacteria, chemical dyes and bleaches. The waste water

is typically alkaline (high pH) and contains solids, oil and potentially toxic organics such as phenols from dyeing, halogenated organics from bleaching, and heavy metals such as copper and chromium. If pesticides are used in natural fibre production these are also transferred to the waste waters (Haque, 2017).

Identifying and implementing cleaner production processes in textile manufacturing requires increased knowledge of these processes, as well as investments in equipment and technologies for improved and less resource-intensive wet processing and waste-water treatment. Enhanced environmental regulations and monitoring and enforcement of these regulations will support the adoption of cleaner production as well as the market for products and services associated with cleaner production. These will stimulate green job growth, including higher skilled jobs, as well as contributing to an increase in the quality of work within the textile manufacturing arena by reducing the exposure of workers to harmful chemicals and wet processing activities.

3.1.2 Garment production, assembly and final finishing

The environmental impacts are minimal in the garment assembly sectors, in comparison with textile manufacturing. Garment sectors are labour intensive and working conditions have therefore been the primary focus when looking at decent work considerations. This link in the supply chain includes seven different types of activities: design preparation; pattern making; cutting; tailoring; ironing; packaging; and storage.

In terms of environmental impacts, these arise in four areas within the garment sector (Muthu, 2014):

- emissions associated with transportation of textiles to the garment factory;
- energy use in garment assembly;
- dealing with wastes, primarily textile waste (scraps of fabric from cutting etc.); and
- production of steam from boilers and its associated impacts.

The globalized nature of the textile and garment supply chain makes it highly likely that finished clothing products have travelled significant distances during their production. The majority of this transport is via commercial shipping and road transport, both of which are relatively emissions intensive.

Implementing more energy efficient activities and switching fuel sources to renewables and/or lower carbon intensity fossil fuels, are the primary activities that will reduce environmental impacts in the garment production sector.

Textile waste, and how this is managed through to final disposal is another environmental impact. Through conventional fashion design processes of pattern making and cutting, up to 15-20 per cent of fabric can be lost (Abernathy et al, 1999), this can increase to 50 per cent in small scale production (Niinimaki, 2013).

Textile waste quantities can be affected by machine inefficiencies (eg. blunt cutting blades), but also by the experience and well-being of the workers. Life-cycle assessments of textile processes have shown inexperienced and/or fatigued workers, or employees working too quickly will have higher levels of textile waste (Kasemset et al, 2016).

There are a number of design processes that attempt to minimize textile waste in the cutting and sewing process, which are called zero-waste designs. These include the jigsaw puzzle method and minimal cut method (McQuillan, 2011), but these processes are

not widely adopted as yet. Worker training and investment in equipment that moves towards zero waste production processes will both increase the skill intensity of occupations in garment manufacturing (if not the overall number of workers employed) and contribute to decreased textile waste.

3.2 Global trends driving textile and garment consumption and production systems

The textile and apparel sectors are described as a 'buyer-driven chains' (CCC, 2015), where the driving force of the supply chain are the major brands and retailers. They determine what is produced, where and at what price. To a large extent this is true, but there are also a number of legacy issues from preferential trade agreements and, more recently, issues of environmental sourcing, which influence the location of supply chain components and their environmental impacts.

Few global industries have been, and continue to be, affected by trade agreements and rules like the textile and garment sectors (Martin, 2015). The location of much of the sectors' work up until the early 2000s was driven by the Multi Fibre Agreement (MFA). A corresponding range of preferential trade agreements existed, which placed various quotas on production of different inputs and outputs of textiles and garments, and mandated rules of origin import codes.

In some countries, such as China, India and Pakistan, sourcing of the entire textile and garment manufacturing process can be internal, as these countries have large, vertically integrated garment industries. But incentives existed, and to some extent still exist, to source fabric in India and then ship

it for assembly in another nation (Angeulov, 2016).

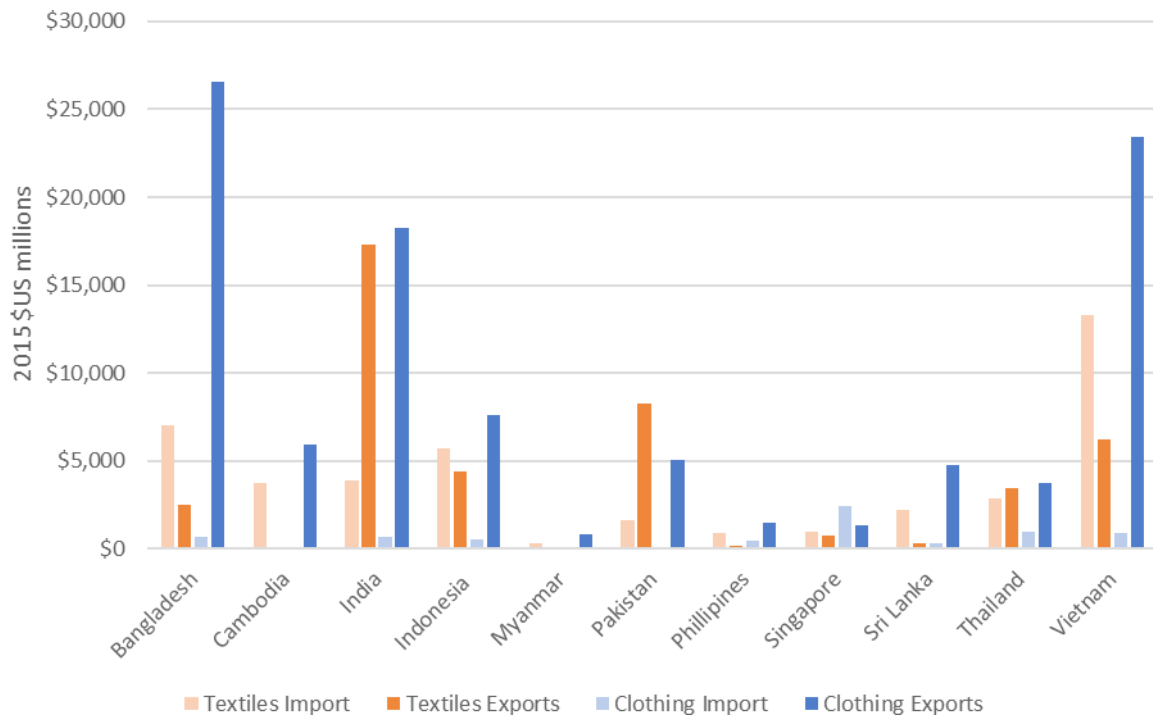
The legacy of these arrangements¹ is that certain activities in the supply chain, such as textile manufacturing, were clustered in specific geographic areas. This had the additional impact of concentrating environmental impacts in certain locations. Specialization and production hubs developed; with the leading fabric exporters being India, Nepal, Macao and Turkey (Miroux and Sauvart, 2005). In contrast, Bangladesh, Sri Lanka and Viet Nam specialized in garment assembly (Audet, 2004).

