## **Preparing for the future of work:** National policy responses in ASEAN +6



International Labour Organization





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## Preface

The year 2019 marks the centenary of the International Labour Organization (ILO). This milestone comes at a time when all countries are experiencing transformative changes in the world of work as a result of rapid technological innovation, demographic shifts and climate change. There has thus been a double aim of this centenary year – celebrating the ILO's achievements over the last 100 years while also looking ahead to take its mandate of social justice into the next century. The latter objective is now espoused in the Centenary Declaration, adopted by ILO constituents at the 108th session of the International Labour Conference in June 2019. The Declaration calls for a "human-centred approach for the future of work" that focuses on increasing investment in people's capabilities, in the institutions of work and in productive employment and decent work.

This report, *Preparing for the future of work: National policy responses in ASEAN +6*, examines how well countries are currently aligned to the human-centred agenda for the future of work. As much as people need to adapt to the technological and environmental changes being thrust upon them, policy responses need to adapt as well. Thus, the report takes a look at the policy directions of countries with a critical eye on their capacity and eagerness to shape a future with decent work for all. To do so, the authors examined policies, strategies and plans linked to technological changes, demographic shifts and climate change in ten ASEAN countries and their six main trading partners (ASEAN +6).

Although it is a vast region, by no mean homogeneous on the socio-economic front, there is one common feature found among many countries in the region: labour market issues are found to be treated as an afterthought in most of the national policy documents reviewed, especially those linked to "Industry 4.0" where economic interests often trump social considerations. Likewise, in policies and plans on ageing, many countries now promote the extension of working years without sufficient forethought on the possible consequences to older workers and the families that support them. Meanwhile, strategies to encourage a greener economy tend to miss opportunities to include "just transition" measures that would help address the social impacts of greening. These are some of the shortcomings noted in the report which show there is still much work to be done to make future of work planning more human-centred. Nonetheless, the report also highlights examples of innovative policy actions that seek to promote decent work as part of national future of work planning.

The report reflects the diversity of countries in their national preparedness for a human-centred agenda for the future of work. It offers a baseline from which to assess progress on the Centenary Declaration at the national level going forward. All countries are found to be adapting their policies in response to the future of work mega trends. As they do so they will all benefit from the reminder that putting people and the work they do at the centre of economic and social policy is the right way forward if the ultimate aim is to drive growth, equity and sustainability for current and future generations.

and Notite

Tomoko Nishimoto Assistant Director-General and Regional Director for Asia and the Pacific International Labour Organization

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## Abbreviations

ALMP	active labour market policy				
ASEAN	Association of South-East Asian Nations				
DWCP	Decent Work Country Programme				
GC	Global Commission (on the Future of Work)				
GDELT	Global Database of Events, Language and Tone				
GDP	gross domestic product				
ІСТ	information and communications technology				
ILO	International Labour Organization				
14.0	Industry 4.0				
MSME	micro, small and medium-sized enterprise				
OECD	Organisation for Economic Co-operation and Development				
OSH	Occupational safety and health				
SDG	Sustainable Development Goal				
STEM	science, technology, engineering and mathematics				
TVET	technical and vocational education and training				
4IR	Fourth Industrial Revolution				

## **1** Introduction

Although the trends impacting the future of work are perpetually shifting, governments and social partners are not taking a passive approach in their institutional responses. Countries in the Asia-Pacific region, as elsewhere, are already responding to public expectations, attitudes and concerns about the future of work to define strategies and implement policies in reaction to the transformations seen to be changing societies and the world of work. Among the "mega trends" driving changes in the world of work are rapid technological changes, demographic shifts and climate change.

This report, *Preparing for the future of work: National policy responses in ASEAN +6*, aims to map how countries are shifting their policy landscape in reaction to three mega trends shaping the future of work – technological change, demographic shifts and climate change (see box 1). The report highlights the commonalities and differences in national approaches across 16 Asia-Pacific countries and makes some tentative assessments of how labour markets are taken into account in future of work planning in the region. The hope is that generating an inventory of national approaches to preparing for the future of work will lend itself to an identification of policy gaps and best practices that can be shared across the region or even globally.

Another objective of this report is to view the national responses to the future of work in the context of the "brighter" future of work envisioned in a recent report published by the ILO Global Commission on the Future of Work, Work for a brighter future (ILO, 2019a). In late 2017, the ILO announced the establishment of a high-level Global Commission on the Future of Work. The members of the Global Commission were tasked to sift through the outcomes of the many national future of work dialogues, consult existing data and research and draft a summary report in advance of the International Labour Conference in 2019. On 22 January 2019, after nearly 20 months of deliberation, the ILO Global Commission issued a report (henceforth referred to as the GC report) that lays forth a plan of action for tripartite actors to manage the emerging trends in ways that address decent work deficits and advance the achievement of global development goals. The "human-centred agenda for the future of work" detailed in the GC report offers a yardstick against which national efforts on future of work planning can be held and thus lends itself to identification of policy implications and recommendations for the ASEAN +6 countries regarding the direction of their evolving policy responses linked to the future of work.

#### **Research methodology**

This report covers 16 countries in the Asia-Pacific region: ten ASEAN member States – Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Viet Nam – and the "+6" countries – Australia, China, India, Japan, New Zealand and the Republic of Korea. These 16 countries as a whole form the group ASEAN +6.1

For each country under consideration a systematic scan was made of policies, policy frameworks, strategies, plans, programmes and initiatives that relate to the targeted three mega trends: technological change, demographic shifts and climate change (see box 1). Under each of the three themes, responses to standardized questions were extracted on a country-by-country basis, with detailed information sought on the nature of each specific policy or strategy, the way in which labour markets are implicated and the role allotted to social partners – workers' and employers' organizations – in the policy formulation and implementation process.

National planning associated to technological changes were assessed through specific Industry 4.0 strategies, broad development strategies, economic and industrial planning as well as specific policies linked to science and technology and enterprise development. For demographics and climate change, a scan was made for specific policies and strategies while also reviewing how the themes were dealt with in the broader development framework.

This research considered policies, strategies, plans, programmes, initiatives and projects, adopted or undertaken by governments from at least 2015 and still being implemented at the cut-off date of June 2019. The resulting inventory of national responses to the three future of work themes are presented in three Annex documents which are available as separate e-documents: Annex 1 on the theme of technological changes, Annex 2 on demographic changes and Annex 3 on environmental and climate change.<sup>2</sup> The body of this report is a synthesis analysis of the resulting inventory of policies and strategies collected. For detailed information on each of the ASEAN +6 countries, readers are encouraged to consult the three Annexes.

<sup>1</sup> The group ASEAN +6 was first named in 2012 with the development of the Regional Comprehensive Economic Partnership, a proposed free-trade agreement involving the ten ASEAN member States and their six principal trading partners. For more information, see the ASEAN webpage: https://asean.org/?static\_post=rcep-regional-comprehensive-economic-partnership.

<sup>2</sup> Annexes are available at: www.ilo.org/futureasia.

#### Box 1. Mega trends of the future of work

The future of work is being moulded by multiple forces that are collectively termed as "mega trends". While the extent to which the mega trends shape the future of work in particular regions or countries may vary, it is evident that no region is entirely immune to any of these broad forces. The mega trends considered in this report and reviewed at the country level in terms of trends and policy responses are technology, demography and climate change.

#### **Technological change**

Technological change has always been a major driver of growth and development. Recent years have seen rapid advances on the technological front in domains like artificial intelligence, robotics, augmented reality and virtual reality, Internet of Things, 3-D printing, cloud computing and block chains. The application of the new technologies are expected to unleash a new wave of productivity gains in enterprises that manage to apply them in their production processes. The term "Industry 4.0" (I4.0) is used in relation to the application of new technologies, in particular "smart" technologies, in the industrial sector. The "Fourth Industrial Revolution" (4IR) is another recent terminology that invokes the idea that new technologies are "blurring the lines between the physical, digital, and biological spheres" to a degree that will shape the future of humankind. Changes brought about by technological advancements are not just limited to the factory floor. The nature of work – how people work, where they work, what jobs exist – is also being actively reshaped by new technologies and by the policies that shape their application.

#### **Demographic change**

Another mega trend which is already changing the way we work and organize our economies and society at large is the demographic changes that are happening in many parts of the world. Higher life expectancies coupled with lower mortality rates and lower reproduction rates has meant that increasingly many parts of the world are experiencing population ageing. In a few countries, population ageing is leading to declining labour force. Conversely, some countries continue to have comparatively young populations with sizeable youth cohorts that continue to feed the labour force. The impact of population ageing on GDP in countries is hard to gauge as it depends on labour force participation and productivity, which are in turn affected by demographics, but also on external factors like labour migration (World Bank, 2016). What is clear, however, is the fiscal effects that will come with increased pressure for spending on old-age pensions, healthcare and long-term care services.

#### **Environmental and climate change**

For some time now, humankind has used more resources and generate more waste than can be regenerated by the earth's natural resources. This has led to the collapse of fisheries, soil degradation, forced migration, atmospheric and water pollution and the loss of biodiversity (ILO, 2017a). It has also resulted in a change in global or regional climate patterns, a change especially apparent from the mid to late 20th century onwards, and attributed largely to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels. The impacts of environmental and climate change are already manifesting themselves in the forms of increased frequency of extreme weather conditions, erratic rainfall patterns, and increased vulnerability to disaster events, among others. A large portion of the global workforce still derive their livelihoods from the agricultural and allied sectors which are particularly prone to the impacts of climate change. In reaction to environmental and climate change, many countries now promote mitigation and adaptation strategies that are not neutral to the labour market as they create jobs in some sectors or parts of the economy while leading to job destruction in others. The impacts of environmental and climate change as well as the policy response towards them are therefore treated as a third mega trend driving the future of work.

#### Cautions

With so many elements of the future of work discourse still more vision than reality, this report aims to separate the hype from the action to give a clear picture of what ASEAN +6 member States are doing now in reaction to their visions of the future of work. It is worthy of noting, however, that the existence of a plan does not necessarily mean that the government is more active. In many cases, information on implementation was missing. As a result, this report has not attempted to verify direct outcomes of policies or even the degree to which policies are being implemented. The aim is more generally to demonstrate how each country views future of work issues and the degree to which their policy-making reflects their preparation for the future of work. Future assessments can be made on the progress and outcomes of the policies identified.

Another caution for readers of this report is that the authors had to focus in order to prevent the discussion from becoming too broad. The report purposely focuses on national responses to three future of work themes, namely technological changes, demographic shifts and climate change. There are certainly other themes that are undeniably current and linked to the future of work, but which are notably absent from this analysis - the most obvious of which is the changing patterns of trade and global supply chains. Trade tensions are on the rise, bringing with it a degree of uncertainty in the economies in the region that are heavily integrated into global supply chains. As uncertainties in trade and the future of globalization continue to play out in political realms, and given the difficulty in identifying policy responses, the choice was made to exclude the theme from this current analysis.

In addition, there are numerous additional labourrelated (and ILO focused) topics that will clearly extend into the future but which fall outside the typical understanding of "future of work" subject matters (which – rightly or wrongly – lean heavily on the side of technology). Good examples here include child labour, forced labour and occupational health and safety. These are subjects that remain as national concerns and priority areas of action within most of the ILO Decent Work Country Programmes (DWCP) that exist in the region. What distinguishes these themes from the themes covered in this scan is their longevity, i.e. they are not considered among the "new" topics in the standard dialogue on the "rapidly changing future of work".

#### Structure of the report

The remaining sections of this report are organized as follows:

Section 2 introduces current trends on the future of work in the region under review. It takes stock of the labour market situation and sets the scene for the review of policy responses in subsequent sections with an assessment of indicators related to the emerging issues (technology, demographic trends and climate change). The section also presents the results of a big data exercise to capture the attitudes, perceptions and expectations vis-à-vis the future of work at the country level.

Section 3 is the core of the report with its synthesis analysis of the national policy responses to the future of work made available in Annexes 1–3. It is sub-divided into three sections based on the future of work theme addressed: section 3.2 summarizes the national planning on technological change in the ASEAN +6 countries; section 3.3 does the same for national policies responding to demographic shifts, with a particular focus on ageing; section 3.4 analyses the array of national policy responses to environmental and climate change; and section 3.5 examines the role of social partners in influencing policies on the three themes.

Section 4 connects the current state of national responses to the future of work to the areas of action set forth in the GC report. It discusses the report's recommended actions and the degree to which the policies being rolled out in the ASEAN +6 countries align to the direction of the vision outlined. The section ends with a summation of the key observations generated from the synthesis analysis and a review of what more could be done to bring national and regional future of work planning closer to the "human-centred agenda".



## 2 Future of work trends and perceptions in ASEAN +6

#### 2.1 Introduction

By its nature, national action on the future of work is formulated according to the specific country context. There are differences between countries in the characteristics of their labour markets and economies which impact on their policy priorities in addressing the future of work challenges. Furthermore, expectations, perceptions and attitudes of the population in relation to the challenges and opportunities of the future of work are likely to vary across countries.

In order to set the context for the report, this section first sets the scene on the quantitative aspects of the future of work mega trends in ASEAN +6. It strives to show the extent to which these countries' labour markets and economies are impacted by these trends. It then uses big data as well as existing surveys to summarize the attitudes, perceptions and expectations about the future of work held by populations in the ASEAN +6 countries.

#### 2.2 Trends

### **2.2.1 Setting the context for future decent work prospects**

Despite improvements, labour markets in the region still have substantial decent work deficits.

Over the past decades, the region has undoubtedly shown rapid progress in pulling a large number of workers out of poverty (ILO, 2018a). Nevertheless, high levels of poverty among workers still exist in some countries and those remaining at near-poverty income levels remain highly vulnerable to any type of economic shock (figure 1). This also includes shocks related to disruptions in the world of work caused by technological change, demographic shifts or climate change. At the same time, informal employment remains the dominant form in most countries of the region. The regional estimate for South-East Asia and the Pacific is 75.2 per cent, meaning that still every three in four worker are employed in the informal economy (ILO, 2018b). Among countries with available data, the range given in figure 2 is from 18 per cent of workers in informal employment in Japan to more than 80 per cent in Cambodia, India, Indonesia and Lao People's Democratic Republic.



### Figure 1. Share of workers in extreme, moderate or near poverty (per cent in total employment), 2017 and 2023

Note: The figure shows the number of workers who live on less than US\$5.50 purchasing power parity per day, as a share of total employment. Data for 2017 are estimates and 2023 are projections. Data for Australia, Japan and New Zealand are not available, but the share of workers in extreme, moderate or near poverty is likely to be close to zero for these countries. The countries included in Asia and the Pacific are listed in ILO (2019b), appendix A.

Source: ILO modelled estimates, Nov. 2018.



Figure 2. Informal employment rate, available ASEAN+6 countries (per cent of total employment), latest year

Note: Informal employment includes the agricultural sector. The countries included in South-Eastern Asia and the Pacific are listed in ILO (2018b), appendix A.1.

Source: ILOSTAT Informal employment and informal sector as a percent of employment by sex -- Harmonized series and ILO (2018b).

Aside from the continued prevalence of working poverty and informal employment, there are many other decent work challenges remaining in the region. For example, 7.4 per cent of children in the Asia-Pacific region were labourers in 2016, and of this group, nearly half were trapped in one of the worst forms of child labour, often employed in hazardous work (ILO, 2017b). Two-thirds of the estimated 25 million people in forced labour globally are located in the region (ILO, 2017c). In many countries, fundamental workers' rights - including freedom of association, the effective recognition of the right to collective bargaining and freedom from forced labour, child labour and discrimination - are not fully respected. In comparison with other regions, Asia and the Pacific has a lower ratification record with respect to the eight ILO fundamental Conventions that enshrine these rights.<sup>3</sup>

Making progress to overcome decent work deficits and in so doing, aligning to the targets of the 2030 Agenda for Sustainable Development Goal 8 - is easier done in a favourable economic climate. In the ASEAN region, real GDP growth rates peaked at 5.4 per cent in 2017 (figure 3, panel A). In 2019, the annual growth rate is estimated at 5.1 per cent with a slight upturn projected from 2020. There are additional danger signs in the declining growth rates of exports (figure 3, panel B). Tighter global financial controls and political tensions are risk factors that contribute to slowed growth in the region and recent trade tensions between China and the United States could also pose a risk to the macroeconomic outlook of some countries in the region. Regardless, growth figures in Asia remain above those of other regions and the region has long been dynamic on the economic front. The challenge remains, however, in ensuring that economic development translates to inclusive growth. Improving the quality of jobs and strengthening policies to promote decent work are important mechanisms for improving the inclusiveness of economic growth in an uncertain future (ILO, 2018a).

### 2.2.2 Readiness for a tech-driven future of work

In many countries, a large number of jobs are still in the agricultural sector, moving only slowly into other sectors.

In terms of employment distribution across sectors, labour markets in the region are diverse, particularly in the size of the agricultural sector (figure 4). Agriculture plays only a minor role as source of livelihood in some countries, including Australia, Brunei Darussalam, Japan, Malaysia, New Zealand, the Republic of Korea and Singapore, where less than one quarter of the workforce is employed in the agricultural sector. In other countries, the agricultural sector continues to play an important role. In 2017, the shares of employment in agriculture in India, Lao People's Democratic Republic and Myanmar stood at 45, 68 and 51 per cent, respectively. While employment is projected to spread into other sectors, the shift is not occurring fast. Even in India, where the largest drop in agricultural employment is projected from present to 2023, the share is not expected to decrease by more than 3.8 percentage points.

<sup>3</sup> On a more positive note, the pace of ratifications of the fundamental Conventions seems to be picking up. Nine countries in the region have ratified a fundamental Convention since 2017.



#### Figure 3. Macroeconomic outlook for ASEAN and Asia

B. Exports volume growth (per cent), 2016–24



Source: International Monetary Fund (IMF), Asia and Pacific Regional Economic Outlook, latest update 12 Apr. 2019.



Figure 4. Share of employment in agriculture (per cent in total employment), 2017 and 2023

Note: The figure shows the number of workers in the agricultural sector as a share of total employment. Data for 2017 are estimates and 2023 are projections. The countries included in Asia and the Pacific are listed in ILO (2019b), appendix A. Source: ILO modelled estimates, Nov. 2018.

The agricultural sector is, on the one hand, a contributor to environmental degradation as production activities largely rely on natural resources and greenhouse gas emissions, and on the other hand, a receiver of environmental and climate change perils. Agricultural crops are particularly sensitive to environmental hazards such as storms and flooding, as are the livelihoods of the large number of agricultural workers who depend on them. In the Asia-Pacific region, as in many other regions of the world, it is often marginalized groups such as migrant workers and indigenous peoples who make a living in the agricultural sector. Climate change and its effects thus have the potential to exacerbate existing inequalities.

### The manufacturing sector accounts for a modest share of GDP in most countries.

The common discussion around the current wave of technological changes is that it can transform the manufacturing sector through digitalization and automation, thus moving countries that can make the most of technological progress from Industry 3.0 to Industry 4.0 (I4.0). I4.0 is an abstract term that espouses the idea of manufacturing based on "smart factories" characterized by the interconnectedness of machines, devices, sensors and people, information transparency and decentralized decision-making (Hermann et al., 2016).<sup>4</sup> Many ASEAN +6 countries look to national engagement in I4.0 as a driver of future economic growth and source of job creation, as the discussion in section 3.2 will show. However, it is important to keep in mind that the manufacturing sector accounts for a limited share of the economy in many countries. At most among the ASEAN +6 countries, 29 per cent of GDP accrued to manufacturing value added in China in 2017 (figure 5). The share remains below 20 per cent in Australia, Brunei Darussalam, Cambodia, India, the Philippines, Singapore and Viet Nam.

The degree to which countries will benefit from the prospects of I4.0 will depend on the capacity of the manufacturing sector to move production toward medium and high-tech industries. There is currently a wide spread among ASEAN +6 countries in the share of manufacturing value added that is contributed by the higher tech industries. Only in Japan, the Republic of Korea and Singapore is the larger share of manufacturing value added coming from medium and high-tech production.<sup>5</sup> In contrast, in Cambodia, Brunei Darussalam and Myanmar still more than 90 per cent of manufacturing value added is based on low-tech industries.

<sup>4</sup> The terminology and its implication are further discussed in section 3.2. See also box 1.

<sup>5</sup> For detailed information on the classification of manufacturing industries by technological intensity, see UNIDO: "Classification of manufacturing sectors by technological intensity (ISIC Revision 4)", UNIDO Statistics Data Portal. Medium- and high-tech manufacturing comprise sectors such as automobiles and electronics. These are the sectors on which I4.0 technologies are expected to have significant impact.





Share of manufacturing value added (in %) contributed by medium and high-tech industries

Note: The latest data point for the share of manufacturing value added contributed by medium and high-tech industries refers to 2015. Data are not available for Lao People's Democratic Republic. The latest data point for the share of manufacturing value added as a percentage of GDP refers to 2017, except for Japan (2016) and New Zealand (2015).

Source: World Bank national accounts data; OECD National Accounts data files; UNIDO Competitive Industrial Performance database.

### Economic incentives to upgrade and automate production vary across countries.

While there is much discussion about 14.0 and the importance of embracing new manufacturing technologies in order to boost economic growth found among the countries analysed in section 3.2, these discussions need to be put into perspective and adapted to the respective country context and the strength of the national incentive to promote technological upgrading. The government of China, for example, is investing heavily in support of the Made in China 2025 strategic plan to upgrade the country's manufacturing capabilities and technological competitiveness (see section 3.2). The decision to invest in smart technologies is based on many criteria, including relative prices. As the price

of labour increases in a country such as China, the automation of processes becomes more attractive, with robots providing a substitute for human labour, particularly in higher technology industries. China is undoubtedly moving in that direction, reaching a robots per manufacturing employee ratio that was close to the world average in 2017 and continuing to grow (figure 6). It is not just the rising costs of labour that drives the Chinese government to promote 1.40, however. There are demographic reasons as well. The country has crossed the threshold of the so-called "Lewisian turning point" when the rural labour surplus as a source of cheap labour for manufacturing is depleted. This results in a labour shortage for production, which is further reinforced by the ageing of the Chinese population and workforce.



### Figure 6. Number of industrial robots per 10,000 employees in the manufacturing sector, 2016 and 2017

Note: Shares in India, Indonesia and the Philippines are less than 1 per cent. 2017 data were accessible only for China, Japan and the Republic of Korea.

Source: International Federation of Robotics.

While each country in the region has its own unique socio-economic characteristics, the motivation behind China's strategic approach to I4.0 is likely to have parallels in some other countries of this review. Nonetheless, the manufacturing sectors of many ASEAN countries are still characterized by relative prices that tilt in favour of cheap labour. The rural labour supply is declining everywhere in the region, but is by no means exhausted, and even as the rural-urban migration slows, labour migrants from other countries remain plentiful. The overall effect in most ASEAN countries has been wages that remain moderate in the manufacturing sector, thus limiting incentives to invest in technology for productivity gains. Moreover, some countries may still lag in the skills endowment necessary to facilitate the diffusion of new technologies. The "Lewisian turning point" thus remains more ambition than reality in many ASEAN countries.

Besides the economic incentives required to adopt new technologies and production processes, the readiness of the economy in terms of structure and drivers of production is another important factor that may determine whether countries are well-prepared to be competitive in I4.0. The World Economic Forum (WEF, 2018a) developed two indices measuring the readiness of economies visà-vis the national structure of production in terms of complexity and scale and the available drivers of production in the country, measured in terms of technology and innovation, human capital, global trade and investment, institutional framework, sustainable resources and the demand environment. The two indices assign countries a value, depending on where they fall on the two scales (drivers of production and structure of production).

