

ASIA AND THE PACIFIC

EMPLOYMENT AND ENVIRONMENTAL SUSTAINABILITY FACT SHEETS 2019

The *Employment and Environmental Sustainability Fact Sheets* series provides key features of employment and environmental sustainability performance. Jobs that are green and decent are central to sustainable development and resource productivity. They respond to the global challenges of environmental protection, economic development and social inclusion. Such jobs create decent employment opportunities, enhance resource efficiency and build low-carbon, sustainable societies. The fact sheets include the most recent available data for selected indicators on employment and environmental sustainability: (i) employment in environmental sectors; (ii) skill levels; (iii) vulnerability of jobs; (iv) jobs in renewable energy; (v) scoring on the Environmental Performance Index; and (vi) air quality.

DEMOGRAPHICS

The Asia-Pacific region¹ is an economically and culturally diverse area. On average, the population is growing, with a mean fertility rate of 2.5 children, life expectancy of 73.1 years and, on average, 65 per cent of the population is of legal working age (15-64 years) (Fig. 2).

Figure 1. Map of Asia-Pacific region



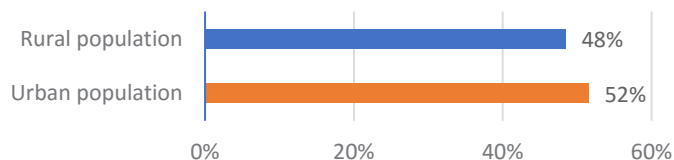
Source: ILO. <https://www.ilo.org/asia/countries/lang--en/index.htm>

Figure 2. Asia-Pacific population statistics

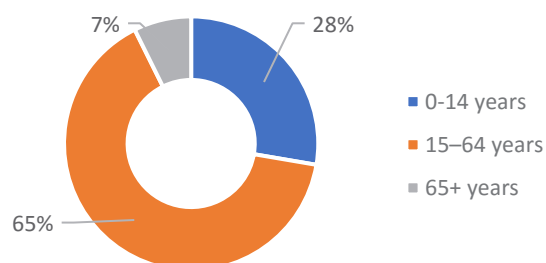
Population:² 4125.1 million



Population growth rate	Fertility rate	Life expectancy at birth
1.1%	2.5 children	73.1 years



Population age categories



Note: All data and graphs calculated from the latest data available.

Source: ILO compilation using World Development Indicators, last updated: 28 June 2018; <http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators#>; ESCAP Stat, http://data.unescap.org/escap_stat/; Asian Development Bank: Basic 2018 Statistics, www.adb.org/statistics; Central Intelligence Agency: The World Factbook 2017, www.cia.gov (all accessed on 18 July 2018).

¹ Afghanistan, Australia, Bangladesh, Brunei Darussalam, Cambodia, China, Cook Islands, Fiji, India, Indonesia, Islamic Republic of Iran, Japan, Kiribati, Republic of Korea, Lao People's Democratic Republic, Malaysia, Maldives, Marshall Islands, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Palau, Papua New Guinea, Philippines, Samoa, Solomon Islands, Sri Lanka, Thailand, Timor-Leste, Tonga, Tuvalu, Vanuatu and Vietnam.

² Population data based on 2017 data.

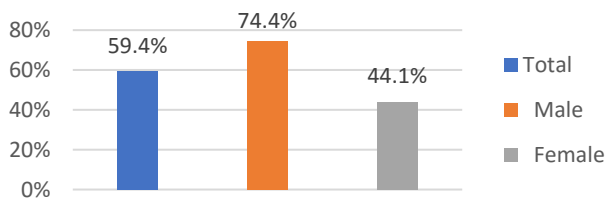
LABOUR FORCE

In 2018, the labour force participation rate in the Asia-Pacific region was 63 per cent and the employment-to-population ratio was 59.4 per cent. The labour participation rates for men were approximately 25 percentage points higher than those for women, while the difference was even higher for the employment-to-population ratio at 30 percentage points. The unemployment rate was 4.1 per cent and the youth unemployment rate was approximately 10.5 per cent for both males and females (Fig. 3).