While the latest World Trade Organisation trade statistics (WTO, 2016) comparing textile and garment exports and imports continue to show some areas of specialization in either textile or garment manufacturing, the distinctions are less pronounced (Figure 17 for detail). This means there are more countries and jurisdictions participating in the manufacture of textiles, and hence environmental impacts are also more widely spread in terms of water use and waste water effluent going into the watershed.

A number of authors have claimed that environmental sourcing is now the major driver when determining where to locate aspects of the supply chain that have high levels of environmental impact (Greer et al, 2009; Khan et al, 2009; Angeulov, 2016). Environmental sourcing refers to multi-national corporations (MNCs) strategically locating operations in countries that are still developing their environmental regulatory systems, such as Bangladesh, China, India, Indonesia and Viet Nam, in order to exploit regulatory uncertainty. Also, many developing countries that are seeking to attract foreign direct investment will reduce their environmental conditions and/or set up special economic zones where environmental

1. The Multi-Fibre Agreement was phased out between 1995 and 2005.

Figure 17. Value of textile and clothing imports and exports in Asia, excluding China²



Source: World Trade Organisation trade statistics, 2015.

regulations are less stringent in order to attract MNCs' investment (Angeulov, 2016).

Textile manufacturing represents one of the largest stages of value creation versus cost in the garment supply chain. The pressure on supply chains to minimize costs is driven by both the advent of 'fast fashion' but also 'quick response'. Fast fashion refers to the fashion products that move quickly from being seen on the catwalk to being sold in high street stores. Examples of fast fashion retailers include Zara, H&M and Uniqlo.

Quick response is related to just-in-time production, enabling retailers to demand quick replenishment of basic products. Fast fashion is enabled by quick response, but is fundamentally different. Fast fashion entails quick response, but only of small amounts of a great variety of styles of new merchandise, with little to no replenishment, and at a higher frequency (Martin, 2013).

Both concepts place enormous pressure on suppliers because of the variable volumes and required delivery times. Orders are typically outsourced, including to the informal sector, where the fulfilment of the orders becomes relatively invisible to the buyer.

3.3 Impact of climate change

Climate change will make managing the environmental issues related to the textile and garment industries more challenging and addressing them even more pressing. Water scarcity and security are critical issues and will become more so within the Asia-Pacific region, due to increased water demand and lack of widespread good water management. Better water management from industrial processes, including textiles and garment production, will be an essential adaptation response.

2. China is excluded because its importing and exporting activity are of such a magnitude larger that it would make the chart unintelligible for the other countries. For example, China's clothing exports are \$174b, dwarfing its nearest competitors Bangladesh with \$26bn and Viet Nam with \$23bn.

Heatwaves and their related impacts have already affected garment production and these impacts will only increase. Increased precipitation variability, including increased numbers of heavy rain events, increased incidents of tropical cyclones and sea level rise will test the resilience of the textile and garment industries in many of the countries studied, and will more broadly adversely affect these countries' ability to achieve sustainable development.

3.3.1 Highly localised impacts

The environmental impacts of textile and garment manufacturing processes are highly localised to where production occurs. The communities surrounding these facilities are significantly impacted in terms of health, quality of life and, in many cases, by associated impacts on their livelihoods from farming and fishing. The location of production facilities in major urban areas (in order to access large labour pools) also means that these facilities are adjacent to houses, schools, other businesses and community facilities. It is likely that vulnerable populations, such as children, sick and elderly people will also be more susceptible to the negative health and quality of life impacts that result from the environmental degradation associated with these industries.

3.3.2 Impacts also further compound gender inequality

The textile and garment supply chains are highly gendered, with the majority of workers being women. To date, international and domestic initiatives aimed at improving labour and environmental conditions have demonstrated limited success. Future initiatives will need to consider what impacts codes of conduct have on women, including those employed on a casual basis, and in

small and unregulated workplaces. If codes are difficult to implement in first tier suppliers then they will not reach and benefit the majority of workers, who are women. In fact, they could lead to a two-tiered system where standards are met in some workplaces, but in others the reality is far from the minimum standard (Hale and Turner, 2005). Women need to be closely involved in the creation of these codes of conduct and initiatives to ensure that they adequately address gender issues.

Environmental issues exacerbated by the textile and garment sectors, such as water scarcity, will also disproportionately affect women, because of their roles in managing household water supplies and sanitation. Women are further disadvantaged by having less decision-making power and influence over how water resources are managed.

3.4 Encouraging cleaner production

There is a great deal of difference between best and worst practices in terms of resource efficiency in the textile and garment sectors. This means there are significant opportunities to optimize the environmental and social footprints, but they require an up-front focus on process design. The industry as a whole provides a context where relatively modern and existing technology can be deployed and used to address environmental impacts, whilst also achieving productivity and development gains.

Barriers to adopting cleaner production practices in textile manufacturing include a lack of: awareness and knowledge relating to inefficient practices and the availability of cleaner production techniques; skilled personnel; trusted information sources; context specific market offerings; accessible financing; and robust environmental

regulation to drive compliance and best practice.

Environmental regulation systems and institutions are still emerging in many Asian countries. Whilst there are shortfalls in these regulatory frameworks, these are exacerbated by significant additional deficits in monitoring, testing and compliance activities. Deficits include insufficient: institutional capacity in environmental agencies; skilled personnel within agencies; adequate testing and laboratory facilities; and deterrence for non-compliance.