Based on the performance with respect to these indices, economies are classified as "nascent", "legacy", "leading" or "high potential" (figure 7). Nascent economies have a limited current production base and are deemed at risk for the future, implying that they might not be well-positioned to capitalize on 14.0 to transform production systems. Legacy economies have a strong current base but are also deemed at risk for the future. High-potential economies have a limited current base but are considered to be well-positioned for the future to capitalize on 14.0 to transform production systems. Leading economies have a strong current base and are equally well-positioned for the future.



Figure 7. Map of Readiness Assessment, selected ASEAN +6 countries

Note: The two indices measure the performance of countries with regards to the structure of production and the drivers of production. Indices vary between 0 (unfavourable) and 10 (favourable). The lines to divide the four quadrants are drawn using the average scores of the indices for the top 75 countries, based on the structure of production rankings. Details on the calculation of the indices can be found in WEF (2018a).

Source: WEF (2018a).

The ASEAN +6 countries for which the two indices on the drivers and the structure of production have been calculated classify Cambodia, Indonesia and Viet Nam as nascent economies, deeming them at risk to fall behind if future growth is to be mapped to 14.0. India, Thailand and the Philippines are legacy economies which, while having a stronger current base, are equally deemed at risk for the future if it is to be driven by high-tech production alone. Australia and New Zealand are considered to be high-potential economies, while China, Japan, Malaysia, the Republic of Korea and Singapore and are considered in this exercise to be leading countries in their readiness for 14.0. Another way to assess readiness for technological changes is in measures related to information and communication technology (ICT) infrastructure. Successful adoption of I4.0 requires, at the minimum, good general ICT infrastructure. Australia, Japan, New Zealand, the Republic of Korea and Singapore are at the forefront in that respect, even in worldwide comparisons (figure 8, panel A). In contrast, Cambodia, India, Indonesia, Lao People's Democratic Republic and Myanmar are lagging behind and will require massive investments in both digital and physical infrastructure to catch up. In these five countries, still less than 50 percent of the population is making use of the internet (figure 8, panel B).



#### Figure 8. Information and communications technology infrastructure

A. ICT Development Index, 2017

B. Share of individuals who use the internet and have a fixed broadband internet subscription (per cent), 2017



Note: The ICT Development Index is based on three sub-indices on ICT access, use and skills. The index has a scale from 0 to 100, with higher values indicating better ICT development.

Source: International Telecommunications Union (ITU) Country ICT Data.

Despite the continuing digital divide across countries (and likely within as well), other data sources demonstrate that, as a region, Asia has a strong appetite for new technologies. It is ranked, for example, as the global leader in the use of online payments, with, on average, 22.1 online transactions per person per year (KPMG, 2017). Moreover, the Asia-Pacific region showed the world's highest growth rate (8.0 per cent) in mobile connections between 2017 and 2018, and the second highest growth rate (3.0 per cent) in the following year (Hootsuite and We Are Social, 2019). Indonesia, Malaysia, the Philippines and Thailand, are among the top eight countries worldwide in terms of per capita time spent connected to the internet. The average internet use in each of these countries is more than eight hours per day, of which more than five hours is mobile internet use (Hootsuite and We Are Social, 2019).

## Workers with the skills to work in non-routine cognitive occupations are scarce in many ASEAN +6 countries.

There is consensus that the future of work requires a workforce that is agile, highly skilled and able to perform well particularly in non-routine cognitive tasks such as programming, data management and evaluation and research. In countries striving to succeed in the adoption and handling of new technologies and taking appropriate climate change adaptation and mitigation measures, there is undoubtedly demand for the execution of such tasks. In ASEAN +6 countries, the share of workers in highskilled occupations varies widely (figure 9, panel A). In Singapore, more than half the workforce is employed in high-skilled occupations such as physicians, computer programmers and data analysts. In Australia, Brunei Darussalam, New Zealand, and the Republic of Korea, the share in 2017 was more than one third. In contrast, Cambodia, Indonesia, Lao People's Democratic Republic, Myanmar, Thailand and Viet Nam had low shares of workers in highskilled occupations in 2017. In China and India, shares were also below 20 per cent (16.6 and 16.7 per cent, respectively).

#### Figure 9. Employment by occupational skills level

A. Employment in high-skilled occupations (per cent in total employment), 2017



B. Change in the share of employment by occupational skills grouping (percentage points), 2000–17



Note: Non-routine cognitive (high-skilled) occupations are defined in line with ILO (2015a) based on the International Standards Classification of Occupations (ISCO). Such occupations include managers, professionals and technicians/associate professionals (ISCO major groups 1-3). Medium-skills occupations include clerical support workers, services and sales workers, craft and related trades workers, and plant and machine operators (ISCO major groups 4, 5, 7 and 8). Low-skilled occupations include elementary occupations and skilled agricultural, forestry and fishery workers (ISCO major groups 6 and 9). The countries included in Asia and the Pacific are listed in ILO (2019b), appendix A.

Source: ILO modelled estimates, Nov. 2018.

To some degree, the composition of employment by occupation and its changes over time demonstrates shifts in labour demand according to broad skills categories. Among the developing and emerging economies of ASEAN +6, there is clear evidence of upgrading in the skills distribution of employment (figure 9, panel B). For the ASEAN countries, all countries showed shifts from employment in lowskilled occupations to medium-skilled and highskilled occupations over the period 2010-17 (with the exception of Malaysia where medium-skilled occupations decreased slightly). The largest decreases in employment in low-skilled occupations were seen in Cambodia and Myanmar, a likely reflection of the burgeoning garments sector in the two countries which offered opportunities for workers to move out of agricultural work and elementary occupations.

Emphasis on skills development is a common aspect of I4.0 and related strategies in the ASEAN +6 countries (see section 3.2). The tension between the pace of economic transformation with its accompanying demand for higher level skills and the supply of skills generated from the education and training system will continue to define the capacity of countries to prepare for the future. Continuing the investment in basic education, while also paying attention to investments in reskilling and upskilling are called for in all ASEAN +6 countries in order to produce a workforce endowed with the skills that will be in future demand.

#### 2.2.3 Trends in population ageing

### All countries in the region have ageing populations.

An ageing population is another mega trend in ASEAN +6 countries. The labour force has been getting older, with a steady increase in the median age of workers in all countries (figure 10). The pace of ageing is expected to accelerate significantly between 2020 and 2030 in countries like Lao People's Democratic Republic, Malaysia and Viet Nam. With ageing comes increased pressure on national pension systems. According to one estimate in World Bank (2016), the share of GDP spent on pensions could increase to nearly 10 per cent of GDP in advanced East Asian economies between 2030 and 2070.



Figure 10. Median age of the labour force (years), 1990–2030

Source: ILO modelled estimates, July 2018.

Populations in Australia, New Zealand, the Republic of Korea and Singapore can now be classified as "aged", with 14 to 19 per cent of their population aged 65 years and above (65+), but as of 2019, only Japan qualifies as "hyper-aged", with more than 20 per cent of the population aged 65+ (table 1). The speed of ageing has varied widely across countries, with Australia and New Zealand taking more than 60 years to move from an "ageing" to an "aged" population, defined as a doubling of the population aged 65+ from 7 to 14 per cent of the total population. In contrast, Japan, the Republic of Korea and Singapore experienced the same transition in 20 years or less. Meanwhile China, Thailand and Viet Nam, with ageing populations, are set to become aged over the next few years. Other ASEAN +6 countries are also quickly approaching the aged category. Brunei Darussalam, India, Indonesia Malaysia and Myanmar will all have an ageing population in the next decade, and already Brunei Darussalam and Malaysia are classified as "late dividend" countries based on an assessment of projected trends on fertility rates and share of the working-age population.

Country	Year that population share aged 65+ reached 7%	Year that population share aged 65+ reached 14%	Number of years between 7 and 14 per cent share (actual or projected)	Ageing status (as of 2019)	Demographic grouping (2015–30 period)
Japan	1977	1995	18	hyper-aged	Post-dividend
Australia	<1950	2012	>62	aged	Post-dividend
New Zealand	<1950	2013	>63	aged	Post-dividend
Singapore	1999	2019	20	aged	Post-dividend
Korea, Republic	2000	2018	18	aged	Late dividend
China	2001	2025	24 p	soon aged	Late dividend
Thailand	2002	2022	20 p	soon aged	Late dividend
Viet Nam	2017	2034	17 p	soon aged	Late dividend
Malaysia	2020	2046	26 p	not yet aged	Late dividend
Brunei Darussalam	2024	2037	13 p	not yet aged	Late dividend
India	2023	2050+	>27 p	not yet aged	Early dividend
Myanmar	2023	2050+	>27 p	not yet aged	Early dividend
Indonesia	2026	2050+	>24 p	not yet aged	Early dividend
Cambodia	2031	2050+	>19 p	not yet aged	Early dividend
Philippines	2032	2050+	>18 p	not yet aged	Early dividend
Lao PDR	2038	2050+	>12 p	not yet aged	Early dividend

Table 1	. Demog	raphic	trends	in	ASEAN	+6	countries
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Note: p = projection. Ageing status is determined as follows: "hyper-aged" – share of population aged 65+ is 20 per cent or more; "aged" – share of population aged 65+ is more than 14 per cent and less than 20 per cent; "soon aged" – share of population aged 65+ is more than 7 per cent and less than 14 per cent; "not yet aged" – share of population aged 65+ is less than 7 per cent. The categorization of demographic transition follows the World Bank definition. Post-dividend = total fertility rate in 1985 below 2.1 and shrinking working-age population share, 2015–30; late dividend = total fertility rate in 1985 above 2.1 and shrinking working-age population, 2015–30; early dividend = total fertility rate below 4 in 1985 and increasing working-age population share, 2015–30; pre-dividend = total fertility rate above 4 in 1985 and increasing working-age population share, 2015–30; pre-dividend = total fertility rate

Source: ILO calculations based on United Nations, Department of Economic and Social Affairs, Population Division: World Population Prospects: 2017 Revision, custom data acquired via website.

Ageing societies come with rising old-age dependency ratios, which measure the size of the older population as a share of the prime workingage population. Japan has a particularly high oldage dependency ratio, with the elderly accounting for almost half of the prime working-age population (figure 11). This ratio is also high in Australia and New Zealand. Essentially all ASEAN +6 countries have experienced rising old-age dependency ratios, and this ratio is projected to increase further with time. Decreasing fertility rates are an important cause of population ageing. Already in the 2015–20 period, only Cambodia, Indonesia, Lao People's Democratic Republic, the Philippines and Viet Nam among the ASEAN +6 countries had fertility rates at or above the net replacement rate of 2.1 children per woman. All countries are projected to fall below the replacement rate by the period 2045–50 (figure 12).



Figure 11. Old-age dependency ratio (per cent), 1997, 2007 and 2017

Note: Old-age dependency ratio is defined as the population aged 65+, as a share of the population aged 15-64. Source: World Bank, World Development Indicators.



Figure 12. Fertility (live births per woman), various periods

Note: For projections (2045–50), the median variant was taken. Source: UN Population Division, World Population Prospects 2019 – Revision.

The speed at which Asian societies are ageing underlines the pressing need and also the challenges that countries are facing to close existing gaps in pension coverage. The consequences of a rapidly ageing society are vastly different for highincome countries that have sufficient (although not unlimited) fiscal capacity to cover universal pension and/or health-care systems than the middle-income countries with limited fiscal space to invest in old-age pensions. The range of persons above the statutory pensionable age receiving an old-age pension among the ASEAN +6 countries runs from above 90 per cent in Japan and New Zealand to less than 20 per cent in Cambodia, Indonesia, Lao People's Democratic Republic and Malaysia (although data are sporadic and dated).<sup>6</sup> It is clear that pension systems in the region are insufficient and not yet up for the challenge of meeting the needs of a swelling elderly population. Much more work remains to be done in this regards.

The breadth of the informal economy in the low- and middle-income ASEAN countries is an exacerbating factor in the challenges of coping with population ageing, especially in extending social protection coverage to the entirety of the elderly population. For the most part, informal workers do not pay into the national social security system. The aim to extend pension coverage to all elderly persons regardless of whether or not they paid in to the system is thus a very expensive prospect in countries with large informal sector.<sup>7</sup> Even in the +6 countries with low informality rates, pension systems are expected to become increasingly strained in the context of ageing.

### **2.2.4 Trends in environmental and climate change**

### Carbon emissions are increasing in most ASEAN +6 countries.

The greening of economies will require a substantial turnaround in production and consumption patterns in countries worldwide, including ASEAN +6 countries. Annual carbon dioxide (CO2) emissions have been increasing in nearly all countries of the region (figure 13). Only Australia, Japan and New Zealand have seen constant or slightly decreasing emissions over the past few years, but their CO2 emission levels nevertheless remain high. Effecting a substantial turnaround in emissions requires a structural transformation of economies, with production and resources moving away from polluting "brown" sectors and into "green" sectors. This is no easy matter for developing and emerging economies that struggle to balance the objective of economic development, which inevitably increases production and consumption of resources among an increasingly enriched population, with the need to contain the destruction of the environment.

Emerging economies are asked to refocus their development aims while at the same time bearing the economic costs of climate change that come in the form of increasing incidences of typhoons, droughts, flooding, heat stress, etc. With rising temperatures, loss of working hours and jobs owing to heat stress will continue to increase, with many of the most affected countries in the world located in the ASEAN +6 region (ILO, 2019c). Globally, Asia is also the region with the highest percentage of the population affected by natural disasters, corresponding to 81.4 per cent on average between 2007 and 2016 and 69.5 per cent in 2017 (figure 14). Thailand and Viet Nam are listed among the ten countries in the world most affected by climate change in 2017 (Germanwatch, 2019). The long-term climate risk index (from the same source) includes Myanmar, the Philippines and Viet Nam among the top ten most impacted countries over the period 1998-2017.

<sup>6</sup> Two sources on the topic include: ILO (2018c) and OECD (2018a).

<sup>7</sup> A forthcoming ILO report looks at recent innovations in extending social protection to workers in the informal sector in ASEAN countries (ILO, forthcoming\_a).





Source: Carbon Dioxide Information Analysis Center, Environmental Sciences Division, Oak Ridge National Laboratory.





Note: The natural disasters considered include droughts, earthquakes, extreme temperatures, floods, landslides, mass movements, storms, volcanic activities and wildfires.

Source: CRED (2018).

### Green sectors are creating new jobs in new sectors.

Regardless of the challenges, the regional commitment to promoting environmentally sustainable development is evident. In 2015, ASEAN leaders approved a plan that targets a 23 per cent share of renewables in the region's energy mix by 2025, up from 10 per cent in 2015 (ASEAN Centre for Energy, 2015). The renewable energy sector is the most cited example of a green sector. Globally, total employment in the renewable energy sector grew at an average annual rate of 7.2 per year between 2012 and 2018.<sup>8</sup> In 2018, the ASEAN +6 countries (less Brunei Darussalam and Lao People's Democratic Republic) accounted for a majority (54 per cent) of the 11 million employed in renewable energy worldwide (figure 15).



Figure 15. Renewable energy employment by technology (number of jobs in thousands), 2018

ASEAN +6

Note: ASEAN +6 excludes Brunei Darussalam and Lao People's Democratic Republic. Source: ILO calculations using International Renewable Energy Agency (IRENA) jobs database.

Currently, the largest number of jobs in the renewable energy sector in the region are in the area of solar photovoltaic (45 per cent of regional total), followed by large-scale hydropower (16 per cent), solar heating/cooling (12 per cent), wind energy (10 per cent) and liquid biogas (8 per cent). At most among the countries concerned, the share of employment in renewable energies in 2018 were 0.7 per cent of total employment in Malaysia, 0.5 per cent in China and 0.4 per cent in Cambodia and Japan (figure 16). While current shares of renewable energy jobs in total employment might still seem relatively low in ASEAN +6 countries, these are expected to increase with time.

<sup>8</sup> ILO calculations based on International Renewable Energy Agency (IRENA) jobs database, "global renewable energy employment by technology, 2012–2018".



Figure 16. Share of renewable energy employment in total employment (per cent), 2018

Note: Renewable energy employment includes employment in the following sectors: solar photovoltaic, solar heating/cooling, wind energy, hydropower, solid biomass, biogas, liquid biofuels, concentrated solar power, geothermal energy, tide/wave/ocean energy, municipal and industrial waste and others. Data are not available for Brunei Darussalam and Lao People's Democratic Republic. Source: ILO calculations based on data on renewable energy employment from IRENA database and total employment from ILO modelled estimates, Nov. 2018.

According to ILO estimates, the renewable energy sectors likely to exhibit the highest net employment gains under a scenario of climate change mitigation worldwide would be solar thermal energy, geothermal energy and wind power (ILO, 2018d). If expanding to employment in environmental processes (waste management, for example), the future potential of decent job creation could be significantly higher. The same report estimates a 0.32 per cent net job creation effect on employment by 2030 in the Asia-Pacific region, with job losses in some sectors being more than offset by job gains in others, provided that a sustainable energy scenario materializes and appropriate policies are put into place (figure 17). This is the second largest percentage gain among the different regions globally (behind the Americas) and the largest gain in terms of the absolute number of jobs.

Figure 17. Net job creation effect by 2030 under a sustainable energy scenario (per cent change)



Note: Percentage difference in employment between a sustainable energy scenario and a business-as-usual scenario by 2030. See ILO (2018d) for methodological details.

Source: ILO (2018d), figure 2.1.

# 2.3 Attitudes, perceptions and expectations for the future of work in ASEAN +6

This section uses "big data" as well as existing surveys in order to convey the attitudes, perceptions and expectations that populations in ASEAN +6 countries have about the future of work. The section sets the context for the assessment in subsequent sections on whether the future of work policies and strategies implemented by countries match with general attitudes and perceptions and are in line with the expectations that people have.

### There is generally a high level of optimism in the region about the future of work.

The Asia-Pacific region, particularly South-Eastern Asia and the Pacific, is characterized by a high level of optimism about the future. Asked about whether the coming year will be better, the same or worse than the current year, optimists outnumber pessimists in almost all ASEAN +6 countries for which data are available (figure 18). Pessimists – persons giving a negative assessment of prospects in the coming year – seem to have dominated only in the Republic of Korea in the three-year period and in Australia in 2017 only.





Note: The survey asked the question: "As far as you are concerned, do you think that the coming year will be better, worse or the same as the current year?" The figure shows the difference between the share of respondents who indicated that the coming year will be better and the share of respondents who indicated that the coming year will be worse. The 2016, 2017 and 2018 surveys were conducted in 66, 55 and 51 countries globally with aggregate respondents from 49,000 to 67,000.

Source: Gallup International Association, "Happiness, hope, economic optimism", global end of year surveys 2016, 2017 and 2018.

This general positivity in the region appears to link also to a sense of optimism about the future of work. A rather bright picture is drawn of the future of work by online news reports published in the region. This report conducted an analysis of online news articles published in 2017 and 2018 and assessed the tone in which the news was presented (see box 2 for details). News with a positive tone predominantly includes words with a positive connotation, while news with a negative tone lean more on words that spread negative sentiment. This sub-section shows data on the tone of online news coverage of topics relevant to the future of work, focusing on 12 Asia-Pacific countries: Australia, China, India, Indonesia, Japan, Malaysia, New Zealand, the Philippines, the Republic of Korea, Singapore, Thailand and Viet Nam. For these countries, a sufficient pool of online news articles on the future of work topics are available, enabling the computation of reliable statistics on the tone. Sufficient data were not available for Brunei Darussalam, Cambodia, Lao People's Democratic
Republic and Myanmar. Articles in languages other than English are first machine-translated into English before the sentiment mining algorithm is applied. This corresponds to the standard procedure implemented in the Global Database of Events, Language and Tone (GDELT).

The analysis of online news articles that include either "future of work", "future of jobs" or "future of employment" as terms in their headlines or in the body of text shows that all available ASEAN +6 countries saw, on average, positive reporting on the future of work (figure 19, panel A). The average tone varies between very positive reporting in countries such as Singapore and Viet Nam to close to neutral or only slightly positive reporting in Japan, the Republic of Korea and Thailand. These latter three countries were also among the least optimistic about the future in general terms (measured in the Gallup Poll, figure 18).

In Singapore in 2017 and 2018, reporting in written media featuring future of work terminology was neutral or positive on 87 per cent of all days of the year with at least some reporting on the topic. For Viet Nam, the share of days with positive news coverage corresponded to 80 per cent. At the lower end, the corresponding figures were only 50, 55 and 62 per cent for Thailand, the Republic of Korea and Japan, respectively. All other countries in the region had between 70 and 78 per cent of days with at least neutral, if not positive, reporting (figure 19, panel B).

### Box 2. Good or bad news? Tracking the tone of online reporting on future of work issues

This report includes data extracted from the Global Database of Events, Language and Tone (GDELT), a Big Data project that analyses news coverage worldwide (available at: http://www.gdelt.org). GDELT is able to track whether a particular event or topic was positively, neutrally or negatively reported on, providing descriptive statistics on the so-called tone of reporting. The tone of an article is determined on the basis of a sentiment mining algorithm that identifies negative and positive words in the text based on a positive-negative lexicon dictionary with 6,800 opinion or sentiment words. As an example, words like "awful", "threat" or "poor" would be classified as negative, while words like "opportunity", "excellent" or "amazing" are assigned a positive connotation. This methodology to track the tone of texts has been shown to be quite robust and is also used by companies to monitor online conversations about their products and determine whether feedback received on a product is positive or negative.

GDELT's sentiment mining algorithm determines the tone measure as an index, defined as the difference between positive and negative tone words, relative to the total number of words. Theoretically, the index could take values of between -100 (extremely negative) and +100 (extremely positive). In practice, index values vary between -10 and +10. Negative index values assign a negative tone to an article, a zero index value corresponds to a neutral tone, while positive index values correspond to a positive tone. An article with a negative tone includes more words with a negative than a positive connotation. For an article with a positive tone, the reverse is true. An article with a neutral tone either does not have any opinion or sentiment words, or the number of positive and negative words is balanced.

Source: The GDELT Project website (gdeltproject.org) and Boudemagh and Moise (2017).

### Figure 19. Is the tone of news media including the terms "future of work", "future of jobs" or "future of employment" positive or negative?

A. Average tone in 2017-18 (index)



B. Share of days with neutral or positive tone reporting in 2017–18 (per cent)



Note: For panel A, a positive index value indicates a positive tone, a zero index value a neutral tone and a negative index value a negative tone.

Source: ILO calculations based on GDELT database.

### Ongoing technological developments are also widely seen as positive in the region.

In addition to its widespread optimism about the future in general and the future of work in particular, the region can also be characterized as taking a positive view towards new technologies. Section 2.2.2 presented some data on the high usage of technologies in the Asia region. It is not surprising

then, given the high usage, that a high percentage of the population in many ASEAN +6 countries believes that new technologies offer more opportunities than risks. There are, however, differences among countries, with survey respondents in Japan and the Republic of Korea being less positive about new technologies than respondents in the other available ASEAN +6 countries (figure 20).





Note: The figure shows the percentage of the population that believes new technologies offer more opportunities than risks. Data are available for 38 countries and are based on a survey of the nationally-representative total population aged 16+, except for China and India where the survey was only conducted in selected provinces or states.