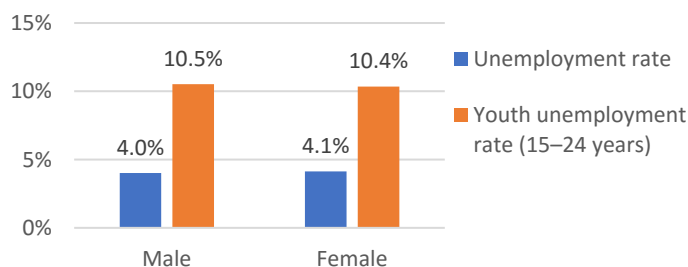
Employment in the services sector, at 48 per cent, provides one job in two across more than half of the region's countries: Brunei Darussalam, Palau and Singapore have more than 80 per cent of their employees in the services sector. Agricultural employment at 40 per cent provides a significant share of employment for more than a quarter of the region's countries. Five countries are heavily reliant on agriculture, with more than 50 per cent of their employment concentrated in agriculture; Nepal has more than 70 per cent of employees in agriculture. Within the region, many countries have less than 25 per cent of employees in industry, while half the region's countries have lower than 20 per cent and Afghanistan, Lao People's Democratic Republic, Marshall Islands, Nepal, Papua New Guinea, Solomon Islands and Vanuatu have less than 10 per cent employment in the industry sector (Fig. 3). Based on the data by occupation classification, 68.3 per cent of workers in the region are employed in medium-skilled professions, with Lao PDR having more than 90 per cent of employees in this professional range. Viet Nam has the highest percentage of low-skilled professions and Singapore has the highest rate of high-skilled professions (Fig. 3).

Figure 3. Basic employment statistics for the Asia-Pacific region

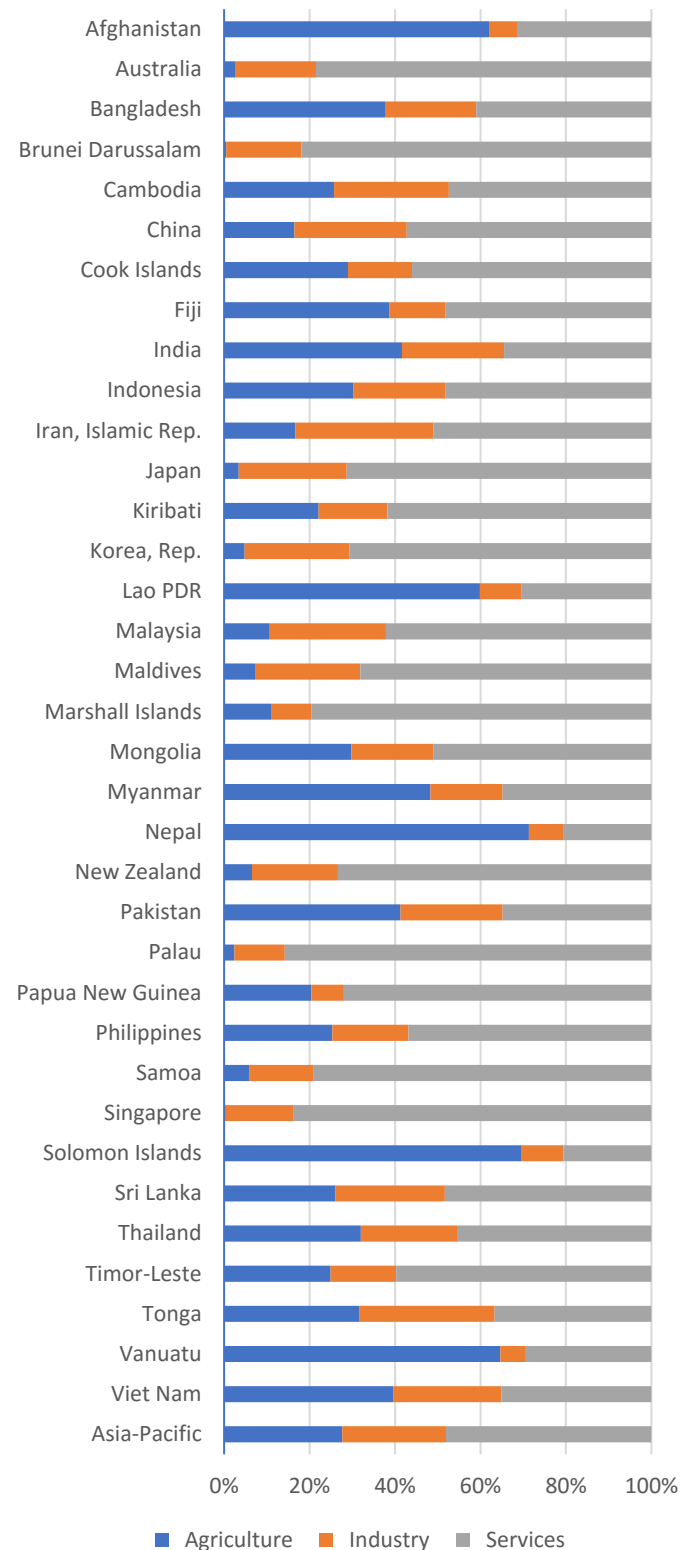
Employment-to-population, 2018 (15+ years)