The introduction of cleaner production techniques and the implementation of environmental regulation with strong monitoring and compliance activities will provide the opportunity to not only reduce environmental impacts, but also to develop high level enterprise and employment opportunities in the textile and garment sectors overall. Moving to cleaner production methods in the textile and garment industry will be a key enabler for a just transition. Cleaner production requires higher levels of skill in plant and operations management. Increased monitoring and enforcement of environmental regulations increases the demand for cleaner technology and production, which in turn provides a demand for new enterprises to meet this need. These new 'green' jobs will also need to include the decent work agenda, so that both the quantity and quality of jobs are enhanced. This will include the need to pay special attention to how women can access these new jobs.

Addressing environmental impacts can lead to truly sustainable development if attention is also paid to market and non-market barriers to the adoption of cleaner production. These include access to finance and trusted information sources, knowledge sharing, as well as the participation by and access of women to skills development, entrepreneurship and financial support.



Implementing the just transition guidelines - policy implications

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. On the other hand, transitions to low-carbon, environmentally and socially sustainable economies can become a strong driver of job creation, job upgrades, social justice and poverty eradication, allowing climate-resilient economic growth and sustainable development.¹

While the job creation potential outweighs the risks of job losses and overall positive labour market outcomes can be expected, specific policies to ensure an active engagement of the business world, notably through social dialogue and promoting social protection, are indispensable to ensure a just transition for all, leaving no-one behind.²

The ILO's (2015a) *Guidelines for a just transition towards environmentally sustainable economies and societies for all* (the Just Transition Guidelines, see Box 9 for further details) offer the ILO and its constituents a framework and practical tool to ensure that national and global efforts to tackle climate change and other environmental challenges also advance equal employment creation goals, social justice and fair transitions for workers, enterprises and communities (Figure 18).

Box 9. Overview of ILO's Just Transition Guidelines

The Just Transition Guidelines include:

- 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 job loss and ensure that adjustments related to greening policies are well managed;
- occupational safety and health policies to protect workers from occupational hazards and risks;
- skills development to ensure adequate skills at all levels to promote the greening of the economy;
- the establishment of mechanisms for social dialogue throughout;
- policy-making processes at all levels; and
- policy coherence and institutional arrangements for the mainstreaming of sustainable development and to ensure stakeholder dialogue and coordination between policy fields.

1. For example, developing high value products from waste products such as hollow blocks made of plastic and building houses from plastic.

2. ILO: *A just transition to climate-resilient economies and societies: Issues and perspectives for the world of work*, 2016, https://www.ilo.org/global/topics/green-jobs/publications/WCMS_536552/lang-en/index.htm [accessed 20 June 2019].

Figure 18. ILO guidelines for a just transition



Source: ILO: *Implementing guidelines for a just transition in Asia and the Pacific: Lessons from the Philippines* (Bangkok, 2018), https://www.ilo.org/asia/publications/issue-briefs/WCMS_620874/lang--en/index.htm [accessed 2 Apr. 2019].

The Just Transition Guidelines can also help countries at all levels of development manage the transition to a low-carbon economy and assist them to achieve their Intended Nationally Determined Contributions and the 2030 Sustainable Development Agenda. A just transition can also only be achieved if women are actively involved in developing and implementing all aspects of climate change mitigation and adaptation (Box 10). In addition, targeted programmes and strategies, including those related to green jobs and indigenous peoples, can be instrumental in realizing indigenous peoples' potential to be crucial agents of change. The Just Transition Guidelines can also help to utilize traditional knowledge systems for effective climate action, as well as poverty reduction and green growth.³

Designed to promote decent work on a large scale and to ensure that social protection

Figure 19. ILO support for implementation of just transition guidelines.



Source: ILO: *Implementing guidelines for a just transition in Asia and the Pacific: Lessons from the Philippines* (Bangkok, 2018), https://www.ilo.org/asia/publications/issue-briefs/WCMS_620874/lang--en/index.htm [accessed 2 Apr. 2019].

operates where needed, these guidelines also include mechanisms to enhance social dialogue between governments and workers' and employers' organizations throughout the policy-making processes (Figure 19). Subsequent to adoption of the guidelines, the ILO has increased support to member states on just transition issues, including in the Philippines, Ghana and Uruguay. These countries are undertaking a pilot role, through the Sida-ILO Partnership Programme and complemented by the ILO Regular Budget Supplementary Account (RBSA).

3. ILO: *Green initiative policy brief: Indigenous people and climate change: From victims to change agents through decent work* (Geneva, 2018), https://www.ilo.org/global/topics/green-jobs/publications/WCMS_614304/lang--en/index.htm [accessed 2 Apr. 2019].

Box 10. A just transition and gender

As was underlined by the Gender Action Plan that was adopted at the COP23, a just transition to sustainable development can only be achieved if women are actively involved in developing and implementing all aspects of climate change mitigation and adaptation. Women are overrepresented among vulnerable workers, and climate change risks widen existing gender gaps. At the same time, addressing gender equality as an integral part of climate action can contribute to achieving both gender equality and effective mitigation and adaptation measures. In the rural economy such as agriculture and forestry, women, including indigenous and tribal women, are already playing an important role as workers and entrepreneurs. A just transition of the workforce and related enterprises can:

- Address gender inequalities if equality of opportunity and treatment of women and men is established as a specific focus and goal from the outset. Such an approach presents an opportunity to

ensure that sectoral and occupational segregation is not perpetuated, wage and skills gaps are eradicated, inclusive social dialogue is established, working conditions are improved, and social protection is enhanced.

- Transform and redefine jobs and workplaces by improving skills, and reducing health and safety risks, which are often worse for women.
- Open up new labour market opportunities, facilitating the formalization of the currently unregulated economic activities and jobs held by women.
- Ensure that women are not left behind, and that their existing and potential contributions, which are essential for stimulating green growth and achieving sustainable development for all, are not undermined.
- Address the continued over-representation of women in unpaid household and care work.

Source: ILO: *Gender, labour and a just transition towards environmentally sustainable economies and societies for all* (Geneva, 2017), https://www.ilo.org/global/topics/equality-and-discrimination/publications/WCMS_592348/lang--en/index.htm [accessed 3 Apr. 2019].

4.1 What are the just transition pilots?

The key objectives at the national level of the pilot application of the just transition guidelines, according to the ILO and Sida (2017) report,⁴ are: (i) to support countries in creating employment, ensuring social well-being and protecting natural resources; and (ii) to build a tested intervention model and best practice examples for other countries wishing to follow the Just

Transition Guidelines and adopt green jobs strategies that enhance economic and social inclusion while addressing climate change and implementing low-emission development strategies. Social dialogue provides the basis for the identification of national priorities and the elaboration of national strategies and policies for a just transition.