Source: Hootsuite and We Are Social (2018), based on Google Consumer Barometer, Jan. 2018.

The regional positive attitude towards new technologies is also confirmed by a sentiment analysis of online news articles. The assessment here was on articles mentioning recent technological developments that were published in the 2017–18 period. The specific terms sought in headlines or main body of text were: "digitalization", "artificial intelligence", "industry 4.0", "3D printing" and "robotization". In each of the countries analysed, the tone of these articles was, on average, clearly positive, suggesting that a positive image is largely conveyed about new technologies and the Fourth Industrial Revolution (4IR) through online media in the respective countries (figure 21, panel A).

In China in 2017 and 2018, reporting on new technologies was very positive, with neutral or positive reporting on 97 per cent of all days of online reporting. The corresponding figure was 68 per cent for Indonesia, which was the least positive outlook among available countries (figure 21, panel B). The tone of online news reporting was most positive in Viet Nam (+2.0), followed by Singapore, China and Thailand (figure 21, panel A).

### Figure 21. Is the tone of news media including the terms "digitalization", "artificial intelligence", "industry 4.0", "3D printing" or "robotization" positive or negative?











Source: ILO calculations based on GDELT database.

### Expectations are high for technology's influence on jobs and earnings.

While there is a positive attitude and a great deal of optimism about the use of new technologies in the Asia-Pacific region, particularly in ASEAN countries, there are also high expectations about the impact of technologies on employment and income opportunities. A sentiment analysis of news media containing the words "automation" and "employment" revealed again a mostly positive tone in the available countries. In 2017–18, online news articles that featured both "automation" and "employment" had a positive tone on average in all countries except Japan (figure 22, panel A). China, Singapore and Viet Nam conveyed the most positive tone on automation and employment. These three countries had also the largest share of days with positive or neutral reporting on the topic (figure 22, panel B). In China, 96 per cent of days over the 2017–18 saw neutral or positive coverage in written media that included the two words. The corresponding shares for Viet Nam was 85 per cent, and for Singapore, 75 per cent.

### Figure 22. Is the tone of news media including the terms "automation" and "employment" positive or negative?

A. Average tone in 2017–18 (index)



B. Share of days with neutral or positive tone reporting in 2017–18 (per cent)



Note: For panel A, a positive index value indicates a positive tone, a zero index value a neutral tone and a negative index value a negative tone.

Source: ILO calculations based on GDELT database.

Sentiment regarding the convergence of automation and employment is considerably more neutral in the advanced economies, Australia and the Republic of Korea, than the ASEAN economies, and in the case of Japan, sentiment on automation and employment was more negative than positive. It could be that the developing and emerging ASEAN economies view new technologies as a potential driver of personal economic and social mobility while populations in the more advanced economies worry about the national impact of losing their edge as other countries adopt technologies to increase competitiveness. But more research would need to be done to evaluate the sentiment further.

The generally optimistic attitude towards automation is echoed by the results of a survey that was conducted on youth in six ASEAN countries (WEF, 2018b). When asked about whether technology will increase or reduce the number of jobs, 51.7 per cent of respondents replied that they would expect an increase. Only 37.0 per cent expected that technology would contribute to a decrease in the number of jobs (figure 23, panel A). Only in Singapore were a majority of young people less optimistic about the technology-employment connection. The optimism about technology's impact on jobs is prevalent among youth of all education levels. However, the optimism was found to be most pronounced among young people who are less educated (figure 23, panel B).



#### Figure 23. Youth opinion: Will technology increase, not change or reduce the number of jobs?



B. By level of educational attainment (per cent of youth)

#### A. By country (per cent of youth)

Technology will have no impact on the number of jobs

- Technology will reduce the number of jobs
- Technology will increase the number of jobs

Note: The survey is based on 64,000 respondents, of whom 42,000 completed the survey. Targeted respondents were youth aged 35 or younger using Shopee, an e-commerce platform, or Garena, an online games platform. The survey was conducted in July 2018. Source: WEF (2018b).

With regards to the link to income (earning power), young people also expressed much optimism, with 67.1 per cent of respondents at the regional level expecting their personal earning power to increase due to technology (figure 24). This share was highest in the Philippines, where 72.8 per cent had positive expectations, and lowest in Singapore, at 47.4 per cent. Even in Singapore, however, more young people expected an increase in their earning power than a decrease.



Figure 24. Youth opinion: Will technology increase, not change or reduce earning power?

- Technology will have no impact on my earning power
- Technology will reduce my earning power
- Technology will increase my earning power

Note: The survey is based on 64,000 respondents, of whom 42,000 completed the survey. Targeted respondents were youth aged 35 or younger using Shopee, an e-commerce platform, or Garena, an online games platform. The survey was conducted in July 2018. Source: WEF (2018b).

### In ageing societies, the future of social protection is a matter of concern.

While optimism in the region runs high regarding technological changes, there is uncertainty and concern about the prospect of getting old. In the context of ageing societies, the question of whether there will be sufficient income and security at the age of retirement looms large. In a survey conducted in eight of the ASEAN +6 countries, a large share of workers were found to express worry about being "poor and in need of money" during retirement (figure 25, panel A). The share was as high as 95 per cent of respondents in Viet Nam. At the lower end, 50 per cent of workers expressed concern in China. Many ASEAN +6 countries have traditionally relied on family-based support of the elderly. It is interesting to note, however, that today, the government is generally considered to be the entity responsible for providing financial support during retirement (figure 25, panel B). The exceptions are the Republic of Korea and Singapore, where most people seem to see income provision during retirement as the responsibility of the individual. In China, Indonesia, Malaysia, the Philippines, Thailand and Viet Nam, the majority of workers expect the government to provide them with income from the age of retirement.

#### Figure 25. Perceptions of retirement needs



A. Share of workers who worry about being "poor and in need of money" when retired (per cent)



B. What should the main source of financial support be during retirement? (per cent)

Note: Results are based on the East Asia Retirement Survey, conducted in summer 2014. For the countries shown in the figures, survey results are based on the replies of 8,272 respondents. According to the source, all survey samples were randomly selected and nationally representative, except that samples for China, Indonesia, the Philippines, Thailand and Viet Nam were limited to urban areas. Source: Jackson and Peter (2015).

## Climate change is increasingly perceived as a major threat, exerting pressure on governments to act.

Climate change is nowadays perceived as a threat by large parts of the population in some of the ASEAN +6 countries (figure 26). The share of respondents that perceive "global climate change" as a major threat ranged from 56 per cent in Indonesia to 86 per cent in the Republic of Korea in 2018. In Australia and the Republic of Korea, "global climate change" is the top concern among eight concerns in total that respondents were asked about. In Japan, it is the second-highest concern. In all countries except Indonesia, there was an increase between 2013 and 2018 in the share of respondents that saw "global climate change" as a major threat for their country. These results suggest that there is an increased level of awareness among the citizens of these countries that actions to address environmental degradation and mitigate the impact of climate are required. The results equally suggest that there are high expectations on governments to take urgent policy action.





Note: The 2018 survey was conducted between May and August in 26 countries globally, with overall 27,612 respondents. The 2013 survey was conducted between March and May in 39 countries globally, with overall 37,653 respondents Source: Pew Research Center (2013; 2019).



# **3** Inventory of national policies related to the future of work

#### 3.1 Introduction

This section assesses and synthesizes the strategies, policies and programmes of ASEAN +6 countries that are currently being applied in reaction - directly or indirectly - to technological change, an ageing population and environmental concerns (see box 1). The information is based on the inventory of national actions presented in three Annex documents and explained in section 1. Section 3.2 provides a synthesis of the inventory presented in Annex 1 and discusses how the ASEAN +6 countries are framing their policy responses in reaction to ongoing technological changes. Section 3.3 offers a synthesis of the inventory presented in Annex 2 to look at how the ASEAN +6 countries are reacting to demographic changes, specifically ageing. Section 3.4 reviews the information captured in Annex 3 on how the countries are responding to environmental and climate change. Throughout the section the primary focus is given to the treatment of labour market issues within the policy space accorded to

each theme, while also identifying some innovative actions.

#### 3.2 Technological change

#### 3.2.1 Introduction

Most ASEAN +6 countries have embraced the vision of technology as a driver of their future economic growth. Industry 4.0 (I4.0) has gone from being a buzzword of the media and a few policy-makers to a theme implanted into the economic planning of most of the countries reviewed. Most governments of middle-income economies are now pinning their hopes on a national I4.0 strategy as the crux of national development pathways that will ultimately propel them to high-income status. I4.0, in its various national adaptations, is expected to offer an escape from the middle-income trap that many ASEAN countries find themselves in. There are differences in each country's understanding of I4.0 and the 4IR, the latter being the preferred terminology in some countries.<sup>9</sup> Nonetheless, there are some similarities in national political approaches to the promotion and adaptation of technological changes, as this section will show.

In general terms, I4.0 is seen by some ASEAN +6 countries as the next logical step to upgrade their export-oriented industrial sectors from a labourintensive, low value added base to capital and skills-intensive, higher value added manufacturing production that fosters development of a supporting high-tech services sector as well. In all countries, progress towards I4.0 requires a significant national investment to construct an enabling environment for science, technology and innovation that can fuel an industrial transformation and contribute to the country's pathway to inclusive growth.

Under the theme of technological change, for each country, information was sought to address the following questions:

- 1. Does the country have a specific strategy or plan for advancing on technology-driven growth, including Industry 4.0?
- 2. How does the strategy link to broader strategies/ plans for industrialization and economic restructuring?
- 3. How does the country seek to prepare the labour market for the Fourth Industrial Revolution?
- 4. How does the government foresee protecting workers who are potentially affected by technological disruption?
  - a. Are labour standards addressed in relation to planning for Industry 4.0 and/or economic restructuring plans?
  - b. How is the country approaching the issue of digital labour platforms?

5. What are the roles of social partners and the private sector in industrialization strategies?

The remainder of this section offers a synthesis analysis to the questions answered in detail in the country scans, which are found in Annex 1.<sup>10</sup> Discussion on the role of social partners is found in section 3.5.

### **3.2.2 Industry 4.0 and the Fourth Industrial Revolution in action**

With or without a specific I4.0 strategy, all ASEAN +6 countries have reacted to technological advances in their respective policy space.

Table 2 lists the national plans or strategies that most closely link to I4.0 or the broader 4IR in the ASEAN +6 countries. The ASEAN countries found to have a distinct policy are Indonesia (Making Indonesia 4.0), Malaysia (National Policy on Industry 4.0), the Philippines (Inclusive Innovation Industrial Strategy), Thailand (Thailand 4.0) and Viet Nam (National Industrial Development Policy). All of these countries already have at least 30 per cent of their national manufacturing value added accruing to medium or high-tech industries (figure 5).

Singapore does not have a stand-alone I4.0 policy. However, it has advanced on a broader set of policies to support new technologies in various sectors and also for more effective delivery of public services, similar to Japan. Cambodia has no distinct I4.0 strategy, but the government's Rectangular Strategy set forth in 2018 does espouse the vision of preparing for the digital economy and the 4IR as a means towards economic diversification and the country's ascension to upper middle-income status by 2030. Finally, Brunei Darussalam, Lao People's Democratic Republic and Myanmar also have no

<sup>9</sup> Regarding the difference between I4.0 and the 4IR, Sung (2018) calls the latter "a systemic transformation that includes an impact on civil society, governance structures, and human identify in addition to solely economic and manufacturing ramifications". Industry 4.0, in contrast, generally focuses on the manufacturing sector alone. Based on the analysis of countries in this report, our assessment is that when a country is focusing on I4.0 for the manufacturing sector, other policies are being pursued simultaneously that aim for the broader societal transformation through technology. The countries that do not yet have a modernized industrial sector – i.e. the bulk of ASEAN countries plus China and India – can thus be said to be pursuing I4.0 and the 4IR together. The more advanced countries such as Japan and the Republic of Korea, with industrial sectors that are already fairly technology-intensive, are also aiming to adapt the new technologies for maximum productivity gains in the manufacturing sector – akin to I4.0 – although they are less likely than the middle-income countries to use the terminology.

<sup>10</sup> For citations on policy documents, readers are encouraged to view the Annexes.

specific I4.0 policies, although all three do promote technological development as a cross-cutting policy priority in their development documents.

Among the "+6" countries, only China's "Made in China 2025" and the Republic of Korea's "I-Korea 4.0" fit as distinct strategies for I4.0, although the other countries are also adopting proactive approaches to supporting new technologies for reinvigorated manufacturing sectors. Australia, India, Japan and New Zealand are all highly active in supporting innovation for future growth and promoting digital-ready societies.<sup>11</sup> There are variations in the institutional delivery of the 4IR in these countries, which will be discussed below following the questions specific to the I4.0 strategies.

Country	I4.0 strategy	Other recent strategies and policies addressing adaptation to new technologies
Australia	No distinct plan	<ul> <li>Digital Economy Strategy: Australia's Tech Future (2018)</li> <li>Industry 4.0 Taskforce (2016) and Industry 4.0 Advanced Manufacturing Forum (2018)</li> </ul>
Brunei Darussalam	No distinct plan	Brunei Vision 2035 (Wawasan 2035)
Cambodia	No distinct plan	<ul> <li>Rectangular Strategy for Growth, Employment, Equity and Efficiency, Phase IV (September 2018)</li> <li>National Science and Technology Master Plan 2014–2020</li> <li>ICT Masterplan 2020</li> </ul>
China	Made in China 2025	<ul> <li>13th Five-year Plan for Economic and Social Development 2016–2020</li> <li>Plan for the Development of the Robotics Industry 2016–2020</li> <li>Development Plan for Innovation Capacity in Industrial Technology (2016)</li> <li>Smart Manufacturing Development Plan 2016–2020 [Alternatively called the "Intelligent Manufacturing Development Strategy"]</li> <li>Action Plan for Promoting Development of a New Generation Artificial Intelligence Industry 2018–2020</li> </ul>
India	No distinct plan	<ul> <li>Digital India (2015)</li> <li>Make in India (2014)</li> <li>India Vision 2030</li> <li>New Industrial Policy (forthcoming)</li> <li>Three-year Action Agenda 2017–18 to 2019–20</li> </ul>
Indonesia	Making Indonesia 4.0 (MI4.0)	<ul> <li>National Long Term Development Plan 2005–2025</li> <li>National Medium Term Development Plan 2015–2019</li> <li>Master Plan of National Industry Development 2015–2035</li> </ul>

#### Table 2. National I4.0 strategic plans in ASEAN +6

<sup>11</sup> This section provides an introduction to the core strategies linked to national efforts to encourage innovation and capitalize on the 4IR in the region, but for a more in-depth review of the science, technology and innovation policies in the four arguably most advanced countries (China, Japan, the Republic of Korea and Singapore), see UNESCAP (2019).

Country	I4.0 strategy	Other recent strategies and policies addressing adaptation to new technologies
Japan	No distinct plan	<ul> <li>Society 5.0 (2016)</li> <li>Fifth Science and Technology Basic Plan 2016–2021</li> <li>Comprehensive Strategy on Science, Technology and Innovation (2016)</li> <li>Integrated Innovation Strategy (2018)</li> </ul>
Korea, Rep. of	I-Korea 4.0	<ul> <li>The Innovation Growth Engine (2018)</li> <li>Intelligent Robot Industry Development Strategy (2018)</li> <li>4th Industrial Revolution and Human Resources Demand Forecast 2016–2030</li> </ul>
Lao PDR	No distinct plan	<ul> <li>Ten-year Socio-economic Development Strategy 2016–2025</li> <li>8th Five-year National Social and Economic Development Plan 2016–2020</li> </ul>
New Zealand	No distinct plan	<ul> <li>Business Growth Agenda (2017)</li> <li>Building a Digital Nation (2017)</li> <li>Internet of Things Alliance</li> <li>Digital Skills Forum</li> <li>Future of Work Tripartite Forum (2018)</li> <li>Digital Economy and Digital Inclusion Ministerial Advisory Group (2018)</li> </ul>
Malaysia	National Policy on Industry 4.0 (Industry4WRD)	• Eleventh Malaysia Plan 2016–2020
Myanmar	No distinct plan	<ul> <li>Myanmar Sustainable Development Plan 2018–2030</li> <li>Industrial Policy (2016)</li> </ul>
Philippines	Inclusive Innovation Industrial Strategy (i3S)	Philippine Development Plan 2017–2022
Singapore	No distinct plan	<ul> <li>Industry Transformation Programme</li> <li>Smart Nation</li> <li>Future of Manufacturing Initiative</li> <li>Digital Economy Framework for Action</li> </ul>
Thailand	Thailand 4.0	<ul> <li>Twelfth National Economic and Social Development Plan 2017–2021</li> <li>Twenty-year National Strategy 2018–2037</li> </ul>
Viet Nam	National Industrial Development Policy until 2030 with a vision toward 2045	<ul> <li>Directive No. 16 (Ct-Ttg) on Strengthening Vietnam's capacity to leverage the 4th Industrial Revolution (2017)</li> <li>Socio-economic Development Plan 2016–2020</li> <li>Strategy for Science and Technology Development 2011–2020</li> <li>Plan on economic restructuring in association with conversion of the growth model towards improving quality, efficiency and competitiveness 2016–2020</li> </ul>

Source: Annex 1.

### **3.2.3 Technology for economic and social development**

### Policies for I4.0 are part of broader development frameworks.

The idea that supporting technological innovation, especially in the industrial sector, is a necessary component of a country's economic transformation and development pathway is not only confirmed in the I4.0 strategic plans but is also very much present in the medium and long-term economic planning documents of almost all ASEAN +6 countries. As an example, the overview of Thailand's Twelfth National Economic and Social Development Plan 2017–2021 acknowledges the Plan's aim to support substantial reforms "by accelerating the development of science, technology, research and development, and innovation as key factors in empowering the development of all aspects needed to increase the country's competitiveness with an exceedingly competitive global economy" (see Thailand country note, Annex 1).

Similarly, the various development plans of Indonesia, Malaysia, the Philippines, Viet Nam and even Cambodia, Lao People's Democratic Republic and Myanmar, with their ultimate aim to achieve highincome status (see table 3), are now connected with the countries' capacity to grasp the opportunities of the 4IR. While the linkage to growth is also made in high-income +6 countries, they tend to also promote broader societal gains as an objective of their 4IR strategies.

Country	Motivation
Cambodia	Upper middle-income country by 2030; high-income country by 2050 (Rectangular Strategy Phase IV)
Indonesia	Among the top ten largest economies in terms of GDP by 2030; raising net export contribution to GDP to 10 per cent by 2030 (from 1 per cent in 2016) (Making Indonesia 4.0)
Lao PDR	Graduate from least developed country status by 2020 (Ten-year Socio-economic Development Strategy 2016–2025); upper middle-income status by 2030 (Vision 2030)
Malaysia	Advanced economy and inclusive nation by 2020 (Eleventh Malaysia Plan 2016–2020)
Myanmar	No direct target; general aim to achieve and maintain positive development outcomes (Myanmar Sustainable Development Plan 2018–2030)
Philippines	Prosperous middle-class society where no one is poor by 2040; threefold increase in per capita income from 2015 to 2040 (Ambisyon Natin 2040: A long-term vision for the Philippines)
Thailand	High-income status by 2037 (National Strategy 2018–2037)
Viet Nam	Modern, industrialized country by 2045, with industry to contribute 40 per cent of GDP by 2030 and value added of high-tech products in the manufacturing and processing industries to reach at least 45 per cent; one of top three ASEAN countries in terms of competitiveness (ranked on the Competitive Industrial Performance index) (National Industrial Development Policy until 2030 with a vision toward 2045 – Resolution No. 23 NQ/TW)

#### Table 3. Development aims of ASEAN countries

Source: Various policy documents listed in table 2.

### The +6 countries benefit from stronger institutions to promote new technologies.

ASEAN +6 is a heterogeneous grouping with countries at different stages of development – i.e. from least developed countries like Lao People's Democratic Republic and Myanmar to advanced economies like Australia, Japan, New Zealand, the Republic of Korea and Singapore. It is not surprising therefore to find considerable variances in the scope and degree of complexity of policies aimed at promoting new technologies among the countries reviewed.

For instance, such policies and strategies in China, Japan and the Republic of Korea cover domains such as artificial intelligence, robotics, Internet of Things, smart manufacturing and the like,<sup>12</sup> whereas countries like Cambodia, Lao People's Democratic Republic and Myanmar are largely directing their efforts at laying the foundations for continued industrialization and creating a conducive environment for technological developments to gain momentum. This is also reflective of the different levels of institutional development in the countries with regards to their current status of technology development (see section 2.2.2). As captured by UNESCAP (2019), countries like China, Japan, the Republic of Korea and Singapore underwent their own institution-building processes over the course of their industrialization pathways that supported greater innovation and technological development. In their current "post-catch up" phases, these countries are looking to increasingly strengthen such institutional mechanisms to further promote technological development, this time along the lines of smart technologies.

On the other hand, the institutional development and context for promoting innovation and technological development is still in fledgling mode in the newly-industrialized developing economies of the region. While on the one hand this is indicative of the greater distance from the technological frontier for such countries (see figure 8), on the other hand, experiences of institutional development in other ASEAN+6 counterparts can be important references for countries embarking on this path.

### **3.2.4 Preparing the labour market for the Fourth Industrial Revolution**

### Plans put strong emphasis on skills development for technological upgrading.

Across the board, in national plans and strategies linked to I4.0 or more broadly to aspects of the 4IR, the principal link to the labour market falls in the domain of skills development. This is perhaps not surprising given that a large number of the ASEAN +6 countries still have a relatively small proportion of employment in non-routine cognitive occupations, which typically correspond to those occupations that are demanded in the context of I4.0 (see section 2.2.2). Human resource development that increases the supply of labour in these occupations is thus expected to contribute to countries' success in I4.0. Japan's Integrated Innovation Strategy states it clearly: "The most important key in creating science, technology and innovation is human resources". Brunei Darussalam calls "growing Bruneian human capital" an enabler of its national development vision. Malaysia likewise includes skills and talent among the enablers for its Industry4WRD National Policy on I4.0. Similar sentiments were found in all countries under review.

The action areas put forth by the ASEAN +6 countries share similarities in their objective to overcome their skills shortages. Improving the quality of the education system is one common policy aim, including through upgrading the use of technology and strengthening curricula in science, technology, engineering and mathematics (STEM).<sup>13</sup> This aim is noted in the lesser developed countries and advanced economies alike, although clearly the capacities to deliver on the aim will differ. The industrialization strategy documents of countries such as Cambodia (Rectangular Strategy for Growth, Employment, Equity and Efficiency, Phase IV) that still struggle with education

<sup>12</sup> A recent review of where countries stand in their AI strategies is available in T. Dutton: "An overview of national AI strategies", *Politics* + *AI*, 29 Jun. 2018.

<sup>13</sup> Indonesia (Making Indonesia 4.0) adds "arts" to the list, thus changing the acronym to STEAM.

outcomes focus attention on the need to build the basic infrastructure for education and training, including improving teacher qualifications. A country like Japan, on the other hand, emphasizes improvements needed at tertiary–level institutions, with numerous action areas for reforms of science and research-oriented programmes in the university system and affiliated research institutes. Some countries give specific targets; for example, Thailand, where the Twenty-year National Strategy 2018–2037 proposes to produce more than 12,000 doctoral researchers to support the development of the ten industries identified under the Thailand 4.0 framework (see table 4 on targeted industries in I4.0 strategy documents). Malaysia's Industry4RWD sets a goal of increasing the share of high-skilled workers in the manufacturing sector from 18 per cent (2016 baseline) to 35 per cent in 2025.