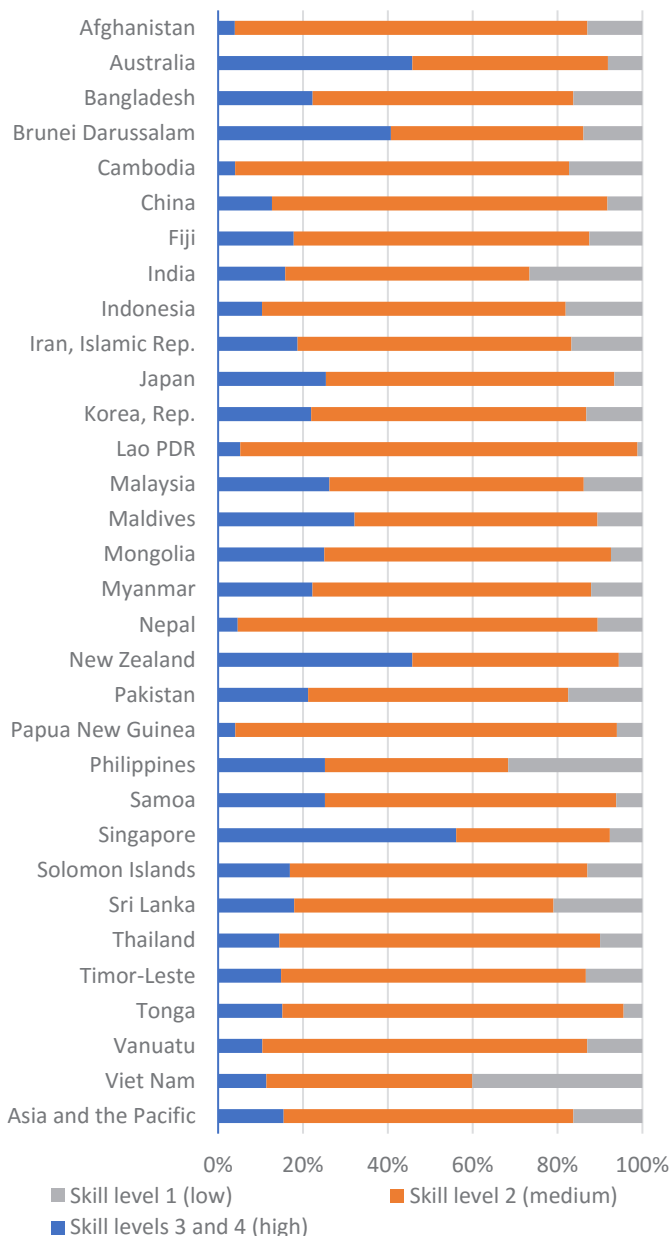
Unemployment, 2018



Employment by sector, 2018 (15+ years)^a



Employment by occupation, 2018^b



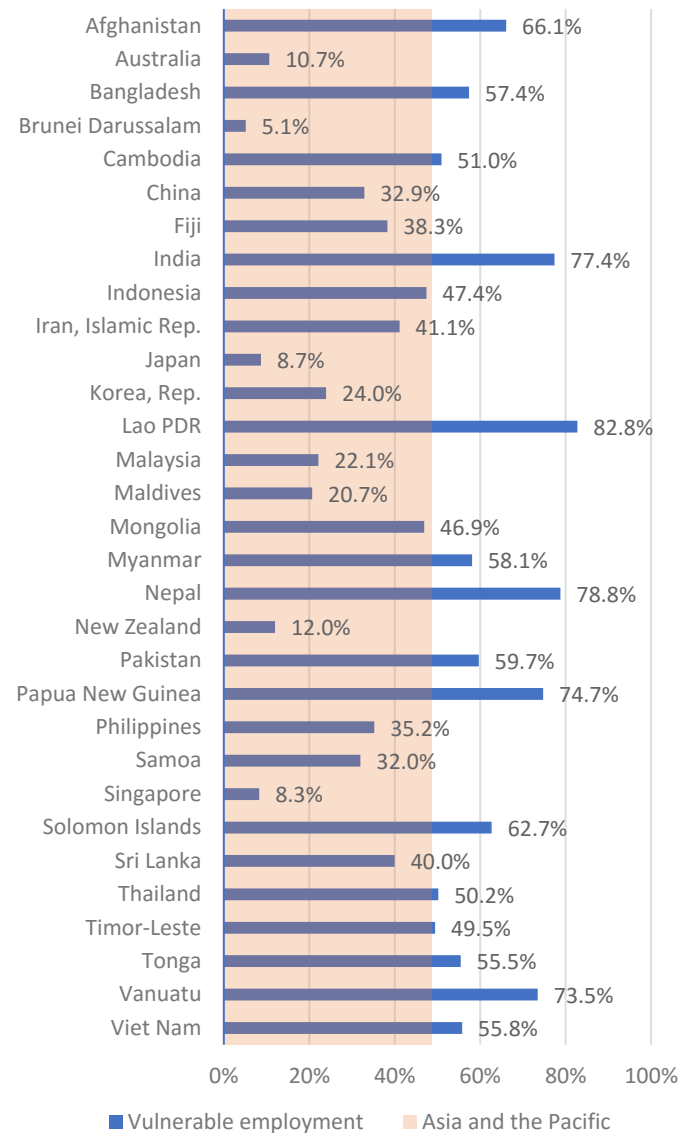
Note: ILO estimates data. Labour force participation rate and unemployment: aged 15 years and older. Youth unemployment: aged 15–24 years. Employment by occupation: skill level 1 (low) for elementary occupations; skill level 2 (medium) for clerical, service and sales workers, skilled agricultural and trade workers, plant machinists and assemblers; and skill level 3 and 4 (high) for managers, professionals and technicians. (a) Cook Islands (1995), Kiribati and Marshall Islands (2010), Palau (2008), Tuvalu (no data); (b) Data not available for Cook Islands, Kiribati, Marshall Islands, Palau and Tuvalu.

Source: ILO estimates and compilation using ILOSTAT, www.ilo.org/ilostat (accessed 18 July 2018).