The Philippines is the first country to have a just transition pilot, as an integral part of

4. ILO and Sida: *Sida-ILO partnership programme, phase II (2016-17): Final report 2016-17 (PARDEV, 2017)*.

realizing environmental sustainability, job creation and social justice. Uruguay has also commenced a pilot. A similar process will be introduced in Ghana, with a view to expanding this work to more countries.

The Philippines (Box 11) and Uruguay (Box 12) started implementation of the guidelines through national consultations, training for trade unions and prioritization, supported by internal and external resource mobilization. Special emphasis is placed on knowledge management and knowledge sharing. This included reaching out to existing relevant platforms while also supporting external and internal knowledge exchanges, adapting to fit the needs of constituents and staff, and serving as a support base for project implementation. The project's knowledge exchange includes research, reports and studies, but also provides vital channels through which stakeholders can share case studies, lessons learned and good practices, ask for guidance and advice, and discuss topics related to green jobs and the transition to the green economy.

Box 11. Philippines pilot project

The Philippines pilot project, which ran from June 2016 to June 2018, was designed to enable its constituents – the government, workers' and employers' organizations – to leverage the process of structural change in order to develop a sustainable, low carbon, climate-resilient economy that will create decent jobs on a significant scale and in a sustained and inclusive manner. The project, funded by the Swedish International Development Cooperation Agency and the RBSA, supports the operationalization of the Philippine Green Jobs Act and national goals, as well as international commitments, such as the 2030 Sustainable Development Agenda and the Philippines' Nationally Determined Contributions (NDC) to addressing climate change. The main activities included:

- Establishment of a Tripartite Project Advisory Committee and Multipartite Technical Working Group, which serve as the main platform for social dialogue and which provide policy and programming direction, lead the just transition initiatives and facilitate institutionalization of project results.
- Conducting foundational training workshops on green jobs and just transition for tripartite constituents.
- Integration of the promotion of green jobs and addressing the just transition issues into national frameworks and policies, including the 2017-2022 Philippine Development Plan and the Philippines' Nationally Determined Contribution.
- Support for the crafting of the Green Jobs Act Implementing Rules and Regulations.
- Development of the assessment and certification standards required to access incentives under the Green Jobs Act.
- Integration of the just transition framework into the development of the National Green Jobs Human Resource Development (HRD) Plan.
- Support to pilot the development of a comprehensive system of statistics on employment in the environmental sector and green jobs, through labour force and establishment surveys.
- Policy analysis and employment projections being conducted in key sectors, to help formulate response measures to ensure a just transition, which in turn feed into the development of the Green Jobs HRD Plan and inform the Nationally Determined Contribution.
- Updating of the Skills for Green Jobs country study, which analyses skills policies and strategies, skills provision at national, sectoral, local or enterprise level and which supports development of the government's strategic plan to green the technical and vocational education and training (TVET) system.
- Conducting high level policy forums to facilitate integration of results into policy decision-making and development of relevant national frameworks.
- Piloting of the green business training programme, in collaboration with government, academe and training providers.
- Developing and conducting gender-responsive and inclusive advocacy strategies, together with key stakeholders.
- Development and operationalization of the comprehensive just transition framework, to help address transition issues for the mining sector in a key mining region within the country.
- Facilitating regional dialogue on Green growth for jobs and social inclusion: Making the case for a just transition in Asia, which provided a platform through which to share the Philippines' experiences in applying the just transition policy guidelines with other Asian countries; and identifying ways to advance the initiative in the region.

Source: ILO: *Implementing guidelines for a just transition in Asia and the Pacific: Lessons from the Philippines* (Bangkok, 2018), https://www.ilo.org/asia/publications/issue-briefs/WCMS_620874/lang--en/index.htm [accessed 2 Apr. 2019].

Box 12. Uruguay project

Uruguay's Decent Work Country Programme focuses, among other things, on productive development, with the aim of boosting business development and job creation. To align the national productive development objectives with the global agenda on sustainable development goals (SDGs) and action on climate change, the country is increasingly interested in promoting a just transition towards a green economy. In 2015, a green jobs assessment was conducted to obtain an estimate of the existing number of green jobs in Uruguay and their contribution to gross domestic product (GDP).

The ILO, through Sida funding, supports Uruguay in applying the just transition guidelines. The objective of the project is to create employment, ensure social

well-being and protect natural resources through the formulation of green jobs strategies that enhance economic and social inclusion while addressing climate change and implementing low-emission development strategies. Since January 2016, project activities include:

- project steering committee and national dialogue: consultations with tripartite stakeholders through meetings and presentations;
- studies on renewable energy and citrus sectors;
- capacity building through workshops and forums; and
- collaboration with other development partners.

Source: ILO: *Implementing guidelines for a just transition in Asia and the Pacific: Lessons from the Philippines* (Bangkok, 2018), https://www.ilo.org/asia/publications/issue-briefs/WCMS_620874/lang--en/index.htm [accessed 2 Apr. 2019].

4.2 Just transition pilot project achievements

Both pilot projects have achieved a number of outcomes that have contributed to the promotion of green and decent jobs (Table 8). Two key outcomes are:

- Constituents create an enabling environment for sustainable enterprises to prosper and create decent work opportunities through ex-ante assessments of the employment and socio-economic impacts of environmental policies to inform future policy choices at the macro and sectoral levels.
- Constituents have built intervention models for integrated and effective just transition measures at the industry,

enterprise and local levels, where social partners, national and local authorities and other stakeholders will play key roles.

Both the Philippines and Uruguay have, or are establishing, a broad national strategy to promote green decent work and targeted initiatives to tackle transitional issues in particular sectors. Key aspects of a national strategy include: establishing a statistical baseline (e.g. a green job assessment); developing analytical capacity to anticipate the necessary labour market adjustments; and promoting buy-in through tripartite dialogue. In the Philippines, the Green Jobs Act was enacted in 2016 (Box 13).⁵ This was informed by previous studies conducted by the ILO, green jobs mapping (2012) and the skills for green jobs country study (2009).

5. ILO: *Global forum on just transition: Main messages for the Asia-Pacific region and some open issues* (Geneva, 5 Dec. 2017).