ASEAN country	Target sectors	
Brunei Darussalam	Not found	
Cambodia	Science and technology; digital connectivity; logistics; transport; energy; and banking and finance sectors	
Indonesia	Food and beverage, textiles and apparel, automotive, electronics, and chemicals within the manufacturing sector	
Lao PDR	Not found	
Malaysia	Electrical & electronics, machinery & equipment, chemicals, medical devices, aerospace and other sectors (automotive, transport, textiles, pharmaceutical, metal, food processing and services)	
Myanmar	Not found	
Philippines	Automotive; electronics and electrical manufacturing; chemicals; shipbuilding and repair; aerospace parts and aircraft maintenance, repair and overhaul; tourism; IT business process management and e-commerce; furniture, garments and creative industries; iron and steel, tool and die; agribusiness; construction; and transport and logistics	
Singapore	Manufacturing, built environment, trade & connectivity, essential domestic services, modern services, and lifestyle (see also discussion on Industry Transformation Maps below)	
Thailand	Medical tourism, automotive industry, agriculture and biotechnology, electronics, food and beverages, robotics, aviation and logistics, digital technologies, biofuels and bio- chemicals, and health care and medical industry	
Viet Nam	ICT and electronics; clean, renewable, and smart energy; processing and manufacturing industries to serve agriculture; defence and security; further development of textile, garment, and footwear industries focussing on high added value-creating phases with smart and automated manufacturing processes; engineering industries such as automobile, agricultural machinery, construction, industrial, electric, and medical equipment; new materials and biotechnology	

#### Table 4. Targeted sectors for national industrialization plans in ASEAN countries

Source: Various policy documents listed in table 2.

### Vocational education is promoted for skilling, reskilling and upskilling.

All of the I4.0 or 4IR-related documents listed in table 1 touch on the need to improve the quality of the country's technical and vocational education and training (TVET) system for both new and returning students. The notion that workers in certain professions will need to be trained in new areas is noted in numerous planning documents, including in Viet Nam, where mention was made of increasing investments in TVET facilities specifically for rural labourers so that they can apply new technologies to agricultural production. The Thailand 4.0 strategy sets a specific target for reskilling, claiming the country will upgrade the skills of up to 500,000 workers in five years "in accordance to the development needs and directions of the country", although no details are provided on how it aims to meet the goal. In India, the Skill India campaign launched in 2015 began a wide scale set of programmes aimed at providing training to 400 million people by 2022.

Malaysia also acknowledges the need to upskill the existing workforce. According to the National Policy on I4.0, the government will support the implementation of I4.0 Talent Competency & Technology Mentoring programmes, establish skills certification programmes in I4.0 areas, develop training courses for the reskilling of transitioning employees and use augmented or virtual reality in classroom modules. In China, associated with the Made in China 2025 plan is the National Highskilled Talent Revitalization plan which focuses on: (i) training of master trainers; (ii) constructing topnotch training facilities; and (iii) province-determined training programmes based on localized labour shortages.

### In some countries, skills roadmaps are designed for specific sectors.

An example here is the Indian State of Andhra Pradesh, which created a skills roadmap in recognition that forecasting and planning will be necessary to fill the gap of 10 million skilled workers in the 2012–22 period. The resulting initiatives on human resource development fall under the domain of the Andhra Pradesh State Skills Development Corporation, known as the largest public-private partnership of its kind in the country. According to the India Skills Report (2019), "a public-private partnership framework with strong enterprise participation lies at the foundation of mature apprenticeship and training ecosystems".<sup>14</sup>

The Singapore Industry Transformation Maps (ITMs) of 23 sectors are another example of planning for skills development in specific sectors and occupations. Within each of the ITMs, recommendations on skilling and reskilling were made over the course of 2018 to meet the training needs in each of the 23 sectors. In the ICT sector, for example, the TechSkills Accelerator initiative was developed in the realm of the SkillsFuture programme, although non-ICT professionals are also welcome to join. The aim of the platform is to encourage the continuous training and upgrading of ICT workers on the latest technologies. Singapore's SkillsFuture programme supports the country's vision to undertake a massive, holistic investment in human capabilities to further "drive Singapore's next phase of development towards an advanced and inclusive society" (see box 3).<sup>15</sup>

<sup>14</sup> The India Skills Report 2019 (PeopleStrong, Wheebox et al., 2019) is the sixth edition put together as a joint initiative of the All India Council for Technical Education and the Association of Indian Universities along with Wheebox, PeopleStrong and the Confederation of Indian Industry. The report is based on the results of the Employability and Skills Test conducted in 2018 with input from 3 million students from across India.

<sup>15</sup> SkillsFuture website: https://www.skillsfuture.sg/AboutSkillsFuture.

#### Box 3. Singapore's SkillsFuture initiative

Singapore's SkillsFuture is a nationwide skills development initiative that is aimed at providing opportunities for individuals to "develop their fullest potential throughout life, regardless of their starting points". The initiative is designed for accessibility of Singaporeans at all stages of careers and lives and therefore includes lifelong learning as a key element alongside the targeted focus on engaging students, employees (both early and mid-career), employers and training providers. It is led by the Future Economy Council, which has members from government, educational and training institutions, employers and trade unions.

A number of programmes are available under the initiative that are relevant to both specific and diverse sets of beneficiaries. For example, the enhanced internship programme is aimed at providing students with industry exposure to deepen their skills through real-world application. The SkillsFuture Series, on the other hand, provides short, industry-relevant training programmes in domains such as data analytics, finance, tech-enabled services, digital media, cybersecurity, entrepreneurship, advanced manufacturing, and urban solutions. The SkillsFuture programme also identifies the need for pedagogical innovation and features a learning innovation initiative known as iNnovative Learning 2020, or simply, iN.LEARN 2020, which promotes the use of blended learning in Continuing Education and Training and seeks to improve the accessibility, effectiveness, and quality of learning. The SkillsFuture credit and SkillsFuture Study Awards are two additional services offered under the initiative.

For more detailed information on the SkillsFuture initiative and the various programmes and services it offers, visit: https://www.skillsfuture.sg/.

#### Introducing lifelong learning

Lifelong learning, the idea that personal skills portfolios change over the course of a lifetime and thus require an ecosystem to support opportunities for learning at all ages, was found to appear as a concept that links to the 4IR in Australia, Japan, India, Malaysia, the Republic of Korea, Singapore, Thailand and Viet Nam. Moreover, even if the terminology is not always directly used, the strategies of other countries that pick up on the need for reskilling and upskilling on new technologies can also be said to link to the concept of lifelong learning as applied more generally.<sup>16</sup> Japan, for example, has its Lifelong Learning Promotion Law, adopted as early as 1990 that emphasizes the improvement of non-formal education, primarily for the elderly, although not linking education directly to the aim of employment and productivity gains.<sup>17</sup> India, while having no law and implementing programmes in

a haphazard way, has, since the 1980s, also been engaging in lifelong learning programmes, focusing initially on non-formal literacy training for adults and later expanding them to various target groups (e.g. farmers and women).

Perhaps more relevant to the story of technological changes is the use of e-learning as a mechanism for facilitating lifelong learning. Japan, Malaysia, the Philippines, the Republic of Korea, Singapore, Thailand and Viet Nam have all advanced in developing e-learning systems that support both formal learning and workplace learning through government assistance. The K-MOOC (massive open online courses) initiative of the government of the Republic of Korea and Japan's OpenCourseWare Consortium are two examples (Yang and Yorozu, 2015).

<sup>16</sup> For an in-depth assessment of lifelong learning initiatives in all ASEAN countries plus Timor-Leste, see UNESCO Institute for Lifelong Learning (2017).

<sup>17</sup> Centre for Public Impact: "Japan's Lifelong Learning Promotion Law", Case study, 3 Aug. 2018.

#### Emphasis on high-skilled human resources

To attract foreign direct investment and especially to encourage investment in high-tech enterprises, most ASEAN countries strive to demonstrate to investors that they are serious about meeting current needs for highly-skilled human resources in science and technology. Some of the national 14.0 documents make reference to bolstering national industrialization by attracting highskilled talent, including from overseas. Viet Nam's National Industrial Development Policy until 2030 with a vision toward 2045 (Resolution No. 23 NQ/ TW, March 2018), for example, points to industrial human resource development that includes policies to attract and use high-qualified talent, both foreign workers and overseas Vietnamese. This is further supported in the country's Resolution on Enterprise Development Policy to 2020 (No. 35/NQ-CP, May 2016), under which the Ministry of Finance is charged to, among other things, study a proposal to "reduce 30% of personal income tax of workers in the fields of IT, hi-tech or agriculture and agricultural hi-tech processing, etc." The use of targeted tax concessions to attract returning national and non-national highlyskilled workers is nothing new, according to OECD (2011). Nonetheless, it will be important to assess the degree to which such policies are applied and the impact they have on inequality rates in the implicated ASEAN +6 countries.<sup>18</sup>

Beyond tax concessions, some countries like China use employment subsidies as incentives to help enterprises recruit high-skilled talent directly from universities. Another mechanism to promote innovation noted in China is the dedication of large amounts of municipal funds to reward innovation teams that succeed in contributing to high-end industrial development, including profit-sharing of enterprise revenues generated from their research and development efforts. Japan's Integrated Innovation Strategy also promotes efforts to encourage both the hiring of women as staff and the training of female researchers as part of its aim to increase diversity in Japanese universities and research institutes.

China, Japan and New Zealand also aim to attract high-skilled labour from other countries through an easing of regulations for entry and residency. In March 2018, Beijing Municipality announced a fullscale recruitment initiative for skilled workers in science and technology, creative arts and financial management.<sup>19</sup> To encourage enterprises to hire talented foreign workers, the State offers recruitment subsidies and easier entry procedures. Subsidies can cover from 50 to 80 per cent of salaries. New Zealand's strategy for Building a Digital Nation proposes to make use of immigration to bring digital skills to the country by exploring skills demonstration equivalence (in lieu of formal qualifications) for potential migrant workers in industries on the "longterm skills shortage list" and easing registration procedures for "accredited employers" (with permission to recruit migrant workers). In Japan, labour immigration reforms with revised visa policies took effect from April 2019. The revised policy allows workers in high-skilled professions to stay indefinitely (upon renewal of the visa) in Japan with their families, while for the first time opening the door to lower skilled foreign workers to meet the labour needs in 14 industrial sectors.

A recent study on skills shortages in the field of ICT and its implications on labour migration in India, Indonesia and Thailand reports that employers in the three countries find there to be sufficient number of graduates emerging with technical or associate degrees in ICT (ILO, 2019d). Nonetheless, they find the available ICT workers to be lacking in soft skills and deficient in certain specific areas of technical skills. In response, companies are developing reskilling and upskilling programmes for employees seen to show potential. The report finds that continuous training has become a necessity for both workers and their employers in order to keep pace with changing technologies.

The increased demand for high-skilled workers seems to be driving up salaries which, with the added attraction of the regions' emergence as a dynamic player in the 4IR, is serving as a draw for high-skilled Asian to return from studies and jobs in

<sup>18</sup> A recent study on the effectiveness of tax policy for high-skilled migration in EU countries is Simula and Trannoy (2018).

<sup>19 &</sup>quot;Beijing ramps up talent recruitment incentives, streamlines processes", China.org.cn, 23 Mar. 2018.

advanced countries, including from Silicon Valley in the United States.<sup>20</sup> The new wave of return migrants could serve the countries well in their quest for innovation.

#### How to build an ecosystem for innovation

To excel in the 4IR, ASEAN +6 countries recognize the need to develop national ecosystems that encourage innovation. The Philippines' Inclusive Innovation Industrial Strategy, Japan's Integrated Innovation Strategy and China's Development Plan for Innovation Capacity in Industrial Technology are three examples of stand-alone innovation strategies. Yet all of the broader national plans for 14.0 and developments in the areas of science and technology also deal with the topic. The typical action areas linked to encouraging innovation found in the various documents are strengthening support mechanisms for enterprise developments, with a particular focus on micro, small and medium-sized enterprises (MSMEs), encouraging development of research, strengthening collaboration with academia and the private sector and human resource development. A specific example is Japan's strategy to make business more agile and innovative as part of its Society 5.0 plan, which entails setting up a system of National Strategic Special Zones that benefit from "strategic deregulation".

At the regional level, the ASEAN Plan of Action on Science, Technology and Innovation and an associated Implementation Plan 2016–2025 was adopted by the ASEAN Ministers for Science and Technology in October 2016 (ASEAN Secretariat, 2017). The first strategic component of the ASEAN Plan of Action relates to public-private collaboration, meaning strengthening of collaboration between academia, research institutions, networks of centres of excellence and the private sector to create an effective ecosystem for capability development, technology transfer and commercialization. The ASEAN Plan of Action recognizes that the member countries have common objectives and thus proposes certain common actions, among which are joint undertakings in human resource development in specialized skills, production of guidelines on business incubation and other programmes to support MSMEs and enhance and improve the functionality of the ASEAN Science and Technology Network.<sup>21</sup>

#### Labour standards and I4.0

Labour standards and employment protection measures are typically not referenced in I4.0 or 4IR planning documents. This does not mean that the countries reviewed are not regulating on issues of labour standards - many are, and do put emphasis on various rights at work in their broader development strategies and national strategies for achieving the SDGs. Nonetheless, labour standards were rarely found to be directly referenced. One exception was found in the I-Korea 4.0 plan, which envisions making regulatory and legislative changes to reflect the changing work environment, address concerns surrounding special work arrangements, and broaden the scope of labour welfare-oriented legislation such as occupational safety and health regulations.

#### 3.2.5 Technological disruption

The ASEAN +6 countries have bought into the vision of I4.0 and are attempting to build the ecosystem that can encourage their adaptation to technologyrich, higher value added production (especially for manufacturing, but also for agriculture and services). While some of the various documents include introductory remarks that refer to "turbulent times", which could be taken to include circumstances of labour market disruption, few reference technological unemployment outright.<sup>22</sup> Perhaps the most explicit acknowledgement of technological disruption among the countries

<sup>20</sup> E. Maulia: "A new wave", Nikkei Asian Review, 27 May–2 Jun. 2019.

<sup>21</sup> For a detailed review of trends in the development of national innovation systems, see UNDESA (2018).

<sup>22</sup> The debate on the job impact of automation and other technological changes continues and many studies now exist that provide contradictory estimates of technological disruption. One study by the MIT Technology Review tracked a total of 20 reports from global experts predicting the impact that automation will have on jobs. Thirteen of the studies come out on the side of more jobs destroyed than created as a result of automation and the remaining seven pointed to greater job creation. See E. Winick: "Every study we could find on what automation will do to jobs, in one chart", *MIT Technology Review*, 25 Jan. 2018.

reviewed comes in Cambodia's Rectangular Strategy for Growth, Employment, Equity and Efficiency. The document acknowledges that the government "has to manage the adverse effects caused by the industrial revolution that include changing style of doing businesses and job losses, political and social instability and the cyber-attacks etc." (Government of Cambodia, 2018). Yet none of the priority actions listed in the strategy document relate to assisting the population of workers who might be affected by job losses.

How well the ASEAN +6 countries withstand any turmoil in future labour markets – due to technological changes, ageing, climate change or other causes – will largely depend on the strength of the countries' labour market institutions and the degree of investment in active labour market policies (ALMPs), including activities linked to retraining. In the case of Thailand, the Ministry of Labour responded directly to fears of increased unemployment as a result of the Thailand 4.0 policy in an online statement, which reminded that measures are already in place to support a disrupted workforce if shifts do occur, for example, with job placement support and retraining.<sup>23</sup>

Indeed, reskilling is the most frequently cited solution put forth in strategy documents as a mechanism to mitigate potential job losses. While not directly forecasting job losses, most of the strategies employ terminology for offering skills development services to displaced workers and those at risk of displacement. Singapore is perhaps the most advanced in its plethora of programmes aimed at helping workers to gain new skills and improve their employability through services like Adapt and Grow and the Professional Conversion Programmes.<sup>24</sup>

Among the +6 countries, China stands out for acknowledging that its strong push for I4.0 will require a massive readjustment also in where and how people work. Made in China 2025 aims to "pursue structural adjustment" and "transform production-oriented manufacturing into serviceoriented manufacturing". The country's traditional labour-intensive manufacturing base is already feeling the strain as the government shifts its support from lower to higher value added manufacturing.<sup>25</sup> Numerous factory closures have also been promoted in the name of environmental reform and the country's increasingly stringent enforcement of pollution controls (see section 3.4).

The Chinese government's strategy seems to cover three aims at once: one, shifting the economy to an advanced manufacturing status; two, reducing production of oversized, inefficient industrial sectors; and three, contributing to efforts for environmental sustainability. While the "pain" of such adjustments are not mentioned in the planning documents, the thinking is clearly that the ultimate gains will outweigh the pain. Factory closures and disruptions are resulting in layoffs, but according to one report, the estimated 2 million workers who lost their jobs in the first half of 2018 were benefitting from the plethora of new job opportunities, particularly in the services sector.<sup>26</sup> More recently, however, there is evidence that the absorption power of the services sector, including app-based services, is waning (see section 3.2.6 and country note in Annex 1).

Regardless of the final balance, the country aims to ready itself. China's Five-year Plan for Human Resources and Social Security Development 2016-2020 calls for improvements in active employment policy, including improved public employment services. Specifically, it calls for "strengthen[ing] the monitoring of large-scale unemployment in some regions and industries, and establish[ing] a response plan and working mechanism" and also for "implement[ing] the re-employment assistance action, increase[ing] the re-employment support, and do[ing] a good job in resolving the resettlement work in areas of excess capacity". The country has already weathered the mass restructuring that has occurred since the 1980s in the course of stateowned enterprise reforms, so could indeed be well placed to cope with technological dissruption in coming years.

<sup>23</sup> Government of Thailand, Ministry of Labour: "Ministry of Labour revealed the policy of Thailand 4.0 does not make people unemployed and confirmed measures to support", News release, 2 Sep. 2018.

<sup>24</sup> See full details in the Singapore country note in Annex 1.

<sup>25</sup> R. Woo and L. Zhang: "China factory activity shrinks for first time in over two years, 2019 looks tougher", Reuters, 31 Dec. 2018.

<sup>26</sup> FT Confidential Research: "China's factory workers find new careers in services", *Nikkei Asian Review*, 18 Jun. 2018.

While other countries were not found to directly discuss the possibility of technological disruption in their strategy documents, one could assume that they would rely on their existing infrastructure for ALMPs to support the transitions of any technologylinked disruption. There are three main categories of ALMPs: public employment services such as job centres which offer services that help the unemployed to find work; training schemes such as apprenticeships or entrepreneurial training; and employment subsidies that can help to encourage enterprises to hire the unemployed either in general or a particular target group (for example, the disabled), including through targeted public works programmes.

A recent comparative assessment of labour market policies in ASEAN countries (ILO, 2018e) found that between 2010 and 2015, several countries were implementing policies that addressed job search assistance and skills development within the same legislative framework. Most of the policies in this area involved either the creation of new training programmes or the enhancement of existing ones. Training was identified as the most common category of labour market intervention according to the database of policies collected. As technological changes and industrial plans - including those that support the dismantling of heavy industry and the development of green industries - result in some labour market turnover, countries' ALMPs will be put to the test.

#### 3.2.6 Regulating digital labour platforms

The emergence of digital labour platforms is inextricably tied to the future of work and a theme that ASEAN +6 countries, as countries everywhere, are grappling with in terms of definitions and regulations. Nearly all governments of the countries in this study take a positive stance towards supporting digitalization, including as a mechanism for exchanging work ("gigs") via apps. The proliferation of opportunities for work on digital labour platforms has taken off in the ASEAN +6 countries, as it has globally. But some countries are more open than others when it comes to permitting the spread of digital labour services. National reactions to digital labour platforms can be categorized in two ways: first, how and if countries allow digital labour platforms to engage in the country and how revenues are to be traced and taxed; and second, how and if countries attempt to reform labour laws to either embed the new categories of gig workers within existing categories of the defined employment relations or create new categories, all with the aim to determine the obligations of the national framework of labour protection to the new forms of work. Many of the ASEAN +6 countries have achieved the former, but no country in the region has yet definitively determined the coverage of platform workers in existing labour legislation.

Some countries have taken a cautious approach to allowing location-based platforms such as ridehailing services like Uber and Grab to operate, typically in response to protests from national competitors (traditional taxi companies, for example) on unfair advantages available to the new service providers.<sup>27</sup> In Japan, for example, the government preference to authorize licensed taxi companies to make use of apps rather than embracing Uber has resulted in a failure of the company's taxi services to take off there. In Singapore, while allowing the app-driver service Grab to enter, the company's acquisition of Uber resulted in a stiff fine from the Competition Commission. A similar anti-competition investigation is currently underway in Viet Nam. Also in Viet Nam, the traditional taxi companies took their case to the courts, claiming that the app-based taxi services were benefiting from unfair competitive advantages such as an ability to avoid taxes and forgoing the need to pay social security guarantees to their drivers.<sup>28</sup> While the case is still in the judiciary system, the government is holding back on issuing a new decree on how the digital labour platform will be governed.

The Philippines, in contrast, took a different approach, creating a new category of transport service providers, namely "transportation network companies" and establishing the rules for their operation as a company while also setting the obligations of their drivers. Malaysia has also

<sup>27</sup> See Berg et al. (2018) for a clear definition of location-based and non-location-based digital platforms.

As of February 2019, the *Vinasun vs. Grab* lawsuit continued in the Ho Chi Minh City People's Court.

recently set regulations for registration of ridehailing operators, requiring drivers to have an intermediation business license (a public service vehicle license). Even China, where digital labour platforms were once wholeheartedly supported by the Administration as a means of absorbing workers laid off from the restructured industrial sector and fostering the country's vision of economic growth, is now moving towards tightening restrictions for the licensing of operators and ride-sharing vehicles.<sup>29</sup>

Perhaps the strongest national political reactions to date in the Asia-Pacific region on governance of location-based digital labour platforms and their workers come from Indonesia, New Zealand and the Republic of Korea. Since October 2017, the government of New Zealand applies stringent rules for licensing ride-hailing drivers and ensuring their compliance with working-time laws.<sup>30</sup> In the Republic of Korea, a social dialogue body was recently launched with participation from the government, taxi and carpooling services with a view to finding common ground regarding the operation of shared mobility.<sup>31</sup> More definitively, in January 2019, the revision to the Act on Industrial Safety and Health was announced with one of the planned amendments being the inclusion of platform workers under the protection of the law.<sup>32</sup> Finally, in Indonesia, Ministerial Regulation No. 12/2019, issued in March 2019, legislated on tariffs as well as rules for customer protection and safety in the ride-hailing industry (motorbikes only). As of May 2019, following strong pressure from ridehailing moto-drivers, a minimum tariff for fares was implemented in five cities as a preliminary trial to be monitored closely by the Ministry of Transportation.