Across the region, almost 49 per cent of employment is classified as ‘vulnerable’. The Lao PDR has the largest concentration of vulnerable employees, at 83 per cent, probably due to its large reliance on agriculture, followed by Nepal, India, Papua New Guinea and Vanuatu, all of which have more than 70 per cent of workers classified as vulnerable (Fig. 4). The proportion of vulnerable employees is less than 10 per cent in Brunei Darussalam, Japan and Singapore, possibly because these countries have less reliance on agricultural employment.

Own-account and contributing family workers are more likely to experience low job and income security than employees and employers, as well as lower coverage by social protection systems and employment regulation.

Figure 4. Vulnerable employment, 2018

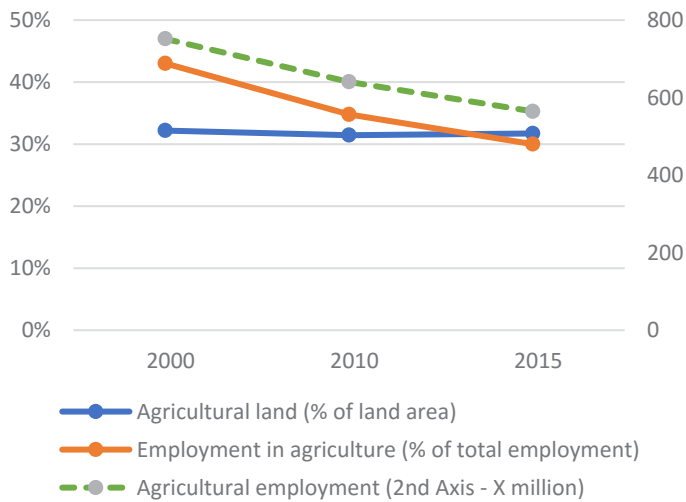


Note: ILO estimates data. Vulnerable employment includes own-account workers and contributing family workers from ILO status of employment data. Data not available for Cook Islands, Kiribati, Marshall Islands, Palau and Tuvalu.

Source: ILO estimates and compilation using ILOSTAT, www.ilo.org/ilostat (accessed 13 June 2018).

Agricultural land area remained steady from 2000 to 2015, while agricultural employment declined from 751.5 to 564.5 million. The share of agricultural employment within total employment fell by 13 percentage points over the years from 2000 to 2015 (Fig. 5). This decline probably reflects both mechanization and better working conditions resulting in higher efficiency within the agriculture arena and faster job creation in other sectors.

Figure 5. Agricultural land and agricultural employment, 2000-2015



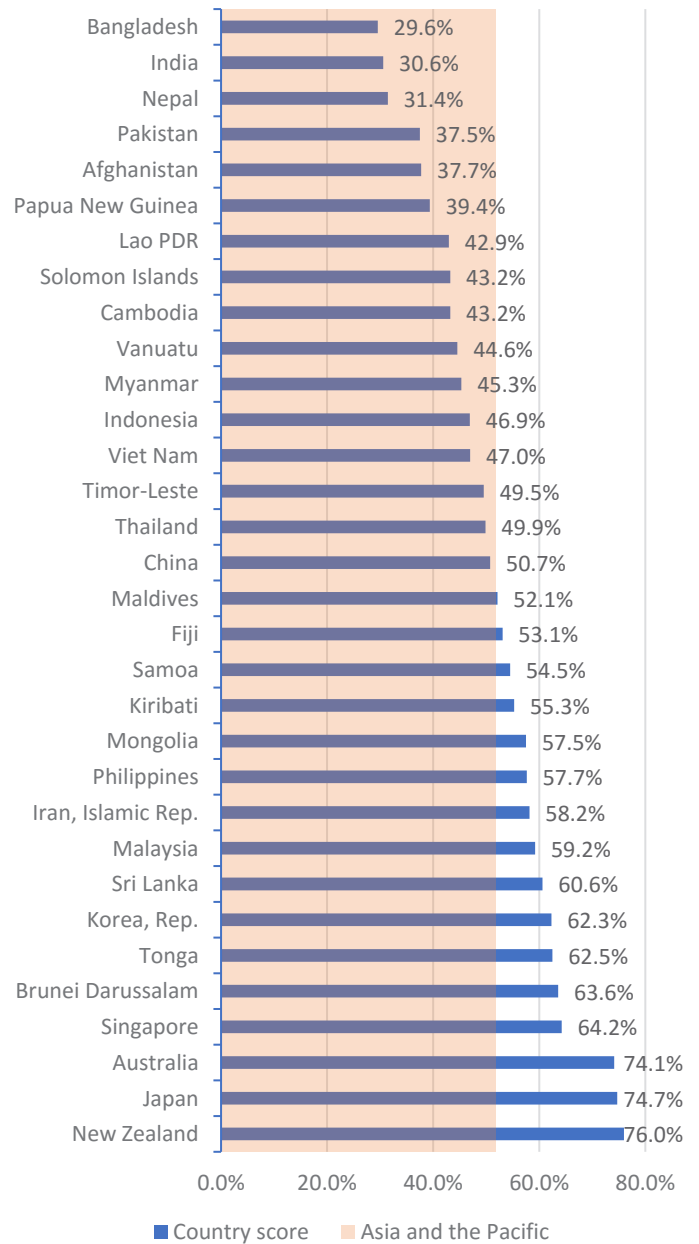
Note: Data is the average for all ILO member countries in the Asia-Pacific region excluding Cook Islands, Kiribati, Marshall Islands, Palau and Tuvalu.