Table 8. Outcomes from the Philippines and Uruguay pilot projects

Philippines	Uruguay
Multipartite co-operation mechanism established and functioning, composed of key government agencies, social partners, key stakeholders and experts.	Meetings with stakeholders; defining priorities; and presenting green jobs assessments and statistics.
Capacity of the government and social partners to measure green jobs and analyze environmental, economic and labour market linkages developed.	Research into the renewable energy sector and the citrus sector.
Forums conducted to share the results of various studies, to facilitate the integration of these results into policy decision-making and development of relevant national frameworks, including the Philippine Development Plan, National Green Jobs Human Resource Development Plan, and the Nationally Determined Contribution.	Capacity building through the October 2016, ITC/ILO organized Global Academy on Green Economy and resultant Uruguayan action plan that provided additional guidance for the implementation of the just transition project. National green jobs workshops (June 2017) increased knowledge and understanding of green jobs, strategies and policies to promote the creation of green jobs.
Green jobs advocacy strategies developed and implemented, including capacity building for green jobs ‘champions’ and development of knowledge products.	Collaboration with other actors, such as the UN Environment Programme and German Society for International Co-operation (GIZ) leading to a GIZ-led regional workshop on green economy (2017) in Montevideo.
Constituents built intervention models for integrated and effective just transition measures at the industry, enterprise and local levels, where social partners, national and local authorities and other stakeholders will play key roles.	

Source: ILO: *Implementing guidelines for a just transition in Asia and the Pacific: Lessons from the Philippines* (Bangkok, 2018), https://www.ilo.org/asia/publications/issue-briefs/WCMS_620874/lang-en/index.htm [accessed 2 Apr. 2019].

Sector-specific projects include the promotion of more climate resilient agriculture in Ghana; and the development of a socially responsible plan in response to the government’s call to shut down mining companies that are not complying with environmental policies. This is in addition to anticipating end-of-life mines in the Philippines, for which engagement was led

by the unions working in close collaboration with employers and the government (Box 14). These examples appear to have been quite resource intensive and may not be easily replicated in full. However, a more piecemeal adoption of components of these ambitious pilot programmes appears to hold considerable promise.⁶

6. ILO: *Global forum on just transition: Main messages for the Asia-Pacific region and some open issues* (Geneva, 5 Dec. 2017).

Box 13. The Philippines and the Green Jobs Act

In April 2016, the Green Jobs Act (GJA) was passed into law, to accelerate the promotion of sustainable growth and decent job creation, while building resilience against impacts of climate change. The GJA provides fiscal and non-fiscal incentives to enterprises generating green jobs across all economic sectors and requires a whole-of-government approach for its implementation. Fiscal incentives include:

a) A special deduction from the enterprise's taxable income equivalent to fifty per cent of the total expenses for skills training and research development expenses, over and above the allowable ordinary business deductions for these expenses, under the National Internal Revenue Code of 1997.

b) Tax and duty-free importation of capital equipment, provided the equipment is used directly and exclusively for the promotion of green jobs in the business' enterprise.

The Act takes a pioneering approach to institutionalize labour and employment dimensions within the climate change and environmental issues policy framework. It provides for the development of the human capital needed to enable and sustain the transition to a green economy. The legislation has defined green jobs as decent jobs that contribute to preserving and restoring the quality of the environment, be it in the agriculture, industry or services sectors.

The Green Jobs Act requires the development and implementation

of a Green Jobs Human Resource Development (HRD) Plan. This plan will include: programmes, projects and activities pertaining to basic, higher and technical vocational education and training; a database that identifies and links green job opportunities with private and public entities; and information on the knowledge and skills requirements of a green economy.

The green jobs HRD plan, which adopts the just transition framework, is crucial for driving the creation of more decent jobs, equal opportunities, and the promotion of social justice and workers' welfare. The plan will also identify just transition measures for those who will be negatively affected by structural shifts and the impacts of climate change, to ensure that everyone benefits from the green transition.

The Act has profited from extensive social dialogue with stakeholders in the economy, including workers' and employers' representatives. As a result, the Green Jobs Act Implementing Rules and Regulations include recognition of the need to pursue a just transition in the promotion of a green economy, including ensuring "job security for workers affected by the transition process and driving economic prosperity, decent job creation, sustainable and resilient livelihoods and communities, poverty reduction and social justice, anchored on social dialogue and tripartism at all levels".

Source: ILO: *Green initiative policy brief: Active labour market policies* (Geneva, 2017), https://www.ilo.org/global/topics/green-jobs/publications/WCMS_614301 [accessed 2 Apr. 2019]; and ILO: *Global forum on just transition: Main messages for the Asia-Pacific region and some open issues* (Geneva, 5 Dec. 2017).

Box 14. Mining closures

The Philippine government issued closure and suspension orders for more than 20 mining companies due to non-compliance with environmental policies, and nearing end-of-life mines. This brought to the fore not only mining issues, but also the vulnerability of workers, communities, government sectors, and enterprises. It also highlighted the necessity for comprehensive and coherent policies and measures to address the multifaceted challenges and to pursue an environmentally sustainable growth, while ensuring a just transition for those affected.

Through the ILO, consultations were organized with national and local governments, trade unions, employers, and other stakeholders, which resulted in a nine-point policy framework to transition the mining sector. While the primary objective was to support the transition of workers affected by cessation

of mining operations, the framework also provided strategies to improve the performance of the mining sector. This included: strengthening compliance with environmental, labour, and safety and health standards; anticipating mining transitions; and repositioning the mining region to optimize its growth potential towards a sustainable, climate-resilient and inclusive pathway that creates decent, greener jobs.

The framework includes measures to: strengthen social dialogue mechanisms and tripartism; build the capacity of institutions to enforce existing laws; ensure proper compensation measures; retool and upskill workers; promote economic diversification; guarantee social protection and insurance; and establish funding mechanisms. The operationalization of the framework is being piloted in a key mining region in the Philippines.

Source: ILO: *Global forum on just transition: Main messages for the Asia-Pacific region and some open issues* (Geneva, 5 Dec. 2017).

The major obstacle to implementing the just transition framework reported by constituents in the Philippines is the preconceived notion that preparation for a just transition will entail additional cost.⁷ Businesses and policy-making agencies involved in the Philippines pilot project identified the following challenges.