Regarding the legal status of non-location-based platform sites (UpWork, for example) and the nature of the relationship between the freelance workers (or crowdworkers), the digital platform that mediates the transaction of their work and the ultimate receiver of work, no ASEAN +6 country has yet fully sorted out how this phenomenon fits with current labour codes. Japan has also taken some steps as part of the Action Plan for the Realization of Work Style Reform.<sup>33</sup> The Ministry of Health, Labour and Welfare was tasked to revise its guidelines for home-based telework without fixed contract to include the specific circumstances of crowdworking, including addressing the obligations of the digital intermediate agents.<sup>34</sup> The Ministry also opened a website for the support of home workers, including crowdworkers, with guidance on their rights and obligations.<sup>35</sup> Finally, the Philippines is attempting a holistic approach with its Freelancers Protection Act (Senate Bill No. 351), which sets the rules for freelance work, the steps whereby online workers can file complaints against employers, fix penalties for non-payment of services and exempts freelance workers from tax payment in first three years. The Act, proposed in July 2016, has not yet been issued.

The ultimate question remains as to where the responsibility for worker protection and social protection rests in all countries. The approach so far has been to include location-based platform workers into existing employment laws for liabilities and protections, but without yet defining responsibility of the platform-owning enterprise. In the case of app-based drivers, the current regulatory emphasis is on regulating driver behaviour first to ensure rider safety with secondary consideration – if any at all – paid to the welfare of drivers (with focus primarily on occupational safety and health). The definition

<sup>29</sup> O. Wang: "China's gig economy losing ability to absorb laid off factory workers", South China Morning Post, 13 Feb. 2019.

<sup>30</sup> The government of New Zealand enforces the recent Land Transport Amendment Bill, which requires platform drivers to hold a Passenger Endorsement card as well as a Certificate of Fitness and a Small Passenger Service License Label for their vehicle. Some drivers are already being prosecuted for violating labour standards. S. Plumb, "Uber drivers taken to court by NZTA", NZHerald, 7 Nov. 2016.

<sup>31 &</sup>quot;Social dialogue body on taxi, carpooling services launched", *The Korea Bizwire*, 22 Jan. 2019.

<sup>32 &</sup>quot;Industrial Safety and Health Act revised", Ministry of Employment and Labour, Government of the Republic of Korea, Press release, 15 Jan. 2019.

<sup>33</sup> The Action Plan for the Realization of Work Style Reform, dated 28 Mar. 2017, is available on the website of the Japanese Prime Minister's office at: https://www.kantei.go.jp/jp/headline/pdf/20170328/07.pdf.

<sup>34</sup> The broader terminology used in the Japanese documents is "non-employment type telework" which refers to workers without contracts who undertake assignments from home. Crowdsourcing is the case when the job is passed via the internet.

<sup>35</sup> See: http://homeworkers.mhlw.go.jp/.

of the employee-employer relationship has already reached the courts in both Australia and India.<sup>36</sup> The fact that the rulings went in opposite directions in the two countries – in Australia, in favour of the app company (Uber), and in India, in favour of the app driver – reflect the underlying differences in national labour laws and points to the future challenges in discussions promoting global governance of digital platforms.

While this issue remains unresolved for all digital labour platforms and workers (location or nonlocation based), alternative models for promoting employment-related insurance for platform workers are popping up in some countries. For example, in Indonesia, the ride-hailing platform Go-Jek has partnered with the national Social Security Administration Body for Employment (BPJS Ketenagakerjaan) to facilitate the registration of its partner riders with the national employment-related insurance system.<sup>37</sup> The registration is facilitated by a custom-made website enabling riders to register conveniently and the monthly fees are deducted directly from drivers' Go-Jek balances. The programme, however, is based on partner riders' contributions and Go-Jek does not make monthly contributions towards the insurance scheme.

Platform workers have also started to take matters into their own hands to push for increased accountability from both platform providers and the government. Some countries are now witnessing the organization of associations of app-drivers to bargain with governments on higher fares, insurance and other working conditions; for example, the Grab Drivers' Malaysia Association. In the Philippines, Grab Philippines and the Philippine National Taxi Operators Association filed a joint petition for increase in fares, and in Indonesia, the Makassar Go-Jek Drivers' Union has engaged in a series of protests against Go-Jek office on behalf of drivers seen to be unfairly suspended.

### **3.2.7 Summary: Preparing for technological change**

Countries take a positive view of technological change, including in labour markets, but the reality is, many ASEAN +6 countries remain on low rungs of the I4.0 ladder.

Technological advancement, as invoked in the planning documents of most countries reviewed, is promoted as a core element of national growth strategies. This makes sense, as countries in the region recognize the need to plan for a development path that gives more importance to domestic markets as export-dependency becomes increasingly risky. Moving to high-tech manufacturing is viewed as a means to "move up the value chain" by developing new products and services that better position them in global markets, especially as competition based on low costs proves to be unsustainable. But few countries, among those reviewed, are ready to make the leap to 14.0.

The manufacturing sectors of many ASEAN countries are still characterized by relative prices that tilt in favour of cheap labour. The rural labour supply is declining everywhere in the region, but is by no means exhausted, and even as rural migrantion slows, labour migrants from other countries remain plentiful. The overall effect in most ASEAN countries has been wages that remain moderate in the manufacturing sector, thus limiting incentives to invest in technology for productivity gains. Moreover, some countries may lag in the skills endowment necessary to facilitate the diffusion of new technologies.

<sup>36</sup> The Australian 2018 case is Kaseris vs. Rasier Pacific; see D. Marin-Guzman: "Uber wins Fair Work Commission case over drivers' employment rights", Financial Review, 5 Jan. 2018. In India, the 2017 case Delhi Commercial Driver Union vs. Union of India was subsequently withdrawn; see A. Gupta: "Gig economy: Why there is a need to balance employment opportunities with basic rights", Financial Express, 17 Dec. 2018.

<sup>37</sup> R.M. Siniwi: "Go-Jek drivers join BPJS Ketenagakerjaan", Jakarta Globe, 19 Apr. 2016.

#### The future of work is not high skilled alone.

Investing in skills development with an aim to increase the availability of a well-educated workforce that aligns to the 4IR is a worthy policy goal, but it is important to note that there will never be a sufficient quantity of high-skilled jobs to absorb all workers in the country. Nor should there be since lower-skilled work also remains in high demand. Future of work discussions and planning for I4.0 and the broader 4IR have a tendency to overlook the importance and necessity of low- and medium-skilled work drivers, food preparers, domestic help, care workers, construction workers, retail workers, etc. Some countries in the region increasingly rely on migrants to take up such work. Labour migration in the region is mutually beneficial as long as migrant workers are fairly treated. As to migration trends in the future, one question to ponder is whether the migrant pool of persons willing to take up low-skilled work will continue to be sufficient in size to meet demand, especially as labour shortages increase and spread to more countries. Another question for the distant future is who is going to do the low-skilled work after the goals of universal secondary and higher education have been reached in all countries.

Low-skilled work has immense value for the functioning of societies, and its value has the potential to increase further as supplies shrink. The hope is that wages will rise and conditions of work will improve for low-skilled workers as their market value increases.<sup>38</sup>

### Skilling is not a magic bullet when countries are undergoing structural transformations.

Policies and programmes for skilling and/or skills upgrading are among the most common solutions proposed by countries in preparing for a future of work that is reliant on technological advancement and more "green" (section 3.4). But skills development as embedded in I4.0-related planning documents has a tendency to be oversimplified and occasionally unrealistic; first, because it is not really possible to accurately forecast the skills needs of the future, and second, because efforts at reskilling will always have their limitations. A laid-off coal miner is unlikely to become a data scientist despite taking a computer course, nor is a garment worker going to easily transform him or herself into a software developer.

If reskilling is deemed to be part of a national solution to increasing the skills base for the 4IR, to start with, it is essential that workers are part of the process and dialogue on the discussion related to possible enterprise restructuring and/or job re-profiling, so that they at least have time to prepare. Employers' support for their upskilling is also critical here. An investment in workplace learning that would allow workers to shift from redundant occupations to in-demand occupations in the same enterprise could be a more effective longer-term strategy for enterprises than simply letting workers go and then recruiting new workers.

The degree to which countries are seeking to prepare workers with skills not simply as demanded by the economy but also as will be needed by individuals to shape their own career development is not clear. Planning documents for I4.0 emphasize the technical skills viewed as most relevant to boosting innovation and technological change in the country. This is fine, as long as it does not compete with national financial resources needed to promote solid basic education and lifelong learning that nurture both key non-cognitive capabilities, including curiosity, perseverance, learnability and adaptability, as well as specific areas of skills or professional skills and competencies (see box 4 for more information about ILO's work on the topic of skills and the future of work).

<sup>38</sup> One model to "uplift low-wage workers" is the Singaporean "Workfare, Workright and Workcare" (3W) programme, which includes an enhanced workfare income supplement, campaign on workers' rights and additional welfare provisions for low-wage workers such as rest areas. Its components are not without critics, however, given the high expenditures required and the exclusion of foreign labour that might be better served through a national minimum wage. See C. Soon Beng and L. Low: "Why workfare works better for Singapore than a minimum wage", *Today*, 13 May 2019.

#### Box 4. Skills and the future of work

Policies and initiatives aimed at augmenting human resources have been prioritized in almost all countries in the Asia-Pacific region as one response to current trends in technological developments. This current report discusses some of the policies in brief, but another recent ILO publication is recommended for those interested in a holistic discussion of skills development as it links to the future of work.

*Skills and the future of work: Strategies for inclusive growth in Asia and the Pacific* (Sakamoto and Sung, 2018) brings together a wide-ranging set of discussions, analyses and perspectives by leading experts and practitioners in the field of skills development. The book highlights the need for a future strategy to address not only "what skills" and "who gets access to training", but also whether and how these skills are having an impact on creating better employment and business outcomes. This requires greater appreciation of the demand side of skills and addressing skills issues in the context of, or in conjunction with, the evolving context of work.

The 15 chapter book spans a range of critical issues concerning skills development examined in the context of the future of work with detailed case studies on a number of ASEAN +6 countries. It touches, for example, on the case of Singapore and its holistic approach to addressing skills in an ageing workforce, on Japan and the impact on skills investments in the context of changing business models, and on the Chinese experience of promoting skills for the green economy. The book thus serves as an excellent companion piece to this report.

#### Coping with labour shortages is a common theme, but skills development and attracting labour migrants are not the only solutions.

In the narrative on promoting technological change as a driver of growth the theme of labour shortages is discussed mainly in terms of insufficient availability of workers with the technical (STEM) skills. The theme also occurs in the discourse on ageing (section 3.3.3) with a particular focus on shortages in the elderly care sector. In both discourses, the principal policy solution pursued in response to labour shortages is the same: increasing efforts in skills development. In a handful of countries, action is also discussed in the area of labour migration governance, although this can prove to be a politically risky move. Regardless, maintaining the right mix of policies to boost economic growth goes beyond creating skills and attracting migrants.

If labourers do not feel safe at night, if they feel the air is too polluted, if they expect higher wages or do not like their living conditions, it will remain difficult to keep workers in the country. Hence, to the many challenges already reflected in the region's preparedness for the future of work, one more can be added, which is the challenge of building thriving, liveable communities. Building a highly skilled workforce and keeping them in the country needs major investment in education, but also in infrastructure, culture and health services. As the competition for labour becomes stiffer in the context of ageing societies, governments may need to consider more creative means to limit brain drain and incentivizing citizens (and migrants) to stay in the country.

### Regulation of digital labour platforms is coming and enterprises should be ready to adapt.

The debate continues regarding the number of workers engaging in digital platform work. As a share of total employment, the numbers are not expected to be large, which can call to question the large volume of research and media attention given to the topic. Regardless of its current or future size, as noted in section 3.2.6, many countries assessed have taken some action in relation to regulating digital platform work in the absence of global rules. Some of the ASEAN +6 countries have sorted out how platform enterprises and gig workers are to be registered and, to a certain degree, regulated. Where less progress has been made is in establishing where gig workers fit in the realm of labour protection, but even here some countries are taking innovative action.

Digital platform work falls on the broad spectrum of informal, non-standard work that has historically characterized the labour markets of developing and emerging Asia. It is a new symptom of an old ailment, which is the dominance of insecure, informal work with no employment benefits. ASEAN Heads of States committed to taking concrete actions towards the transition from informal employment to formal employment in the Vientiane Declaration of 2018 (ASEAN Secretariat, 2018). Progress on this front will impact as well the future storyline of digital labour platforms in the region.

#### 3.3 Population ageing

#### 3.3.1 Introduction

Most countries in the region are experiencing rapid ageing and have completed or at least begun the process of developing policies and legislation in reaction. While ageing is not a new phenomenon for some countries, other countries' populations are still relatively young on average and have started to age only more recently (see section 2.2.3). Ageing links to numerous policy areas related to the future of work including social protection, skills and nondiscrimination, among others. The scan of national policies undertaken are available in Annex 2 and summarized in the following sub-section. For each ASEAN +6 country, information was sought in response to the following questions:

- 1. Does the country have a specific strategy or policies that explicitly relate to demographic changes, particularly ageing?
- 2. What are the direct or indirect links of these strategies or policies to the labour market?
- 3. What are the roles of social partners and the private sector in the country's strategies or policies that relate to demographic changes?

#### 3.3.2 Policy-making for an ageing society

For the ASEAN +6 countries as a whole, one trend that is consistently observed is the ageing of the population and labour force. The ten ASEAN countries adopted the Kuala Lumpur Declaration on Ageing in 2015, and in so doing, pledged to foster concrete action to support the empowerment of older persons. Most of the countries have taken actions accordingly, including to mainstream population ageing into public policies and national development plans and programmes.

The pace at which the country is ageing is reflected in the recent policy-making of the countries, with differences among countries that are preparing for the phenomenon of ageing and countries that are already coping with it. The most obvious ageing strategies and their labour market components are summarized in table 5.

Some countries pursue policies that aim to ensure the well-being of the elderly as a vulnerable group, but without directly acknowledging ageing as a concern for future labour shortages or productivity slowdowns.<sup>39</sup> These are primarily the countries that have not yet reached the stage of having an ageing population (see table 1 in section 2.2.3). Other countries, principally those that already feel the stress of shrinking labour forces (Australia, Japan, New Zealand, the Republic of Korea and Singapore, and, to a certain extent, China, Malaysia and Thailand) have moved towards more integrated national policy approaches.

<sup>39</sup> This section concentrates on the cross-over of ageing policies to labour market issues, but for a more general, holistic review of ageing policies, Williamson (2015) is a good source. Another useful source is UNESCAP (2017).

Country	Demographic grouping and ageing status <sup>1</sup>	Strategies or plans addressing demographic changes (ageing)	Action areas linked to labour markets
Australia	Post-dividend; aged	More choices for a longer life package 2018 Living Longer Living Better care reform package 2017	<ul> <li>Retirement age to be increased gradually to 67 by 2023</li> <li>Human resource management and training for elderly care personnel</li> <li>Job placement programmes</li> <li>Preferential loans for business start-ups</li> <li>Preventing age discrimination</li> <li>Subsidies to encourage employment of elderly</li> <li>Social assistance</li> <li>Skills development</li> </ul>
Brunei Darussalam	Late dividend; not yet ageing	Not found	<ul><li>Extended retirement age to 60</li><li>Universal old-age pension</li></ul>
Cambodia	Early dividend; not yet ageing	National Ageing Policy 2017–2030 National Population Policy 2016–2030	<ul> <li>Skills development</li> <li>Social assistance</li> <li>Access to finance for the elderly</li> <li>Human resource management and training for elderly care personnel</li> <li>Evaluating old-age pension</li> <li>Preventing age discrimination</li> <li>Promoting community-based elderly associations</li> </ul>
China	Late dividend; ageing	Five-year Plan on Elderly Care 2016–2020 Plan for Elderly Education 2016–2020	<ul> <li>Favourable terms to attract foreign direct investment in the non-profit elderly care sector</li> <li>Human resource management and training for elderly care personnel</li> <li>Preferential loans for business start-ups</li> <li>Social assistance</li> <li>Promoting community care</li> <li>Skills development</li> <li>Regional health centres and home care</li> <li>Extending social protection</li> </ul>
India	Early dividend; not yet ageing	National Policy on Older Persons 1999 National Policy on Senior Citizens 2011 (not yet approved)	<ul> <li>Human resource management and training for elderly care personnel</li> <li>Job placement programmes</li> <li>Access to finance for the elderly</li> <li>Extending social protection</li> <li>Preventing age discrimination</li> <li>Regional health centres and home care</li> <li>Social assistance</li> <li>Skills development</li> <li>Preventing age discrimination</li> </ul>
Indonesia	Early dividend; not yet ageing	Law No. 13/1998 on the Welfare of Older Persons Regulation No. 43/2004 on Older Persons Welfare Improvement Efforts	<ul> <li>Social assistance</li> <li>Extending social protection</li> <li>Expanding health centres</li> <li>Senior-friendly transport</li> <li>Skills development</li> <li>Human resource management and training for elderly care personnel</li> <li>Home care programme</li> </ul>

#### Table 5. Recent strategies and policies linked to population ageing in ASEAN +6

Country	Demographic grouping and ageing status <sup>1</sup>	Strategies or plans addressing demographic changes (ageing)	Action areas linked to labour markets
Japan	Post-dividend; hyper-aged	Act on Stabilization of Employment of Older People	<ul> <li>Extended retirement age to 65</li> <li>Human resource management and training for elderly care personnel</li> <li>Skills development</li> <li>Job placement programmes</li> <li>Preventing age discrimination</li> <li>Flexible work options for the elderly</li> <li>Subsidies to encourage employment of the elderly</li> <li>Applying technology</li> <li>Expanding health centres</li> <li>Pension system</li> </ul>
Korea, Rep. of	Late dividend; aged	3rd Basic Plan for Employment Promotion of the Elderly 2017–2021 and Policy Roadmap for Low-birth and Ageing Society	<ul> <li>Extended retirement age to 60</li> <li>Skills development</li> <li>Job placement programmes</li> <li>Preventing age discrimination</li> <li>Human resource management and training for elderly care personnel</li> <li>Subsidies to encourage employment of the elderly</li> <li>Flexible work options for the elderly</li> <li>Applying technology</li> <li>Regional health centres and home care</li> <li>Pension system</li> </ul>
Lao PDR	Early dividend; not yet ageing	National Policy for the Elderly 2004	<ul> <li>Social assistance</li> <li>Skills development</li> <li>Home care programme</li> <li>Promoting community care</li> </ul>
Malaysia	Late dividend; not yet ageing	Second National Policy for Older Persons and Plan of Action for Older Persons 2010–2015 The Plan of Action for Older Persons 1999	<ul> <li>Extended retirement age to 60</li> <li>Social assistance</li> <li>Skills development</li> <li>Extending social protection</li> <li>Expanding health centres</li> <li>Preventing age discrimination</li> <li>Human resource management and training for elderly care personnel</li> <li>Home care programme</li> <li>Promoting community care</li> </ul>
Myanmar	Early dividend; not yet ageing	National Plan on Ageing 2014 Elderly People Law	<ul> <li>Access to finance for the elderly</li> <li>Skills development</li> <li>Subsidies to encourage employment of the elderly</li> <li>Promoting community-based elderly associations</li> </ul>
New Zealand	Post-dividend; aged	Positive Ageing Strategy 2001 (and 2014 update) <sup>2</sup>	<ul> <li>Human resource management and training for elderly care personnel</li> <li>Preventing age discrimination</li> <li>Flexible work options for the elderly</li> <li>Skills development</li> <li>Social assistance</li> <li>Senior-friendly transport</li> <li>Promote mentoring programmes</li> <li>Preventing age discrimination</li> </ul>

Country	Demographic grouping and ageing status <sup>1</sup>	Strategies or plans addressing demographic changes (ageing)	Action areas linked to labour markets
Philippines	Early dividend; not yet ageing	Expanded Senior Citizens' Act 2010 National Action Plan for Senior Citizens 2011–2016	<ul> <li>Promoting community care</li> <li>Skills development</li> <li>Job placement programmes</li> <li>Subsidies to encourage employment of the elderly</li> <li>Social assistance</li> <li>Regional health centres and home care</li> <li>Extending social protection</li> </ul>
Singapore	Post-dividend; aged	Action Plan for Successful Ageing 2016	<ul> <li>Extended retirement age to 67</li> <li>Subsidies to encourage employment of the elderly</li> <li>Flexible work options for the elderly</li> <li>Skills development</li> <li>Human resource management and training for elderly care personnel</li> <li>Extending social protection</li> <li>Social assistance</li> <li>Senior-friendly transport</li> <li>Expanding health centres</li> </ul>
Thailand	Late dividend; ageing	Older Persons' Act 2003 Second National Plan on the Elderly 2002– 2021	<ul> <li>Gradual extension of retirement age to 63 by 2024 (public sector only)</li> <li>Job placement programmes</li> <li>Preferential loans for business start-ups</li> <li>Human resource management and training for elderly care personnel</li> <li>Subsidies to encourage employment of the elderly</li> <li>Support for home care</li> <li>Extending social protection</li> <li>Social assistance</li> <li>Skills development</li> </ul>
Viet Nam	Late dividend; ageing	Law on the Elderly 39/2009 National action plan on elderly people for 2012–2020 (2012) Strategy on population and reproductive health for 2011–2020	<ul> <li>Extending social protection</li> <li>Social assistance</li> <li>Regional health centres and home care</li> <li>Preferential loans for business start-ups</li> <li>Skills development</li> </ul>

Note:

1 See table 1 in section 2.2.3.

2 A new Positive Ageing Strategy in New Zealand is currently under development. The discussion document, available at: http:// superseniors.msd.govt.nz/about-superseniors/ageing-population/index.html, emphasizes the need to do more to address the continuing barriers faced by older persons as they seek to remain in the workforce.

Source: Annex 2.

### **3.3.3 Preparing the labour market for an ageing society**

All of the countries studied have programmes and policies that relate to promoting a healthy and secure environment for the aged population. With these come increased investments in the provision of public services for the elderly - health care, housing, education, welfare and improved infrastructure. In the "aged" countries that are concerned with the issue of labour shortages, the policy space broadens with the aim of prolonging the working lives of the aged. Countries in this category include Australia, Japan, New Zealand, the Republic of Korea and Singapore, as well as those next in line to reach aged status - China, Thailand and Viet Nam (table 1). Yet even countries that are still relatively "young" acknowledge the inevitability of the ageing workforce and are incorporating some responsive actions in their policy frameworks.

Like the technological change storyline, a primary policy response is geared towards skills development and other interventions in the realm of ALMPs (placement assistance, for example). Other common areas of action (see table 5) include extending financial services – including favourable loans – to the elderly to start businesses, subsidies to encourage employment of the elderly, preventing age discrimination and implementing reforms in the area of old-age pensions and other forms of social protection. Most countries are also strategizing and implementing support mechanisms to promote a safe and well-staffed care economy (more details follow).

### Policies and programmes that aim to prolong the working lives of the elderly

A number of countries have amended their labour laws in recent years to extend the legal age of retirement. These include Indonesia (58, public sector), Japan (65), Malaysia (60, public sector), the Republic of Korea (60), Singapore (67), Thailand (63,

public sector), Viet Nam (65 men, 60 women, public sector) and Australia and New Zealand that have scrapped the concept of a mandatory retirement age (ILO, 2018c). Beyond legislating for extended retirement age, there are other interventions used in the region to keep the elderly in employment. Among these are: (i) policies to make working environments more age-friendly, for example, through the use of flexible working time, offsetting the costs to employers through governmentsponsored employment subsidies (Australia, Japan, Malaysia, Myanmar, the Philippines, the Republic of Korea, Singapore and Thailand);<sup>40</sup> (ii) favourable loans to the elderly to start businesses (Australia, Cambodia, China and Thailand), (iii) job placement support for the aged unemployed (Australia, India, Malaysia, the Philippines, the Republic of Korea and Thailand); (iv) encouraging volunteerism (Cambodia, China, Japan, Malaysia, New Zealand, the Philippines, Thailand and Viet Nam); and (v) efforts to support skills training for the elderly. Under Korean law, government benefits such as tax exemptions are offered to large companies that exceed the recommended ratio of older employees as a further incentive to keep the elderly at work.<sup>41</sup>

New Zealand, Japan, the Republic of Korea and Singapore take another approach to keeping older workers in the labour market, which links to the aim of encouraging enterprises to adopt a more flexible approach to how, when and where people work. The idea is that by offering older workers options to work part time, from home or to engage in other diversified working arrangements, more elderly workers will opt to forgo retirement. Increasing working time sovereignty will be discussed again in section 4 as a pillar proposed by the ILO Global Commission on the Future of Work (ILO, 2019a). While aiming to prolong the working lives of the elderly, nearly all planning documents also aim to expand the coverage of the old-age pension system in the country without going in to much detail on how this is to be done.