Business challenges

- Access to technology and expertise to implement green projects (i.e. where and how to obtain these).

- Corresponding cost considerations (i.e. low-cost/no cost interventions) in light of the capital investments that need to be made.
- There is a need to demonstrate the value added i.e. the business case for how green technology can make businesses more competitive, attract customers, and make profit. Technical assistance for micro and small enterprises (MSMEs) is needed in the form of capacity building and training, to address skills gaps.

7. ILO: *Green growth for jobs and social inclusion: Making the case for a just transition in Asia*, (Manila, 25-27 Sep. 2017); and ILO: *Global forum on just transition: Main messages for the Asia-Pacific region and some open issues* (Geneva, 5 Dec. 2017).

Policy-making agency obstacles:

- Bringing the concept of climate change, its related impacts and actions, to the local community level is a challenge. Clearly articulating policies that are scientifically and empirically based and communicating the rationale in terms of statistics or by framing the case in terms of jobs and livelihoods.
- Raising awareness at the local level is one of the biggest challenges that policy-making agencies are trying to surmount (Box 15).

Box 15. The Philippines Climate Change Commission

The Philippines Climate Change Commission is directing considerable effort towards having communities produce local adaptation plans, which are mandated by law. Within the Philippines, there is currently 30 - 60 per cent compliance by local government units (LGUs) in terms of climate change action plans, but the lack of technical capacity means there is an issue with the quality of these plans. In addition to the current requirements for local adaptation plans, the potential for green jobs creation needs to be considered.

Source: ILO: *Global forum on just transition: Main messages for the Asia-Pacific region and some open issues* (Geneva, 5 Dec. 2017).

4.3 Strategies for a broader application of the just transition guidelines

As the ILO celebrates 100 years of operation in 2019, it is committed to intensifying efforts to promote a just transition in the Asia-Pacific region, while also underlining that this will be a long and complex process. It will be important to engage in short-term activities with clearly evident outcomes, but also to build a solid foundation on which to advance beyond these initial successes. As the context and resources available for just transition planning will vary across countries, consideration needs to be given to how resources, learning and best practice can be shared and leveraged across all countries. This will both minimize the resources required and accelerate the overall process. Findings from the two pilot projects discussed here are already highlighting opportunities for other countries to consider in developing their just transition planning processes (Box 16).

Box 16. Country intervention: Issues to be taken into consideration

Several considerations should be taken into account when intervening:

Should intervention be on a fairly large and comprehensive scale but only in a few countries; or should resources be spread more evenly across countries, with more targeted projects being promoted?

Diversifying research and experience into other relevant sectors, not just the shift to clean energy. The most strategic sector(s) upon which to focus initially will vary from country to country.

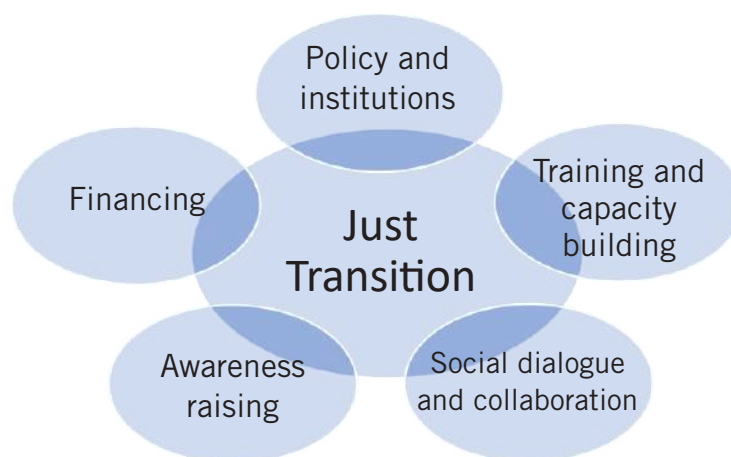
Climate adaptation or climate mitigation deserve to receive the most immediate attention. In many developing countries,

especially those that are particularly vulnerable to adverse impacts of climate change, tying decent work promotion to climate adaptation may be the most urgent consideration.

While the most vulnerable groups deserve priority, it may be more difficult to incorporate them into an effective tripartite process, increasing the risk of disappointing results. The challenge is to balance targeting the most vulnerable workers against targeting a group where the prospects for a successful intervention are greater. Other interventions focused on social protection of the most vulnerable are complementary to achieving resilience.

Source: ILO: *Global forum on just transition: Main messages for the Asia-Pacific region and some open issues* (Geneva, 5 Dec. 2017).

Figure 20. Five strategic areas for progressive actions⁸



8. ILO: *Implementing guidelines for a just transition in Asia and the Pacific: Lessons from the Philippines* (Bangkok, 2018), https://www.ilo.org/asia/publications/issue-briefs/WCMS_620874/lang--en/index.htm [accessed 2 Apr. 2019].

1. Policy and institutions

- Integrate a just transition into existing policies and incorporate it into the design of new policies.
- Integrate a just transition into country, regional and local strategic planning.
- Establish new, dedicated institutional units and collaborations within respective institutions.

2. Awareness raising

- Design just transition communication plans.
- Conduct awareness raising within government ministries and at the grassroots level.
- Pursue regional and international initiatives.
- Continue advocacy via various platforms and through linkages on specific issues.

3. Training and capacity building

- Design a roadmap for capacity building.
- Create new modules/curricula and integrate a just transition into existing ones.
- Map green skills/jobs worldwide in existing curricula and initiatives.
- Convene training programmes/workshops.

4. Social dialogue and collaboration

- Establish a hub for social dialogue.
- Develop partnerships across sectors, departments, and levels of governments.

- Ensure continuous dialogue, especially for issues affecting the most vulnerable.
- Encourage social dialogue and civil society collaboration.

5. Financing

- Pursue Green Climate Fund accreditation.
- Address adequate financing for MSMEs, mainstreaming these into credit policies.
- Design training for how to package new loan or investment proposals for green industry operations.
- Facilitate doing business: attracting green investment and ensuring conduciveness.
- Integrate a just transition in local government and civil society organisations and provide them with the capacity to undertake relevant actions.

Key ingredients for promoting and applying just transition include the following.⁹

- **Awareness raising** - a “continuous and aggressive awareness raising campaign” entails communicating the definition of a just transition, its impacts, challenges and opportunities for everyone. It is important to ensure that businesses will continue to be viable and profitable, particularly for MSMEs, which may lack the capacity to implement these changes, but which comprise a large segment of relevant establishments across the country.
- **Social dialogue** - is the key means of forging a way towards a just transition. Social dialogue is rationalized across all sectors and agencies according to their mandates (rules, regulations and statutes). Implementation issues need to

9. ILO: *Global forum on just transition: Main messages for the Asia-Pacific region and some open issues* (Geneva, 5 Dec. 2017).

be addressed pragmatically, with actions across all aspects of governance from the national down to the local level, and from both management and worker viewpoints. Worker-management relations can be enhanced to include environmental performance in order to ensure business resilience. Social dialogue on skills training needs to be institutionalized through TVET departments and agencies, to develop and promote green initiatives and strengthen green technology centers.

- **Safety nets and technical assistance** - there is a need to prepare workers from sectors that may move to new green industries, through measures such as income diversification and skills training, and proper management systems are needed to facilitate such a shift. Continuous engagement with workers and employers through multi-sector dialogue is required, to promote the exchange of ideas across sectors and to work towards a unity of purpose. Small business technical assistance is also important, in the form of capacity building and training to address skills gaps.

Table 9: Key lessons from the Philippines pilot

Tripartite ownership	<p>The Philippines pilot shows the importance of the tripartite constituents having ownership of the just transition process. This was achieved by establishing a tripartite project advisory committee and multipartite technical working group. Training workshops on green jobs and a just transition were organized for the tripartite constituents.</p> <p>Social dialogue will be imperative in the Blue Pacific BOS to make environmental governance more labour- friendly by promoting frameworks, legislation and policies that equally include labour and environmental concerns.</p>
Existing legislation	<p>Before the pilot, the Philippines had already adopted the Green Jobs Act and the pilot supported the development of the Green Jobs Act Implementing Rules and Regulations. The goal of the Green Jobs Act is to accelerate the promotion of sustainable growth and decent job creation, while building resilience against climate change impacts. The Act provides for fiscal and non-fiscal incentives to enterprises generating green jobs across all economic sectors and requires a whole-of-government approach in its implementation.</p> <p>Since none of the Blue Pacific BOS has a Green Jobs Act or similar legislation, the just transition process in the Blue Pacific BOS could start with scoping studies on introducing such legislation.</p>
Need for statistics	<p>The Philippines pilot shows the importance of having reliable and up-to-date environmental and decent work data, which serve as a baseline against which to measure progress on a just transition. At present, such data is largely unavailable in the Blue Pacific BOS. In the Blue Pacific BOS, a key aspect of the just transition will be establishing a statistical baseline of environment and decent work data. In order to collect data on decent work and green jobs, labour force surveys and establishment surveys have to be organized. In order to measure progress regionally and compare countries with each other, a uniform definition of green jobs is required.</p>
Skills development	<p>The Philippines has developed a National Green Jobs Human Resource Development Plan, which covers programmes in basic and higher education, and technical and vocational education and training (TVET). It also includes a database that identifies green job opportunities and provides information on skills requirements for green jobs. It will be necessary for the Blue Pacific BOS to develop green jobs human resource development plans, especially as human resource development planning is still in its infancy in most Blue Pacific BOS.</p> <p>Green business training programmes were also organized under the Philippines pilot. They demonstrate to business-owners how green technology can make businesses more competitive and attract customers.</p>
Industry transitions	<p>In the Philippines, the just transition framework addresses transition issues in the mining sector but does not explicitly address transition issues in other industries. The Philippine government issued closure and suspension orders for more than 20 mining companies. A policy framework to transition the mining sector was developed, with the primary objective of supporting the transition of workers affected by cessation of mining operations, while also providing strategies that will contribute to improving the performance of the mining sector.</p> <p>Among the Blue Pacific BOS, PNG is particularly dependent on the mining and petroleum sector as a driver for economic growth. PNG could apply some aspects of the Philippines' just transition approach to its mining industry. Furthermore, the Blue Pacific BOS could include strategies for transitioning important industries in the region, namely agriculture, fishing, tourism and forestry/logging.</p>

Source: ILO: *Implementing guidelines for a just transition in Asia and the Pacific: Lessons from the Philippines* (Bangkok, 2018), https://www.ilo.org/asia/publications/issue-briefs/WCMS_620874/lang--en/index.htm [accessed 2 Apr. 2019].



Conclusion: The way forward

This report on green jobs and environmental sustainability in the Asia-Pacific region shows the vital importance of assessing and planning for a just transition to move the region towards a low carbon future. The impacts of climate change threaten the region's unique and expansive biodiversity and ecosystems, both of which contribute significantly to economic activity and livelihoods across the region. Climate change will also exacerbate existing pressures of rapid urbanization, agricultural expansion and intensification, and the need for carefully balanced natural resource and environmental management. These pressures have the potential to negatively affect the region's ability to sustainably develop and achieve the goals under the United Nation's 2030 Sustainable Development Agenda.

Green jobs are both a mechanism to achieve sustainable development and an outcome of sustainability. They provide the double dividend of employment and reduced environmental impacts. Green jobs are decent jobs in economic sectors and activities which help reduce negative environmental impacts by: reducing energy and greenhouse gas emissions by using renewable energy; minimising energy, waste and pollution to protect and restore ecosystems; and supporting activities that assist resilience and adaptation to climate change.

The ILO has identified that by 2030 an additional 14.2 million (net) green jobs could possibly be generated in the Asia-Pacific region. This forecast assumes the region will shift to renewable energy sources, that energy efficiency standards are increased in building and construction, and that transportation shifts to (renewable) electric sources. Accessing this green job growth

requires policy planning and implementation, including for policy coherence, industrial innovation and change, and the upgrading and reskilling of workers and young people to take advantage of these new jobs.

Enabling a just transition, and planning for this transition, means that the opportunity offered by sustainable development and green job creation from de-carbonisation and adaptation also results in better jobs and decent jobs. It also means that those workers, firms, local regions and sectors affected by the need to de-carbonise and adapt to climate change receive the support, information, training and capacity they need to successfully transition. Green jobs and decent jobs need to be planned for, as they will not necessarily occur automatically or in the volume required unless just transition planning takes place. The ILO stands ready to assist by helping to guide and build capacity to develop just transition plans.