<sup>40</sup> A specific programme is the WorkPro scheme in Singapore that encourages employers to develop age-friendly workplaces and assimilate older workers through a multitude of action areas such as job redesigns, well-being programmes and flexible work arrangements. Government grants are offered to employers to implement the changes.

<sup>41</sup> Government of the Republic of Korea, Act on Age Discrimination Prohibition in Employment and Aged Employment Promotion, adopted in 1991.

#### Training to maximize productive input of potential labour supply through lifelong learning and access to training

As stated earlier, for the ASEAN +6 countries that have policies linked to ageing, the most common action areas focus on keeping the elderly active through access to further skills development/ training. Lifelong learning is directly referenced as an action in the ageing strategies of Australia, China, Japan, Malaysia and Singapore. In Japan, the Lifelong Learning Promotion Law was adopted as early as 1990 with the objective that promoting continuous training would both reduce pressures on public finances and enhance the well-being and integration of citizens of all ages. Making use of subsidies, private businesses in Japan became increasingly involved in lifelong learning through in-house training modules for their employees and other for-profit education facilities.<sup>42</sup> Another common approach is to support access to universities for the elderly or even dedicated universities for the elderly such as Singapore's National Silver Academy. Australia, China, Japan and Malaysia have also established university systems for older people. Other countries do not directly mention lifelong learning but are nonetheless making efforts to encourage the elderly to participate in training activities. See also discussion under 3.2.4.

### Human resource management to meet the national needs for elderly care personnel

Most of the countries analysed are concerned with meeting the human resource needs in fields linked to aged care (geriatrics, rehabilitation, nursing, nutrition, psychological and social work and rehabilitation). Beyond formal health-care services such as hospitals, provision of care services, including long-term care, is a growth business and opportunities for job creation abound. A recent ILO estimate based on a macroeconomic simulation model found that increasing investment in the care economy to meet specific Sustainable Development Goals (SDGs) targets on health, education and decent work could result in a total of 475 million jobs by 2030, including 269 million new direct and indirect jobs compared to the number of jobs in 2015 (Ilkkaracan and Kim, forthcoming).

To attract more workers to the sector, the typical policy actions in ASEAN +6, as elsewhere, involve increased investment in skills development in the needed fields and attempts to attract youth, migrants, the unemployed and even the elderly themselves through volunteer programmes to take up care work, while also seeking to elevate the status of care workers.<sup>43</sup> Japan is one country that offers additional financial incentives to persons willing to pursue training to become nursing care workers (ILO and OECD, 2019).

Only one instance was found of a government document that stated openly that attracting more workers to the care sector could require greater attention to issues of working conditions in the sector. This was in Australia's Living Longer Living Better care reform package, implemented briefly in 2013 before being scrapped by the replacement government. Within the reform package was the establishment of a so-called Workforce Compact. The tripartite taskforce that drafted the Compact aimed to improve wage rates for care workers for the aged in order to retain workers and encourage more personnel into the industry. To comply with the Compact, employers would have been required to phase in (over a four-year period) wage increases for personal care workers, enrolled nurses and registered nurses.44

### Labour migration as a means to offset labour shortages, especially in the care sector

While the discussion of skills shortages more frequently arises in reference to scaling-up a country's production base in the 4IR, in ageing societies labour shortages specific to elderly care work are also a matter of increasing concern. In certain cases, the pressures of coping with labour shortages are forcing governments to adopt a more open

<sup>42</sup> Calouste Gulbenkian Foundation: Japan's Lifelong Learning Promotion Law: Case study, Centre for Public Impact, 3 Aug. 2018.

<sup>43</sup> King (2019) reviews recent data, trends and policy approaches in migration of care workers, including in the health care profession. A broader study of care work and the care economy is available in ILO (2018f).

<sup>44</sup> Y. Noone: "Workforce Compact announced", Australian Ageing Agenda, 5 Mar. 2013.

approach to labour migration (see also discussion in section 3.2.4). Japan is a case in point. In late 2018, the Japanese government announced its reform of the labour immigration policy starting from April 2019. The revised policy will allow foreigners to gain employment in Japan as blue-collar workers for the first time in order to meet labour needs in 14 industrial sectors.<sup>45</sup> The government is expecting to open up to approximately 345,000 foreign workers and has allotted the necessary budget to establish 100 consultation centres and Japanese language programmes for foreigners. Foreign workers will be given incentives to spread to rural areas and will be encouraged to enrol in the national health-care system.

#### Promoting employment of women

Another means of filling labour gaps is to boost female labour force participation in countries where it is low. Among the region's hyper-aged and aged countries (table 1), Japan and the Republic of Korea still have relatively low female labour force participation rates (below 53 per cent in 2018 compared to 60 per cent or higher in Australia, New Zealand and Singapore) although both show increases over time. As a result, the two governments are spearheading actions to encourage higher female participation in the labour market through policies offering increased support for child-rearing, maternity benefits and encouraging part-time work. In Japan, the Three Arrow Initiative added child-care provisions and instituted generous parental leave benefits, but to mixed results; child-care services still remain limited and the generous parental leave system frequently goes unused (OECD, 2018b). The country's Work Style Reform is also intended to encourage more women to engage in the labour market in a way that best meets their needs, with engagement part time or via digital platforms. Furthermore, according to the expected reform, women will no longer be relegated to a secondary non-regular worker pay and benefits tier. How this turns out in practice remains to be seen.

Other more localized initiatives have shown some success in attracting women workers given the more positive work-life balance promoted by participating enterprises. An example here is the Work-Life Balance Promotion Project of Japan's Mie Prefecture undertaken to revitalize local businesses and prevent the exodus of young people.<sup>46</sup> In the Republic of Korea, the 2019 Economic Policies document includes an increase in maternity benefits, wage support for mothers working part time, promotion of day-care centres in work places and increased incentives to encourage new fathers to take paternity leave.<sup>47</sup>

Population ageing is also listed as a reason to further promote female labour force participation in the 2017 Australian strategy document, "Towards 2025: An Australian Government Strategy to Boost Women's Workforce Participation" (Commonwealth of Australia, 2017). The Strategy views higher female workforce participation as a means to reduce fiscal pressures associated with providing welfare support to an ageing population. In the context of policies for "mature age women", the Strategy explicitly acknowledges that, in the context of ageing, "it is now more important than ever to use the skills and experience of older workers and encourage them to remain in the workforce".

One topic that is seemingly overlooked to date is the burden of caring for ageing parents, a responsibility that, like child care, can fall disproportionately on women and thus serve as another obstacle to working outside the home. In much of Asia, the family remains the primary source of care for older adults. In many Asian countries, but especially in China, households find themselves supporting children and parents simultaneously (Economist Intelligence Unit, 2010). Women play the caregiving role for ageing parents to a greater extent than men, especially in countries where men's labour emigration is common (Ugargol and Bailey, 2017; Knodel, 2017). Added to the existing child and home care duties, the

<sup>45</sup> Among the sectors requiring workers are the health-care sector, construction, agricultural workers and also high-skilled research and development professionals. See Japan country note in Annex 2.

<sup>46</sup> K. Yoshie: "Work-life balance holds the key to Japan's future", Nippon.com, 25 May 2017.

<sup>47</sup> Some private companies have gone so far as making paternity leave mandatory with guarantees of full salary during time off. Promoting paternity leave is seen as a means to overcome the country's conformity to traditional gender roles, encouraging fathers to take an increased role in support of child-rearing, especially as fertility rates have reached an alarmingly low level in the country.

additional demand of caring for parents can prove extremely difficult to bear, especially in the absence of support mechanisms. The issue is raised here as it invokes even more urgency to increasing national investments in old-age pension systems in the ASEAN +6 countries while also acknowledging that more attention is needed on the issue of parental care.

#### Digital solutions for an ageing population

The objective of Japan's Society 5.0 is to encourage the development of technologies in a manner that balances economic advancement with the resolution of social problems. An example that is highlighted in the government promotional material is the use of new technologies to mitigate the costs associated with an ageing society. Robots and sensors can be used to free caregivers of cumbersome tasks, for example, delivering food to residents in oldage residences, gauging the emotions of persons with dementia and helping nurses to lift patients. Artificial intelligence can also be used for social good, including in the area of health care. Many ASEAN +6 countries are making a strong push to implement science, technology and innovation policies towards such social end.48 See section 3.2.4 for the summation of national approaches to building an ecosystem for innovation.49

The Singaporean government, in its attempt to keep the elderly population active and overcome the "grey divide", is raising the digital awareness of this target group. The Infocomm Media Development Authority launched the IM Silver Portal in 2017 as a website containing online guides, e-books, videos, and seminars that enable seniors to learn how to make use of mobile and digital technologies.<sup>50</sup> The government, through its Smart Nation programme, is also implementing a series of "silver standards" among which is the implementation of more seniorfriendly interfaces for digital devices including larger fonts.<sup>51</sup> It is also funding projects that include the development of virtual and augmented reality self-support training programmes that can be used to help to familiarize the elderly with situations such as an automatic teller machine (ATM) interface or digital work environment.

### **3.3.4 Summary: Preparing for an ageing population**

### Keeping the elderly in work is not the only solution to ageing, nor is it fair.

Ageing in the ASEAN region is an inevitable reality. Among the policy responses found in planning documents are to prolong the retirement age and provide incentives to keep the elderly in employment for increasingly longer durations, especially as concerns over pension deficits grow. Pension system coverage is generally low in the region and excludes substantial proportions of rural and informal populations. Many of the elderly who are poor already have no choice but to work until they are no longer able to, circumstances that go against the principles of the 2030 Agenda.<sup>52</sup>

If elderly workers are to be encouraged to forgo retirement for a few years, then enterprises should be encouraged to ensure they can benefit from a more flexible working environment, one that allows them to work part time, for example, if this is what they would like. Many ASEAN +6 countries are moving in this direction, but continued efforts in legislation and enforcement are likely to be necessary to ensure the needs of an ageing workforce are adequately met.

There is an alternative to prolonging (or even abolishing) retirement ages, which is to maximize the productive potential of all working-age persons who continue to exist on the margins of the labour market. This means doing the utmost to boost female labour force participation by removing all

<sup>48</sup> Recently Google and UNESCAP initiated a partnership to share best practices and identify solutions for promoting the use of artificial intelligence for social good in the Asia-Pacific region. As part of the partnership, Google will be providing a grant to the Association of Pacific Rim Universities to create an Asia-Pacific Artificial Intelligence for Social Good Research Network.

<sup>49</sup> An additional source providing a more in-depth review on science, technology and innovation policies in the region is UNESCAP (2019).

<sup>50</sup> A. Subhan: "Technology and an ageing Singaporean population", *The ASEAN Post*, 2 May 2018.

<sup>51 &</sup>quot;New set of standards to make it easier for seniors to use technology", Population.sg, 3 Apr. 2017.

<sup>52</sup> For a recent study on motivations for work among the elderly in China, see Henry, Fraga and Yu (2018).

barriers to such participation, including provision of social protection to the elderly so that the burden of care does not fall solely on the shoulders of women as daughters of elderly parents. Strengthening the institutions that help to ease the labour market entry of young persons and focusing on policies that foster inclusiveness of marginalized groups such as the disabled and indigenous populations are also necessary means of increasing labour force participation.

### Expenditures on old-age pensions are insufficient.

Households will not be able to bear the burden of ageing societies without government support. This was confirmed in figure 25 that showed a large shares of workers in the region – a majority in many countries – expressing their concerns about being poor and in need of money when retired.

Societies that are ageing need to understand that there is a clear cost associated with it and that national budgeting needs to increase accordingly. There is tension between the need to extend old-age protection to all citizens and the financial pressures to ease deficit spending as the rates of ageing increase. Financial sustainability is an inevitable issue but so is the government's responsibility to protect its people, which means increasing expenditure on a robust pensions system. Countries can do this in part by stepping up efforts in areas of taxation to prevent avoidance and ensure an equitable distribution of fiscal burdens.

Attention should be paid especially to overcoming the gender biases that result in income insecurity among women in old age. A gender-biased design of pension schemes (e.g. lower pensionable age for women) can lead to inequalities, but more often the cause of gender inequality in old age results from the accumulated effects of discrimination against women in the labour market that occur over the lifetime (ILO, 2018c). In this context, many women struggle to accrue pension rights that are equal to their male counterparts. Remember, however, that still few women in the region have access to pensions anyway, so that other means of improving old-age income security for women will be required. Scholz and Cunha (forthcoming) recommends the organization of regional dialogues on the costs of ageing and the definition of regional spending benchmarks that could be the basis for the design and implementation of inclusive old-age income security at national level without impacting global and regional economic competitiveness. The recommendation is worthy of repeating here.

## **3.4 Environmental and climate change**

#### 3.4.1 Introduction

Environmental and climate change is among the major trends shaping the future of work. Indeed, climate change and the increasing occurrence of natural disasters (see section 2.2.4) have been forcing governments to develop mitigation as well as adaptation strategies involving policy measures related to renewable energies, environmentally sustainable construction, and other measures to restrict greenhouse gas emissions and air pollution. Adaptation strategies include building climate resilience through natural resource management (e.g. water and soil conservation, flood protection, and irrigation, etc.) and environmental rehabilitation. Some countries are giving special attention to adoption of sustainable practices, clean technologies and green works in the collective aim of "greening economies", especially in rural economies, which are disproportionately affected by climate change.

Environmental sustainability strategies are not neutral to the labour market as they create jobs in some sectors or parts of the economy while likely to destroy jobs in others. Even though the greening of economies is estimated to generate substantial net job gains at the global level (ILO, 2018d), the impact will vary across sectors and countries. The scale of disruption to businesses, workers and communities that this ecological transformation will cause should not be underestimated, which is why complementary policies are needed to ensure that the transition is socially just.

In line with SDG 8 on sustained, sustainable and inclusive economic growth and decent work, and the Paris Agreement on Climate Change,
the ILO "Guidelines for a just transition towards environmentally sustainable economies and societies for all", was adopted in 2015. The guideline defines opportunities and challenges as well as principles that should guide the transition to environmentally sustainable economies and societies (ILO, 2015b). It describes key policy areas and institutional arrangements for a "just transition for all", referring to macroeconomic and growth policies and industrial and sector policies in national settings framed around social dialogue. It also touches on policies regarding enterprise developments, skills development, OSH, social protection and ALMPs, each of which are intended to contribute to just transition to greener economies.

In November 2018, ASEAN countries adopted the ASEAN Declaration on Promoting Green Jobs for Equity and Inclusive Growth of ASEAN Community. Signatory countries pledged to undertake nine actions related to the promotion of green jobs. With regards to skills development, one action consists of initiating the formulation, coordination, promotion, research and development of TVET on green skills and national TVET competency certification systems. Actions are also defined in the area of OSH, with the stated objective to increase standards through the development and review of OSH legislation. With regards to policies for enterprise development, there is an intent to encourage industries to improve productivity by means of clean technology in order to contribute to a safe and healthy environment.

Against this background, this sub-section sets out to assess what actions and policies have been planned and are being undertaken in the ASEAN +6 countries in reaction to environmental and climate change.<sup>53</sup> The scan of national policies undertaken are available in Annex 3 and summarized in the following sub-section. For each ASEAN +6 country, information was sought in response to the following questions:

- 1. Does the country have strategies or policies that explicitly relate to issues of climate change?
- 2. What are the direct or indirect links of these strategies or policies to the labour market?
- 3. What are the roles of social partners and the private sector in the country's strategies or policies that relate to climate change?

The following sections draw from the responses to these questions as determined from the review of countries' strategies, with the exception of question 3 which is addressed in section 3.5. The detailed country reviews and all citations are available in Annex 3.

### 3.4.2 What environmental and climate change strategies and policies are in place?

All 16 countries under review have a specific strategy that focuses on topics related to the greening of economies, such as climate change mitigation, adaptation, environmental protection or green growth (table 6). In all countries, the strategy or policy is relatively recent, with only India's National Action Plan on Climate Change dated before the current decade. In New Zealand, a new strategy is currently being drafted and is expected to be published in the course of 2019.<sup>54</sup> Some countries have more than one strategy, depending on the particular environmental aspect. Australia, for example, has a strategy for climate resilience and adaptation and one on biodiversity conservation.<sup>55</sup>

<sup>53</sup> As with the other themes, the authors stopped short of investigating the status of implementation, thus leaving an important research gap on the extent to which the objectives of the various strategies and plans are met in real terms.

<sup>54</sup> New Zealand's Climate Change Response (Zero Carbon) Amendment Bill, which provides a framework for reducing emissions by 2050 and achieving a climate resilient future, is expected for enacted by the end of 2019. A Climate Change Commission is expected to be operational upon approval of the Bill. The draft bill was open for consultation until 16 July 2019. See the website of the Ministry for the Environment, Government of New Zealand: "The transition to a low-emissions and climate-resilient Aotearoa New Zealand". Available at: https://www.mfe.govt.nz/climate-change/climate-change-and-government/climate-change-programme.

<sup>55</sup> In November 2016, the government of Australia agreed to engage in a revision of the strategy, which resulted in the Strategy for Nature 2018–2030: Australia's Biodiversity Conservation Strategy and Action Inventory. The draft strategy was opened for public comments between December 2017 and March 2018, but the revised strategy has yet to be finalized.

#### Table 6. Recent strategies and policies linked to environmental and climate change in ASEAN +6

Country	Year of adoption	Strategies, plans and policies
Australia	2015	National Climate Resilience and Adaptation Strategy
	2010	Australia's Biodiversity Conservation Strategy 2010–2030
Brunei Darussalam	2013	Energy White Paper
Cambodia	2013	Cambodia Climate Change Strategic Plan 2014–2023
	2013	National Policy on Green Growth
	2013	National Strategic Plan on Green Growth 2013–2030
China	2018	Three-year Action Plan for Winning the Blue Sky Defence War 2018–2020
	2018	Plan to Strengthen Ecological Environment Protection and Improve Pollution Prevention and Control
	2017	13th Five-year Plan for Renewable Energy Development 2016–2020
	2015	Made in China 2025
	2015	Plan for the Reform of Ecological Civilization System
India	2008	National Action Plan on Climate Change
Indonesia	2015	Delivering Green Growth for a Prosperous Indonesia: A roadmap for policy, planning, and investment
	2014	Green Planning and Budgeting Strategy for Indonesia's Sustainable Development 2015–2020
Japan	2018	Fifth Basic Environment Plan
	2017	Long-term Low Carbon Vision
	2017	Basic Hydrogen Strategy
	2015	Promotion Strategy for Environmental Research and Environmental Technology Development
	2014	Strategic Energy Plan
Korea, Rep. of	2014	Second Five-year Plan on Green Growth 2014–2018
	2010	Framework Act on Low Carbon Green Growth
	2009	National Strategy for Green Growth 2009–2050
	2009	Five-year plan on Green Growth 2009–2013
Lao PDR	2010	Strategy on Climate Change of the Lao PDR
	2009	National Adaptation Programme of Action to Climate Change
Malaysia	2010	National Policy on Climate Change
Myanmar	2019	National Environmental Policy, 2030 Strategy and Master Plan
	2019	Myanmar Climate Change Strategy and Action Plan 2018–2030
	2018	Green Economy Policy Framework
New Zealand	Forthcoming	Climate Change Response (Zero Carbon) Amendment Act
Philippines	2016	Green Jobs Act

Country	Year of adoption	Strategies, plans and policies
Singapore	2015	Sustainable Singapore Blueprint
	2012	National Climate Change Strategy
Thailand	2015	Master Plan on Climate Change 2015–2050
Viet Nam	2012	National Strategy on Environment Protection to 2020, with Visions to 2030
	2012	National Action Plan to Respond to Climate Change
	2012	National Green Growth Strategy
	2011	National Strategy on Climate Change

Source: Annex 3.

### **3.4.3 Labour market policies for the green economy**

The strategies of ASEAN +6 countries to combat climate change, promote green growth and foster renewable energies all include objectives to achieve targets related to the greening of economies. There are, however, considerable differences in how labour markets are addressed in these strategies. The labour market links can largely be categorized into the following areas: (i) promoting job creation in the environmental sector; (ii) tackling job disruption; (iii) skills for green jobs; and (iv) assistance of climateaffected workers.

### Policies to address environmental and climate change and job creation

Nearly all ASEAN +6 countries acknowledge that the environmental sector (also called the green sector)<sup>56</sup> are an important source of potential job creation. There are, however, differences among the countries on the centrality given to the employment issue although this is in part due to the main objective of the strategies themselves. Any discussion relating to jobs is bound to be given more focus in a planning document on investment in renewable energies compared to a plan with the primary objective of pollution control and lower carbon emissions. The plans with green growth in the title are those most likely to include job creation as an endogenous factor of the strategy.

Some examples of where job creation is mentioned in general terms in various ASEAN +6 policies on environmental and climate change follows:

- Australia, in its National Climate Resilience and Adaptation Strategy, acknowledges in general terms the potential of climate change policies to "create jobs, and boost innovation and competitiveness". The current draft of Australia's Strategy for Nature 2018–2030 also loosely refers to job creation as it "seeks to increase Australians' understanding and awareness of the value of nature for [...] helping to sustain jobs and [...] creating opportunities for the future".
- Japan's Fifth Basic Environment Plan promotes job creation in the sharing economy, hydrogen production, conservation and ecotourism.
- The Sustainable Singapore Blueprint 2015 provides examples where the green sector has already created jobs and stresses that Singapore "will be a hub for the cutting-edge business of sustainable development, and jobs will be created in this exciting and meaningful sector".

<sup>56</sup> At the 19th International Conference of Labour Statisticians in 2013, a draft guideline for the statistical definition and measurement of employment in the environmental sector and green jobs was discussed, with the first measurement in practice undertaken in a pilot exercise in Mongolia (ILO, 2017d). Although not yet widely implemented, jobs in the environmental sector can be understood as those in economic units that carry out activities whose primary purpose is to reduce or eliminate pressures on the environment or make more efficient use of natural resources. Activities in agriculture, forestry and fisheries are included when production is organic. The Energy White Paper of Brunei Darussalam offers another clear definition of green jobs as "jobs that help to protect ecosystems and biodiversity; reduce energy, materials, and water consumption through high-efficiency strategies; de-carbonize the economy; and minimize or altogether avoid generation of all forms of waste and pollution".

 Thailand's Master Plan on Climate Change 2015–2050 mentions net job creation as a result of investments in low-carbon emission and efficient production processes as well as renewable energy sources.

Some countries set out specific qualitative targets on number of jobs to be created as a result of investment in the green economy. China's Five-year Plan for Renewable Energy Development stated the aim to undertake investments in renewable energy that are expected to create at least 13 million new jobs. Malaysia's green growth target embedded in the Eleventh Malaysia Plan projects the creation of 15,300 jobs in the renewable energy sector.

The ASEAN +6 countries that are currently most closely aligned to the conception of a "just transition towards environmentally sustainable economies and societies for all", whereby environmental sustainability is linked not just to job creation, but to decent job creation are New Zealand and the Philippines.<sup>57</sup> New Zealand refers explicitly to the "imperative of a just transition of the workforce and the creation of decent work and quality jobs" in the process of greening. To ensure that the just transition to a greener economy is institutionalized, the government established a Just Transition Unit, situated within the Ministry of Business, Innovation and Employment, whose work is dedicated to this topic. In the Philippines, the Green Jobs Act directs the Department of Labour and Employment to formulate a National Green Jobs Human Resource Development Plan, which has the primary objective of "enabling and sustaining the transition into a green economy and the generation of green jobs towards more employment and equal opportunities and the promotion of social justice and workers' welfare".

While not using language on the just transition, also the national strategies in Cambodia, Indonesia, Lao People's Democratic Republic, the Republic of Korea and Viet Nam emphasize that the promotion of the environmental sector should be tied to the creation of more jobs. The term "decent jobs", however, is used only in the case of Indonesia (Delivering Green Growth for a Prosperous Indonesia), although the National Adaptation Programme of Action to Climate Change of Lao People's Democratic Republic makes mention of permanent job creation.

Regarding how countries are promoting environmental sustainability with hopeful spillover to job creation, the policy tools discussed are similar to those outlined in section 3.2.4 on encouraging enterprise development and innovation, but this time with the focus on fostering green industries and services. The typical action areas linked to promoting the growth of the environmental sector found in the various documents are strengthening support mechanisms (tax incentives, exemptions from import duties, etc.) for existing enterprises to become "greener", encouraging development of research and development especially in the area of energy-efficient technologies, and providing incentives for green start-ups. Human resource development is invoked in all planning documents and is thus treated separately in the following subsection.

The Cambodia Climate Change Strategic Plan also proposes to encourage enterprises to adopt environmentally sustainable production processes through the issuance of green certificates, flags and conferring awards. Development of green and climate-resilient infrastructure is included in many national policy documents (Cambodia, China, India, Indonesia, Lao People's Democratic Republic, Myanmar and the Republic of Korea) and almost all national documents point to the need to encourage green lifestyles.

<sup>57</sup> In 2015, the ILO produced its Guidelines for a just transition towards environmentally sustainable economies and societies for all (ILO, 2015b). The preamble of the Paris Agreement carries the concept forward, calling for "a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities".

#### Job disruption

While almost all ASEAN +6 countries mention and promote job creation in one form or another, only some of the countries acknowledge the possibility of job destruction as a consequence of the greening of their economies. References to the potential disruption of jobs as an impact of climate change and responses to encourage environmental sustainability were noted in policy documents of Australia, China, the Philippines and Thailand. In most cases, however, job disruption in polluting sectors are more implied than directly addressed.

Australia's National Climate Resilience and Adaptation Strategy indirectly acknowledges the adverse impact that climate change can have on jobs by emphasizing the need to relate actions to reduce greenhouse gas emissions to the protection of "our economy and jobs". In the Philippines, the Philippine Green Jobs Act aims to ensure a just transition for all, characterized by job security for those workers who are affected by the transition. The possibility of job losses is thus recognized. Skills development is regarded as one measure to support job security, with particular emphasis placed on promoting government efforts to upskill, reskill and train workers to use green technologies.

Thailand's Master Plan on Climate Change also underscores the need to protect domestic manufacturing and industrial bases in the course of the green transition. While there is no clearcut reference to jobs, it might be inferred that protecting this base also translates into protecting the jobs therein from labour market transitions that accompany the green transition.

#### Skills for green jobs

The greening of economies creates new economic sectors while increasing the importance of already existing sectors such as renewable energies, recycling and waste management. It also transforms existing sectors such as construction where energy efficiency and material resource efficiency become critical factors of environmental sustainability. The greening of economies in response to environmental and climate change thus creates a demand for certain skills that can help countries to move towards their environmental sustainability objectives. These, however, might not be fully matched by countries' current skills endowment, which results in the frequent inclusion of targets for human resource development in national strategies and plans for environmental and climate change adaptation.<sup>58</sup>

Some planning documents of ASEAN +6 explicitly mention the identification and anticipation of future skills needs in green economies as one of their main priority areas of action. Malaysia, for example, aims to identify new competencies and skills needed for the development of areas such as renewable energies, green buildings, bioengineering and biosafety. In Japan, human resource needs and planning for skills development in the context of technological development, discussed in section 3.2.4, are also relevant to the topic of addressing climate change, as technology is seen as central to tackling this challenge.

Almost all ASEAN +6 governments prioritize the creation of accredited professional training programmes and adaptation of TVET systems in order to build up skills that are required for the greening of their economies. Training courses are being implemented either by the government, the private sector, or a combination of the two. In Malaysia, for example, plans are underway for workers in the fields of biomass, biogas, minihydro and solar photovoltaic systems to be trained through the Sustainable Energy Development Authority. Singapore has not only set up new training programmes related to the greening of its economy but also has a training subsidy scheme in place that aims to encourage professionals to upgrade their skills and obtain a certificate in fields such as energy management. The SkillsFuture Initiative, summarized in box 3, has developed a specific skills roadmap as a component of the Environmental Services Manpower Plan. The skills map was developed jointly

<sup>58</sup> The ILO will release a major publication on *Skills for a greener future* later in 2019. For the moment, the key findings of the forthcoming publication are available (ILO, 2019e). Information and additional reports on the topic are available at: https://www.ilo. org/skills/projects/WCMS\_706922/lang--en/index.htm.

by SkillsFuture Singapore, Workforce Singapore and the National Environmental Agency in consultations with social partners and the private sector.

Some ASEAN +6 countries are using a longerterm horizon to plan, aiming to adjust their school curricula. Cambodia, India and the Republic of Korea are countries that plan to mainstream issues of green growth into the education system.

#### Assisting climate-affected workers

Lower-income countries with a larger agricultural sector have policies in place to shield workers from the adverse effects of climate change. This is the case in Cambodia, India, Indonesia, Lao People's Democratic Republic, Myanmar, the Philippines and Thailand, but also the Republic of Korea is found to make reference to protecting workers who are adversely affected by climate change in its climate change strategy.

The promotion of agricultural, climate-risk or natural disaster insurance schemes, in most cases targeted to protect workers in the agricultural sector, is a common measure featured in these countries' strategies related to the greening of their economies. The National Strategic Plan on Green Growth of Cambodia, for example, promotes climate-risk insurance and also places importance on social protection mechanisms in the adaptation to climate change and in building resilience against its impacts. India mentions strengthening its risk management mechanisms through tools such as agricultural and climate-related insurance as one of the priority action areas.

A second common measure is to provide increased access to finance, particularly for rural communities and agricultural workers. Cambodia in particular promotes access to microfinance for local communities to enable them to take action on climate change. India, Indonesia, Lao People's Democratic Republic, Myanmar and Thailand also emphasize access to finance in their greening strategies.

Another frequently mentioned measure is the adoption of crop varieties that are better suited to the changed climatic conditions. The Strategy on Climate Change of Lao People's Democratic

Republic underscores the importance of improving and developing animal species and plant varieties that are better adapted to natural disaster-prone areas as a way of protecting livelihoods of households that depend on those resources. Likewise, Thailand's Master Plan on Climate Change promotes the adaptation of agricultural practices and production methods in line with changing climatic conditions by training farmers and agricultural workers. Thailand very generally mentions the adoption of sustainable technologies by farmers and tapping into the demand for sustainably produced and sourced goods as a policy measure. The National Strategy for Green Growth of the Republic of Korea mentions the development of high-climate and disaster resilient varieties and species in agriculture and fishery as a measure to be promoted.

Finally, climate change will also increase the frequency and intensity of natural disasters and extreme weather events, making heat stress more common (IPCC, 2014). Heat stress refers to a situation when heat received is in excess of that which the body can tolerate without suffering any physiological impairment. Some measures have been put in place to protect workers and vulnerable populations from the impact of heat stress in some of the most affected countries in the region. ASEAN +6 countries are among the most affected by heat stress, increasing occupational safety and health risks to workers engaged in outdoor activities and physical activities such as agriculture and construction (ILO, 2019c). Manufacturing and service workers might also be hard hit in places lacking air ventilation systems and air conditions.

Viet Nam has issued regulations specifying that during the hot season and when humidity level is equal or below 80 per cent, temperatures in a work environment should not exceed 34°C, 32°C and 30°C for light, medium and heavy work intensity, respectively (Opitz-Staplton, 2014). Thailand also set specific temperature limits for different types of work intensity. However given the high share of workers informally employed in these countries, it is necessary to raise awareness and provide workers with adaptation measures to protect themselves against heat stress impacts while also improving early warning and monitoring system in factories (ILO, 2019c).

### **3.4.4 Summary: Preparing for environmental and climate change**

### More attention is needed to promote the just transition.

Energy consumption in the region has doubled in over two decades and there seems to be no end in sight when it comes to increasing demand. Growth brings inevitable challenges between boosting the energy supply in support of economic and population growth on the one hand, and growing environmental concerns on the other. South-East Asia continues to rely heavily on fossil fuels for both power generation and transportation (IRENA, 2018b). The national policy efforts to scale up renewable energy are laudable starts, particularly as the countries strive to meet their obligations under the SDGs and the ASEAN Declaration on Promoting Green Jobs for Equity and Inclusive Growth of ASEAN Community. However, more and larger investments in the green economy, including for renewable energies, are needed in order to put the region on a more environmentally-sustainable base. At the same time, strategies that aim to promote a "just transition for all" will need to be broadly framed with outcomes linked across a wide array of policy areas - including enterprise developments, skills development, OSH, social protection and ALMPs. Based on the synthesis analysis, a conclusion can be drawn that few countries are yet ready to take the holistic approach to planning for the just transition.

#### 3.5 The role of social partners

Regardless of the theme under review, the roles of social partners and the private sector in the policymaking space were found to vary by country in accordance to the national institutional context in which social dialogue functions. Australia, New Zealand and Singapore function under legislative systems that call for public consultation of regulations, thus giving an opportunity for all stakeholders, including trade unions to raise their voice on relevant issues. For the other countries for which information is available on the process, rarely was mention found on whether or not workers' and employers' groups were given an opportunity to participate in the drafting of various strategies and policies.

In most countries it seems that consultations with the private sector and to a certain degree employers' organizations were more readily sought in the policymaking process than with trade unions. In most cases, trade unions are accorded little or no role in policy implementation. For example, "Australia's Tech Future" - the country's digital economy strategy was designed by the government based on public consultations, but no clear role for social partners was articulated in the final strategy document. New Zealand's "Building a Digital Nation" strategy identifies the key role played by businesses in this regard but does not contain any explicit mention of trade unions. In the case of Japan, the Society 5.0 vision was originally advocated by the Japan Business Federation (KEIDANREN). It is only more recently that the Japanese Trade Union Confederation (JTUC-RENGO) has requested that the government create a framework to facilitate collective representation of social partners in discussing policy measures being considered vis-à-vis 4IR.

Despite the mixed results on social dialogue and the role allotted to social partners in the design of national responses to the future of work, some encouraging developments were found. Two examples are the tripartite compositions of the Committee on the Future Economy in Singapore and the Presidential Committee on Fourth Industrial Revolution in the Republic of Korea.

# **4** The way forward to a brighter future of work

#### 4.1 Introduction

This report attempts two things: First, based on a review of how countries in the Asia-Pacific region are reacting to three of the current mega trends considered as drivers of the future of work, previous sections highlighted some of the commonalities and differences in national approaches across the ASEAN +6 countries and made some tentative assessments of the trends in future of work planning in the region. In this section the aim is to assess the current regional outlook on the future of work against the "brighter" future of work that is envisioned in the ILO GC report on the future of work released in January 2019 (ILO, 2019a).

This section is organized as follows. First, a brief introduction to the main themes of the GC report is presented. Subsequently, the discussion focuses on the degree to which current national policy-making (as espoused in available strategy documents) align with the "human-centred agenda for the future of work" proposed in the GC report. Finally, a general summation of where ASEAN +6 countries stand in their preparation for a brighter future of work is made followed by some steps on moving forward.

## 4.2 The human-centred agenda for the future of work

The ILO GC report (ILO, 2019a), released in January 2019, highlights how fast-paced transformations are shaping the future of work through channels such as technological advancements, demographic shifts and the changing global climate. As a report intended to inspire further deliberations, it lays down some key recommendations which offer an overarching framework for global conversations on the emerging trends in the world of work and how best to manage them. The report calls for decisive actions on the part of the tripartite actors towards managing these transitions in ways that address decent work deficits and advance the achievement of global development goals.

The report proposes a human-centred agenda for the future of work "that strengthens the social contract by placing people and the work they do at the centre of economic and social policy and business practice". The three pillars proposed by the GC report are: (i) increasing investment in people's capabilities; (ii) increasing investment in the institutions of work; and (iii) increasing investment in decent and sustainable work. Together they help define what constitutes a "human-centred agenda" (see box 5).

The first pillar, increasing investment in people's capabilities, puts forth four recommendations which move beyond the traditional human capital development paradigm to include a rights-based approach to development such that individuals' opportunities to realize their full potential and improve well-being are broadened. These include a universal entitlement to lifelong learning, strengthening institutions and policies to support people through their future of work transitions, implementing a transformative agenda for gender equality, and strengthening social protection systems through basic universal protection coverage from womb to tomb.

The second pillar identifies institutions of work as the cornerstones of just societies. It recommends increasing investments in such institutions with a view to fortifying and revitalizing them as core components of the brighter future of work. More specifically, it points towards the need for establishing universal labour guarantees wherein all workers irrespective of their status in employment or contractual arrangement are entitled to fundamental workers' rights, an "adequate living wage", maximum limits on working hours and protection of safety and health at work. Furthermore, it also includes in its recommendations the need to expand time sovereignty, harness and manage technology for decent work, and ensure collective representation of workers and employers through social dialogue as a key public good that is proactively promoted by public policies.

The third and final pillar aligns with the United Nations 2030 Agenda for Sustainable Development in recommending transformative investments which foster incentives in key areas for decent and sustainable work, reshaping business incentive structures and exploring supplementary indicators of human development and well-being. Such investments – including in the rural economy as well as in construction of physical and digital infrastructures – are viewed as being key to advancing developmental goals while also creating a large number of jobs and new opportunities for individuals as well as MSMEs. Creating business incentives

that promote longer-term gains is also viewed as important to financing sustainable development. Additionally, shifts in employment and output towards higher productivity sectors of the economy may require further investments in construction, energy, infrastructure and transport. Finally, the report recommends adapting fiscal policies as well as accounting standards and reporting practices that take into account the often overlooked distributional dimensions of growth, the value of unpaid domestic and community-based work and externalities like environmental degradation.

# 4.3 Is ASEAN +6 ready for the human-centred agenda for the future of work?

The policy advice in the GC report transcends the future of work, meaning that most of the policy responses encouraged in the report are already a part of national policy landscapes, and have been for a long time. There are a few exceptions: reacting to the spread of digital labour platforms, for example, is very much a new issue that has not yet been settled in the regulatory landscape. But the majority of the action areas have been pursued by governments for decades in the ASEAN region, as elsewhere. ALMPs to support labour market transitions, for example, are nothing new to these countries. Social protection and working time laws are also not novel.

That the GC report does not offer many new solutions to future of work issues is important. Over the century of the ILO's existence, there has been a sufficient degree of knowledge and practical experience amassed to know what are the basic building blocks needed to facilitate decent work, and through decent work, social justice. Rather than reach for an unknown "magic bullet", the report rather suggests that it is time to get serious about scaling up the activities already under the purview of the ILO and its tripartite partners. It advocates for all stakeholders to "take responsibility" to moving the decent work agenda forward so that workers and enterprises can continue to flourish in the future of work and those who have historically been excluded from social justice and decent work can be belatedly brought on board.

#### Box 5. The human-centred agenda for the future of work

#### Increasing investment in people's capabilities

- 1. Recognize a universal entitlement to lifelong learning and establish an effective lifelong learning system that enables people to acquire skills, upskill and reskill throughout their life course.
- 2. Step up investments in the institutions, policies and strategies that will **support people through future of work transitions**, building pathways for youth into labour markets, expanding choices for older workers to remain economically active and proactively preparing workers for labour market transitions.
- 3. Implement a transformative and measurable agenda for gender equality by making care an equal responsibility of men and women, ensuring accountability for progress, strengthening the collective representation of women, eliminating gender-based discrimination and ending violence and harassment at work.
- 4. Strengthen social protection systems to guarantee universal coverage of social protection from birth to old age to workers in all forms of work, including self-employment, based on sustainable financing and the principles of solidarity and risk sharing.

#### Increasing investment in the institutions of work

- 5. Establish a Universal Labour Guarantee that provides a labour protection floor for all workers, which includes fundamental workers' rights, an "adequate living wage", limits on hours of work and safe and healthy workplaces.
- 6. **Expand time sovereignty** by crafting working-time arrangements that give workers greater choice over scheduling and working hours so that they can balance work and private life, subject to the company's needs for greater flexibility, as well as guaranteed minimum hours.
- 7. Actively promote collective representation of workers and employers and social dialogue through public policies.
- 8. Harness and manage technology in support of decent work and adopt a "human-in-command" approach to technology.

#### Increasing investment in decent and sustainable work

- 9. Create incentives to promote investments in key areas for decent and sustainable work.
- 10. Reshape **business incentive structures to encourage long-term investments** in the real economy and **develop supplementary indicators of progress towards well-being**, environmental sustainability and equality.

Source: ILO (2019a), table 2.

Given the complexity of labour market governance and the limited objectives of this report, the short summation of status along the policy areas of the GC report that follows is not intended as an allinclusive snapshot of the full gamut of the decent work-related policy landscape. The sub-sections are restricted to mapping how and where the ASEAN +6 countries' future of work policy responses in reaction to the three mega trends, as discussed in previous sections, fit to the recommended pillars of the GC report. The general assessment of the region's preparedness for the GC report's vision of the future of work is approached here action point by action point.<sup>59</sup>

<sup>59</sup> For more details on any of the specific policy actions as implemented at the country level, readers are encouraged to review the Annexes.

### 4.3.1 Increasing investment in people's capabilities

#### Lifelong learning for all

The aim of reskilling cuts across three future of work themes. Some strategy documents in the countries under review include outputs on reskilling and upskilling as means to resolve labour shortages and promote the growth of I4.0, but it is also acknowledged as a policy response that can be targeted to the elderly within ageing strategies and as an important investment for meeting the human resource needs to fuel progress towards greener economies. A few countries, primarily those at higher income levels, now have in place national ecosystems for effective and appropriately financed lifelong learning systems. Even if not fully framed as lifelong learning, all ASEAN +6 countries were found to be taking some action in the area of skills development that aimed to reskill persons as they undergo various career transitions, or aiming to advance along those lines, especially in the strategies linked to industrial development.

All countries examined show an awareness of the importance of creating the potential to skill, reskill and upskill the labour force, especially to promote skills in the technical areas viewed as most relevant to their future economic success. This area of action in the human-centred agenda can thus be considered as progressing in future of work planning for many countries under review. However, the focus is still primarily on skilling and reskilling rather than creating a holistic framework for lifelong learning. In addition, there is scope for broadening the aim of continuous learning beyond what is occasionally a directed focus on digital skills.

#### Supporting people through transitions

This action point refers to a package of ALMPs whose overall objective is to keep people connected to the labour market as they move in and out of the labour force and between jobs (see section 3.2.5 for definitions). In the context of the future of work mega trends assessed in this report, proactively preparing

workers for labour market transitions could entail helping older workers to remain at work through implementation of flexible work arrangements (using government subsidies to offset the costs to employers), curricula adjustments at schools to include more STEM skills as well as the soft skills deemed to improve a young person's chances for swift labour market entry, quality apprenticeship programmes, subsidized training programmes and unemployment benefits for laid-off workers from labour intensive firms or any enterprise that has fallen outside of the country's latest industrial strategy, entrepreneurship training and favourable financing of digital or "green" start-ups (to name a few).

Public works are another mean to support people through transitions. Public works are in place in most of these countries as a legacy of the Asian financial crisis and continue to offer a means to protect workers against income shocks arising from any future instability associated with the mega trends of the future of work. Public works can also have indirect effects on peacebuilding through stabilization of income and access to employment.

As stated in the context of I4.0 or 4IR planning (section 3.2.5) and planning in response to environmental and climate change (section 3.4.3), countries are reluctant to overtly acknowledge in their planning documents that jobs will be lost as a result of technological disruption or sectoral shifts made in the name of "greening". Consequently, beyond some target areas on retraining, strategies and implementation plans are found to be extremely light on proposing ALMPs. It is likely, however, that countries expect their existing infrastructure for delivery of ALMPs to support people caught up in any technology- and environmentallylinked disruption, but rarely is it explicitly stated. Regardless, the capacity of countries to support workers through the transitions that arise in the context of the future of work will depend to a certain extent on the strength of the investment and implementation of ALMPs.<sup>60</sup>

<sup>60</sup> This report did not set out to assess national infrastructure for delivery of ALMP nor the effectiveness of associated programmes, but two ILO documents can be cited as offering useful information in these regards: ILO (2018e) and ILO (forthcoming\_b).

#### A transformative agenda for gender equality

Of the planning documents reviewed in this exercise, few pay specific attention to gender, although it is worthy of mentioning that the documents were not systematically scanned for this by the authors. Among the three themes – technology, demographics and climate change – a few instances of gender-specific targets found as follows:

- Attention to skills development specifically for girls/women, often in direct reference to STEM studies: Australia's Digital Economy Strategy, for example, mentions the government's expansion of the "Women in STEM" package policy measures in the National Innovation and Science Agenda (initiated in December 2015) as a means to meet the inclusivity objective of the strategy.
- Incentives to attract more female researchers in the areas of science and technology: Japan is making efforts to counter its gender gap in STEM fields and meet its target for a ratio of 30 per cent female researchers by 2020.<sup>61</sup> The country's 5<sup>th</sup> Science and Technology Basic Plan, adopted in January 2016, is an example where the government promotes affirmative actions in universities and research institutes in an attempt to boost the number of female researchers. Japan and other countries in the region are also making use of publicity campaigns to encourage girls and women to pursue studies and careers in STEM fields.
- Boosting female participation in the labour market: A handful of planning documents take up the call to increase female participation in the labour market as one means to offset labour shortages in the context of an ageing population. Countries like Australia, Japan and the Republic of Korea are striving to encouraging more women to engage in the workforce through policies that extend increased support for child-rearing, maternity

benefits and encouraging part-time work, among others.<sup>62</sup>

#### Strengthening social protection

The GC report reminds readers that "the future of work requires a strong and responsive social protection system based on the principles of solidarity and risk sharing, which provide support to meet people's needs over the life cycle". The national strategies to promote active ageing link well to the GC call to strengthen social protection, with most countries reviewed taking some action in the area of old-age pensions (see Annex 2). As there are additional ILO regional reports that offer detailed reviews of regional progress towards provision of social protection,<sup>63</sup> this report does not dedicate much space to the topic.