Any direct investment specifically targeting decarbonisation, such as renewable energy and climate resilience infrastructure, also needs to explicitly consider the employment dimension. The challenge in this sphere is to activate local job markets and provide local workers with the skills to take up the opportunities presented by the green economy. The importance of creating permanent local employment within these projects should be a key component of any funding or investment undertaken in the Asia-Pacific region. Such strategies will provide for a just transition to emerge from these investments, ensuring that local communities have tangible personal engagement and receive the full range of benefits from these projects.

This report has identified a number of immediate actions to support a just transition and create green jobs in Asia and the Pacific, as outlined below.

Data collection and analysis of green jobs – there is a need across the region to have a consistent measure of current levels and sectors in which green jobs exist, and to map the potential for green job creation. Data sources need to be locally specific and data collection, including subsequent data collection, needs to occur at the national, and ideally sub-national levels. This may require the creation of proxies or indexes to estimate green job growth potential, if national statistical collections do not currently support this type of analysis.

Mapping supporting policy and industry needs for green job creation – accessing green job growth will require changes in policy at national and local levels, but also changes in industrial processes and activities. Awareness and proficiency in how to initiate and successfully achieve these activities is essential. Knowledge in the form of best practice case studies, knowledge sharing dialogues and information sources and platforms are needed to ensure this expertise is developed and shared across the region.

Institutional capacity building for just transition planning – planning for a just transition represents a new activity for governments, industry sectors, employers and workers. Capacity to undertake this planning is not necessarily pre-existing in all organisations. As the two just transition pilots show, planning for a just transition also relies upon a high degree of policy coherence for success. Investments are needed in building knowledge and capacity across organisations. This includes documenting and sharing experiences in planning for a just transition, identifying characteristics and success criteria for this planning, and developing tools, training, advice and guidance on

adopting just transition planning.

Linking employment and labour markets to NDC and commitments to international agreements

– action to address climate change and decarbonise economies provide a significant driver for green job creation. However, many commitments to international agreements, including Nationally Determined Contributions (NDCs) to the Paris Agreement are made without connections to labour markets and the implications these commitments will have on labour markets, and the related skills and training needs and institutions.

The process of planning and enacting a just transition will be complex, and time and resource intensive. It will require all constituents and civil society partners to develop new capacities, and to collaborate and coordinate activities to achieve the positive outcomes that a just transition can provide. Through social dialogue with partners, and leading research and data collection, the ILO will continue to generate and share knowledge through new tools and dissemination of best practice, to enable this transition in the Asia-Pacific region.

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Annex

ILO's Guidelines for a just transition

Based on the conclusions of the 102nd International Labour Conference (2013), the ILO adopted the *Guidelines for a just transition towards environmentally sustainable economies and societies for all* in November 2015. The Guidelines include:

- employment-centred macroeconomic and growth policies;
- environmental regulations in targeted industries and sectors;
- creating an enabling environment for sustainable and greener enterprises;
- 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;
- occupational safety and health policies to protect workers from occupational hazards and risks;
- skills development to ensure adequate skills at all levels to promote the greening of the economy;
- the establishment of mechanisms for social dialogue throughout policy-making processes at all levels; and
- policy coherence and institutional arrangements for the mainstreaming of sustainable development and ensuring stakeholder dialogue and coordination between policy fields.

Key themes for the Pacific region raised at the Knowledge Sharing Dialogue in Apia, Samoa in November 2018

- Sustainable agriculture and food security
- Renewable energy
- Water management and sanitation
- Waste management
- Circular economy
- Capacity-building for constituents
- Policy design and implementation
- Local, sustainable employment from climate change projects

- Building entrepreneurship
- Appropriate regulatory and legislative framework
- Developing of small and medium-sized enterprises
- Skills-matching for youth
- Training for the informal sector
- Development of business continuity plans
- Disaster risk reduction
- Data collection and management
- Women's access to work
- Tourism
- Ocean management and fisheries
- Climate change awareness in schools.

Main activities of the Philippines pilot project

- Establishment of a tripartite project advisory committee and multipartite technical working group, which serves as the main platform for social dialogue, provides policy and programming direction, leads the just transition initiatives, and facilitates institutionalization of project results.
- Conducted foundational training workshops on green jobs and a just transition for tripartite constituents.
- Integration of the promotion of green jobs and the need to address just transition issues into national frameworks and policies, including the 2017-2022 Philippine Development Plan and the Philippines' Nationally Determined Contribution.
- Support to craft the Green Jobs Act Implementing Rules and Regulations.
- Development of the assessment and certification standards for the accession of incentives under the Green Jobs Act.
- Integration of the just transition framework into the development of the National Green Jobs Human Resource Development (HRD) Plan.
- Support to pilot the development of a comprehensive system of statistics on employment in the environmental sector and in green jobs, through labour force and establishment surveys.
- Conducted policy analysis and employment projections in key sectors to inform response measures to ensure a just transition, which fed into the development of the Green Jobs HRD Plan and which informed the Nationally Determined Contribution.
- Updating of the Skills for Green Jobs country study, which analyses skills policies and strategies, skills provision at the national, sectoral, local or enterprise levels, and provides support to the

- Development of the government's strategic plan to green the TVET system.
- Conducted high level policy forums to facilitate integration of results into policy decision-making and development of relevant national frameworks.
- Piloting the green business training programme, in collaboration with the government, academe and training providers.
- Developed and conducted gender-responsive and inclusive advocacy strategies, together with key stakeholders.
- Development and operationalization of the comprehensive just transition framework to help address mining sector transition issues within a key mining region of the country.
- Conducted the regional dialogue on Green growth for jobs and social inclusion: Making the case for a just transition in Asia, which provided a platform through which to share the Philippines' experience in applying the just transition policy guidelines with other Asian countries and by which to identify ways to advance the initiative in the region.

Asia-Pacific region factsheet links

Afghanistan https://www.ilo.org/asia/publications/issue-briefs/WCMS_625888/lang--en/index.htm

Asia and the Pacific https://www.ilo.org/asia/publications/issue-briefs/WCMS_624556/lang--en/index.htm

Association of South-east Asian nations (ASEAN) https://www.ilo.org/wcmstp5/groups/public/---asia/---ro-bangkok/documents/publication/wcms_646185.pdf

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