Unemployment insurance, however, is an area where there is seemingly insufficient attention. In the absence of unemployment insurance schemes in most of the ASEAN countries, workers who lose their jobs in the wake of technological upgrading will be hard pressed to support themselves and their families through lengthy job search periods. Unemployment insurance benefits on the basis of periodical payments and social insurance can help to overcome many of the limitations of severance pay, which remains the preferred method used by formal sector firms that shed workers in ASEAN countries. To date, only Thailand and Viet Nam among ASEAN countries have established unemployment insurance schemes, although all member States have confirmed their commitments to fostering social protection floors through the ASEAN Declaration on Strengthening Social Protection in 2013 and are making some progress in building their capacity in this area (ILO, 2017e).

<sup>61</sup> According to the 2017 White Paper on Gender Equality, just 10 per cent of engineering researchers were women and 15 per cent of researchers in general, including social scientists, were women. See Gender Equality Bureau Cabinet Office, *Women and men in Japan 2017*, on webpage: http://www.gender.go.jp/english\_contents/pr\_act/pub/pamphlet/women-and-men17/index.html.

<sup>62</sup> For a review of innovations in policies that offer hope for a more gender equitable future of work in the Asia-Pacific region, see ILO (2018g).

<sup>63</sup> See Scholz and Cunha (forthcoming) and Ong and Peyron Bista (2015).

### **4.3.2** Increasing investment in the institutions of work

#### Establishing a Universal Labour Guarantee

The GC report puts forth the idea of a Universal Labour Guarantee that is intended to reaffirm workers' rights. As such, it is not without its critics.<sup>64</sup> The elements of the guarantee that were proposed in the GC report include recognition of the fundamental rights of workers that are covered in the ILO core labour Conventions<sup>65</sup> (freedom of association, the right to collective bargaining and freedom from forced labour, child labour and discrimination) as well as a set of "new" elements that include an adequate living wage, limits on the hours of work and safe and healthy workplaces.

As assessed in section 3.2.4, national strategy documents on I4.0 and/or related 4IR policies are not likely spaces for addressing labour standards. References to issues like adequate wages, hours at work and workplace safety are hardly found in the national discourses on technological advancement. This does not mean that the countries reviewed are not regulating on issues of labour standards – many are, and do put emphasis on various rights at work in their broader development strategies and national strategies for achieving the SDGs. Nonetheless, labour standards were not found to be embedded in 4IR-related policies (with a few exceptions).

Ratifications of ILO core Conventions in the region have increased slightly in recent years, but still the region's ratification record is low compared to other regions. Efforts to ratify ILO core Conventions and ensure their effective enforcement will need to intensify if aiming to meet the expectations laid out in this pillar of the GC report.

#### Expanding time sovereignty

The GC report proposes measures that will improve working time autonomy in ways that meet the needs of both workers and enterprises. This means finding ways to apply national definitions of maximum hours of work limits in the digital age (allowing a right to disconnect), allowing flexibility for improved balance of work and home life and ensuring a fair deal for platform workers and persons who work "on call".

In this assessment, the aim to enhance the flexibility of work place, work hours, etc. came up most clearly in relation to policies to encourage elderly workers to stay longer in employment.<sup>66</sup> As noted in section 3.3.3, numerous countries with large ageing populations are implementing or intending to implement policies that encourage enterprises to make working environments more age-friendly, including through shorter working hours and possibilities to work from home for older workers. Associated costs are expected to be partially covered by government-sponsored employment subsidies.

Working time legislation is not discussed in relation to national 4IR policies, but this does not mean that countries in the region are not taking action. The recently adopted Work Style Reform in Japan, for example, has among its objectives to fix the culture of excessive working hours with a strict cap on overtime and to promote increased flexibility through digital solutions with the express objective of encouraging women's work. Empowering workers to "design their own careers" - i.e. increasing the array of choices on how people work - is to be compensated by increasing the returns to workers through guaranteed long-term employment, thus balancing flexibility with security. Other countries are also regulating to allow work from home. The Philippines, for example, signed the Republic Act No. 11165 (Telecommuting Act) in April 2019 to

<sup>64</sup> The ensuing debate by ILO constituents on elements of the GC report occurred in the tripartite negotiation of the ILO Centenary Declaration for the Future of Work, adopted by the International Labour Conference at its 108<sup>th</sup> Session in Geneva on 21 June 2019. The Centenary Declaration adheres to the spirit of the GC report, while not including as given all of the prescribed pillars of action.

<sup>65</sup> The ILO core Conventions were defined as an expression of universal human rights in the ILO Declaration on Fundamental Principles and Rights at Work, adopted in 1998. For more information, see website: https://www.ilo.org/declaration/thedeclaration/lang--en/ index.htm. For a full review of the ILO's work in relation to standard setting, see ILO (2019f).

<sup>66</sup> Recall the examination of documents did not include labour laws, which is where working time issues would be clearly found.

stipulate the rules for teleworking for private sector employees.

In strategies related to the greening of economies, only Japan makes reference to enhanced flexibility of the work place, when referring to teleworking as a means to reduce CO2 emissions.

#### Revitalizing collective representation

The GC report notes that, "collective bargaining and social dialogue provide the institutional capabilities needed to navigate future of work transitions". In practical application, however, the inclusion of social dialogue in the formulation and implementation of policy responses and planning vis-à-vis the future of work in the countries reviewed was by no means guaranteed (see section 3.5). In the countries that were already best placed in the application of social dialogue, the planning documents were negotiated in consultation with trade unions and employers' organizations, but these are the exceptions more than the rule. Examples of where tripartite dialogue in the future of work-related planning occurred were in Japan, the Republic of Korea and Singapore. In Australia, New Zealand and Viet Nam, it is common practice to post policy documents for consultation and submission of comments from stakeholders. however, it is not clear to what extent the views of social partners are subsequently taken on board in the final outcome. Moreover, the public consultations were rarely found to include trade unions. In many instances, it appears that consultation with business - especially in discussions of the 4IR - was more readily sought than consultation with representatives of trade unions.

#### Technology for decent work

The GC report discusses the idea of a "human-incommand" approach to technology, whereby the positive spillovers of technological progress can be maximized while the negative effects are minimized. Also associated with this concept is the idea that the development and application of technology can be shaped to promote decent work through policy choices.

In some of the countries reviewed, this human-incommand approach for technological advancement fits well with the stated objectives of the national 14.0 or 4IR strategies. Japan's Society 5.0 is a case in point. The objective of Society 5.0 is to encourage the development of technologies in a manner that balances economic advancement with the resolution of social problems. Some examples of government support in favour of technologies to support an ageing population were mentioned in section 3.3.3. Singapore's Smart Nation strategy seeks to enable the development of technologies that can empower its citizens to "live meaningful and fulfilled lives". Australia's Digital Economy Strategy wants to promote technology as a means to enhance the quality of life, and beyond the general strategy, the government is currently supporting the development of a national Artificial Intelligence Ethics Framework. Similarly, Japan's Council for Science, Technology and Innovation issued a draft "Social Principles on Human-centric AI" for comments from stakeholders in February 2019. The principles include the idea that companies should take responsibility to ensure that Al does not infringe on basic human rights, including safeguarding personal data and guaranteeing security. See box 6 for more details.

Under this pillar of the GC report, there is also the call for establishment of an international governance system for digital labour platforms that would set and require platforms, and clients of platforms, to respect minimum rights and protections. The discussion in section 3.2.6 looked at how ASEAN +6 countries are addressing digital labour platforms in their respective countries to date. The general conclusion (see section 3.2.7) is that no country has yet adapted their labour legislation in such a way that offers a clear reading of where platform workers and providers fit in the existing employment categories defined in the labour law. But in the absence of redefined employment classifications, efforts have been made to fit platform works into existing labour laws, with the main emphasis on extending OSH protection. In the meantime, some of the locationbased platform services start to behave increasingly like traditional taxi companies - hence, traditional employers - offering training, equipment and even medical and accident insurance to their drivers.

#### Box 6. Ethics and Artificial Intelligence

Australia, Japan, and Singapore are among the countries seeking to develop ethical standards for AI while at the same time promoting the development of national level strategies for its development. In Australia, public consultation on a discussion paper on "Australia's Ethics Framework" closed in June 2019. The consultation is expected to guide the development of the country's eventual "responsible application" of AI. In Japan, the Council for Social Principles of Human-centric AI was developed in 2019 and authored a draft document of the same title for national and international consultations. In Singapore, the government established an Advisory Council on the Ethical Use of AI and Data in 2018, released a discussion paper on the responsible development and adoption of AI, and launched a research initiative on AI governance and data use.

Australia and Japan aim to promote a human-rights based approach to AI, whereby the development of new technologies is based on existing ethical standards and not the other way around where ethical standards are distorted to fit the development of AI. Singapore appears to take a technology-neutral and "light touch" approach such that developments in this realm are not "hindered or distorted by prescriptive rules that are laid down prematurely".<sup>2</sup>All three countries acknowledge the challenges surrounding potential biases in data and algorithms and the need to safeguard privacy of personal data and information. Also the key question of where the accountability lies with regards to the actions of automated entities or algorithms is being discussed. For example, Australia's ethics framework discussion points to the difficulty in codifying fairness and situational awareness and discretion into algorithms and indicates that the accountability of automated decisions should lie with the human decision-maker. This links closely to the human-in-command approach to AI recommended in the GC report.

Apart from Australia, Japan and Singapore, China has also underscored some ethical considerations in the development of AI. The notice on the New Generation Artificial Intelligence Development Plan released in 2017 highlights the importance of focussing on the impact of the development of AI on social ethics in the long-term, calling for AI development to be regulated within a "safe and controllable scope".<sup>3</sup> The plan highlights China's push towards establishing ethical norms, standards, and laws towards regulating the development and application of AI.

- <sup>1</sup> A longer history of national discussions on AI ethics in Japan is available on the website of Beneficial AI Japan at: http://baijapan.org/en/2018/reports-on-ai-ethics-japan/.
- <sup>2</sup> Personal Data Protection Commission Singapore: "Discussion paper on artificial intelligence (AI) and personal data—fostering responsible development and adoption of AI", 5 Jun. 2018.
- <sup>3</sup> The State Council of the Republic of China: "State Council issued Notice of the New Generation Artificial Intelligence Development Plan", 2019 (translated using Google Translate).

### **4.3.3** Increasing investment in decent and sustainable work

### Transforming economies to promote decent and sustainable work

In this action area, the GC report calls for "incentives to promote investments in key areas that promote decent and sustainable work". The description makes reference to areas of the economy where the more vulnerable population groups remain, for example, in the informal economy and/or living in rural areas. The call for greater investment in these areas follows from the mandate embedded in the 2030 Agenda for Sustainable Development to ensure that "no one is left behind". Linked to this is the recognition that a failure to reach the most vulnerable people means a failure to deliver on the SDGs.

The review of national preparedness for technological changes in section 3.2 led to the conclusion that the developing and emerging economies of ASEAN have a long way to go before invoking the structural transformation needed to capitalize on 14.0 as a primary driver of future growth. In the interim, these countries will be well served to concentrate on this GC pillar, doing more to tackle working poverty, for example, by increased investments in rural development and transforming the care economy.

Some of the countries reviewed did invoke a "technology for societal good" message in their 14.0-related planning documents that include the intention to address digital gaps in rural areas. Bringing health and social services to the elderly in rural areas was also discussed in some of the ageing planning documents, and some plans on environmental and climate change include elements for rural financing and insurance for farmers. While not specifically reviewed, some of the ASEAN +6 countries have stand-alone rural development strategies, and those that do not are likely to have components targeting rural areas in their economic and employment plans. Thus, it can be said that there is national policy space given to promote development in rural areas, but if the past is any indication, it is unlikely that the investments planned will be sufficient to overcome the rural/urban gaps in the near future.

The GC report draws attention to the care economy as another sector worthy of increased investment, reminding that it has the potential to generate over 475 million jobs around the world by 2030 (ILO, 2018f). Most of the ageing strategies reviewed take up the issue of care work and the potential (or actual) shortage of care workers in the context of ageing populations. To address the shortages, most strategies call for an acceleration of training of professionals for elderly health and social care. There remains, however, a lack of attention to the provision of incentives that could attract more workers to care professions (see section 3.3.3).

A third area promoted for greater attention in the GC report is climate change. As the ASEAN +6 countries' preparedness in this regard was reviewed in section 3.4, nothing additional is added here, except to urge further action in promoting the just transition towards environmentally sustainable economies.

While the informal economy and increased efforts to facilitate the transition to formalization is not addressed in relation to this pillar in the GC report (it is mentioned, rather, as a cross-cutting issue), this report argues that it is another key area worthy of increased, integrated attention if countries are truly concerned with improving livelihoods and protection of the most vulnerable workers. Discussion of the informal sector was lacking in the three themes reviewed.

### Shifting incentives: Towards a human-centred business and economic model

The GC report calls for "the reshaping of business incentive structures and for supplementary indicators of progress towards well-being, environmental sustainability and equality". Both notions are ideological and thus the furthest removed from the current state of national policies and programmes. The planning documents on I4.0 adhere to common investment approaches to attracting foreign direct investment and financing investment of local enterprises. It is not at all clear whether the ASEAN +6 countries are ready to engage in ideas like widening stakeholder representation in corporations and applying "fair fiscal policies" in support of this pillar of the GC report. There is, however, a hint of interest in the call to explore alternative measures of economic and social progress that do not rely solely on the measure of gross domestic product. The New Zealand "Wellbeing" Budget 2019 is arguably the world's first to broaden the focus from economic and fiscal policy through integration of the Treasury's Living Standards Framework.<sup>67</sup> Australia and the Republic of Korea are two other countries in the region that engage in regular measurement of well-being with the support of the OECD,<sup>68</sup> but in general, the notion of "moving beyond GDP" has not yet taken hold in the ASEAN region.

<sup>67 &</sup>quot;Budget 2019: Focus on wellbeing", website of the New Zealand Treasury. Available at: https://www.budget.govt.nz/budget/2018/ economic-fiscal-outlook/budget-2019-focus-on-wellbeing.htm.

<sup>68</sup> The OECD Better Life Index is an effort to capture elements of material living conditions and quality of life in economic matrices. See http://www.oecdbetterlifeindex.org.

#### 4.4 General summary

It is no easy task to summarize on the preparedness for the future of work based on the examination of existing strategies and policies linked to technological changes, demographic shifts and climate change undertaken for this report. One can generalize that many governments are putting a great deal of effort into building a favourable national ecosystem for technological advancement, oftentimes promoting economic strategies that encourage innovation and enterprise development in targeted sectors (primarily high tech) with the hope that job creation will follow. The ASEAN +6 countries are also reacting to demographic changes, with the ageing economies making progress on social policies intended to encourage active ageing. Finally, to a certain degree, all countries reviewed are also increasingly adopting strategies to address environmental and climate changes.

Within each of these three themes, the most common labour market interventions have been shown to fall in the realm of skills development. Some attention is also paid to social protection, labour migration, employment services, inclusion of vulnerable groups, and, in rare cases, labour law reforms on issues like working arrangements. What countries are not found to be doing, or at least not doing to scale as a direct response to the three themes examined, is making a definitive effort to strengthen labour market institutions. ILO (2018a) argued that countries in the region (Asia-Pacific as a whole, but the emerging economies in particular) still focus the bulk of political attention on the aim of boosting economic growth. In many countries in the region, social and labour policies take a back seat in national development strategies. This is an understandable ethos for developing economies, but one that has proven to result in the perpetuation of working poverty and vulnerable employment in the region, and one that does not match to the idea to "plac[e] people and the work they do at the centre of economic and social policy and business practice" (ILO, 2019a, p. 11).

Among the ASEAN middle-income economies, 14.0 and the broader 4IR are now pursued as a continuation of past industrial strategies, with much hope pegged on the national capacity to harness new technologies to accomplish the dream of attaining high-income status. The future of work in the ASEAN region is thus set to be a residual of how successful the countries are in meeting the objectives of their industrial growth strategies in the given uncertain macroeconomic context (noting that all countries continue to be extremely vulnerable to natural disasters, health epidemics, blocked trade flows and financial market collapse). The track record of many ASEAN countries in industrial policies over the last 50 years has not been great (some of the +6 countries had done better in this regards), at least not in terms of ensuring the equitable distribution of growth in a way that sufficiently reduced decent work deficits. Inclusive growth will continue to be elusive in the emerging economies of the region in the absence of stronger investments in the institutions of work and commitments to decent work.

The countries assessed that align more closely with the pillars of the GC report are the high-income of the ASEAN +6 group, i.e. the countries that have a longer history of labour market institutions that function reasonably well.<sup>69</sup> Hence, the advanced economies are cited more frequently throughout this report as putting forth innovative policies and programmes in response to the future of work that align well to some areas of the GC report's humancentred agenda.

The developing and emerging countries can argue that even if they have the will to promote the policies espoused in the GC report (and the subsequent ILO Centenary Declaration), they do not have the financial means to make it happen on their own. This is a fair argument given that investing in labour market institutions, ensuring universal social protection, facilitating lifelong learning, etc. are expensive ventures. How are low-income countries like Lao People's Democratic Republic and Myanmar meant to finance the institutions? Will the ASEAN middle-income countries that have still between

<sup>69</sup> For an examination of how East Asian economies managed to excel in their growth pathways while South-East Asian economies did not, see Studwell (2014).

50 and 90 per cent of workers engaged in informal enterprises have a sufficient tax base to finance the vision? In the near future, most likely they will not. In recognition of the financial constraints, the GC report calls for the assistance of the United Nations, the Bretton Woods institutions, civil society organizations and other stakeholders to strengthen substantive joint work and to "underwrite the social contract" in countries where progress toward the human-centred future of work agenda is constrained by national fiscal space.

The ASEAN +6 countries are found to fall across a wide spectrum in terms of adherence to the various pillars set out in the roadmap for a human-centred agenda for the future of work. The more obvious gaps relate to national capacities to support people through future of work transitions, provide adequate social protection, pursue gender equality, adequately address labour standards and promote collective representation of workers and employers. Scaling-up progress on each of these fronts is what is required to put people first in the path to a "brighter" future of work.

#### 4.5 Moving forward

To achieve a "brighter" future of work will require a significant shift in political will to back the humancentric agenda. To a certain extent, an expression of this political will was made at the regional level with the ASEAN Labour Ministers' Statement on the Future of Work: "Embracing technology for inclusive and sustainable growth" adopted at the ILO Singapore Conference on the Future of Work on 29 April 2019.<sup>70</sup> The Statement builds on previous joint expressions of objectives in specific areas of the future of work. Already in September 2018 at the World Economic Forum on ASEAN, ASEAN leaders acknowledged that harnessing the opportunities of the 4IR would require a united strategy.<sup>71</sup> ASEAN leaders at the Forum acknowledged the risks of the 4IR, namely the displacement of workers and widening income gaps if gains were to accrue only to the well-educated. But in terms of actions seen to counteract the risks, the solutions discussed at the event included more effective sharing of data, building a network of start-up incubators, single-rate mobile coverage - i.e. solutions geared primarily to improving the regions' capacity for networking and connectivity - and, as usual, ensuring the right skills and educational opportunities for the region. The specific regional initiatives that already exist which can influence outcomes in the future of work include the ASEAN Agreement on e-commerce, the ASEAN Smart Cities Network, the ASEAN-Republic of Korea Joint Science and Technology Committee, the ASEAN Forum on Migrant Labour and the ASEAN Climate Change Partnership. There are likely to be others.

Information sharing and coordination is also ongoing in the regional response to ageing. To this end, Thailand's Ministry of Foreign Affairs recently hosted the ASEAN +3 Symposium on Strengthening Demographic Policy Cooperation.<sup>72</sup> There also seems to be movement towards establishing an ASEAN Centre for Active Aging and Innovation, which would investigate good practices in the areas of the silver workforce and old-age pension reforms, among others.

The ASEAN Labour Ministers' Statement on the Future of Work is a welcome addition as a mechanism to draw from the many ongoing topical coordination efforts in a consolidated regional response to the GC report. The Statement affirms the hope of embracing the opportunities afforded by new technologies while building resilience against their potentially disruptive effects. Among the areas of action proposed in the Statement are:

<sup>70</sup> The text is available on the website: https://asean.org/storage/2012/05/SIGNED\_ASEAN-Labour-Minister-Statement-on-Future-of-Work.pdf.

<sup>71</sup> The World Economic Forum on ASEAN was held in Hanoi, Viet Nam, from 11–13 Sep. 2018.

<sup>72</sup> Information available on the website of the Ministry of Foreign Affairs at: https://www.dopa.go.th/news/cate1/view3894.

- Strengthening the institutional capacity (public and private) to prepare the workforce for the future of work, including the TVET system and based on close cooperation with industries;
- Expanding initiatives for increased outreach of technological skills, especially for women, persons with disabilities, youth and the elderly;
- Supporting MSMEs to harness and manage technology;
- Promoting fiscally sustainable social protection initiatives;
- Sharing best practices on implementing policies responsive to the changing nature of employment relationships; and
- Strengthening tripartite relations and ensuring social dialogue for the creation of decent work in the region.

The ASEAN Labour Ministers' Statement is an important document in its recognition of the need to increase investments in the institutions of work as important foundations of propelling a "brighter" future of work. It sets the groundwork for a tripartite sharing of good practices in preparation for the future of work. If it does not adhere fully to all elements of the human-centred agenda set by the GC report, it does signal a willingness to work together at the regional level, with inclusion of a broad array of relevant stakeholders, to continue the dialogue and come to common agreement on the mix of labour market policies best suited to overcome the destabilizing elements of the current mega trends of the future of work. It is thus a most welcome start.73

#### What next?

At the Singapore Conference on the Future of Work, hosted from 29-30 April 2019 by the government of Singapore with its social partners and in partnership with the ILO, Singapore's Minister of Manpower announced the idea to establish an ASEAN Future of Work Initiative. The initiative is viewed as the future platform for ASEAN member States to learn from each other and international experts, build capacity and share best practices in future of work areas. The practical details are yet to be worked out, but certainly there remain many outstanding issues regarding the future of work that require further investigation. The ILO looks forward to engaging with its tripartite constituents in ASEAN as elsewhere, as well as with an array of partners in the multilateral system to promote coherence across a wide range of policy areas in pursuit of the humancentred agenda for the future of work espoused in the GC report and the subsequent ILO Centenary Declaration.

<sup>73</sup> The sentiments of the ASEAN Labour Ministers' Statement also match well with the ILO Centenary Declaration, adopted in June 2019.



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### **Preparing for the future of work:** National policy responses in ASEAN +6

Spurred by technological advancements, demographic shifts and environmental and climate disruptions, fastpaced transformations are affecting how, where and when people work, impacting our labour markets and shaping the future of work. *Preparing for the future of work: National policy responses in ASEAN +6* provides an overview of how countries in the Asia-Pacific region are reacting to such changes with new or adapted strategies and policies.

Based on a regional mapping of national planning and policy documents in ten ASEAN countries and their six main trading partners taken in response to three "mega trends" of the future of work (technological change, demographic shifts and climate change), the report identifies the patterns in national policy-making and points to potential gaps in what would be needed to drive a "human-centred agenda for the future of work". Shortcomings are noted in countries that struggle to strengthen the institutions needed to deliver economic security, equal opportunity and social justice in the year to come. Yet the analysis found good practices as well. The report highlights examples of innovative policy actions in the countries that strive to promote decent work for persons of all ages while also seizing the opportunities of technological progress and promoting environmental sustainability.

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