Source: World Development Indicators, last updated: 28 June 2018; <http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators#> (accessed on 30 December 2018).

ENVIRONMENTAL ISSUES

The average Environmental Performance Index (EPI)³ score for the Asia-Pacific region is 51, with 0 being furthest from the high-performance benchmark target of 100.⁴ Generally, countries with more advanced economic development show better environment performance; high-income countries, such as New Zealand, Japan and Australia, are the better-performing countries, while low to lower-middle-income countries, such as Bangladesh, India and Nepal, have the lowest EPI scores (Fig. 6). There is significant room for improvement in all environmental areas, especially in forests, agriculture, water resources, and air pollution, particularly for low to lower-middle-income countries (Fig. 7). Measures to address climate change and improve environmental health, ecosystem vitality and resilience to weather disasters have the potential to provide job creation, green economy growth and innovation.

Figure 6. Environmental Performance Index 2018 Score (0 = worst to 100 = best) for Asia-Pacific region



Note: Sorted by country score. Asia-Pacific score is an average of all the data for ILO member states in the Asia-Pacific region excluding four countries with no data (Cook Islands, Marshall Islands, Palau and Tuvalu).

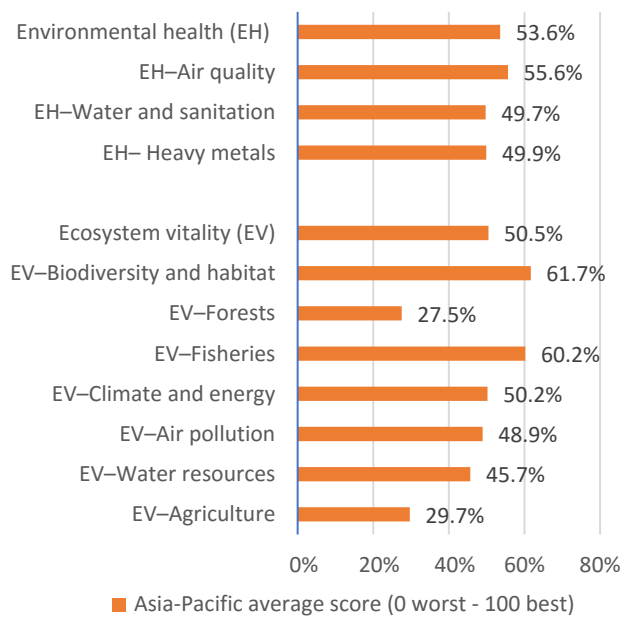
Source: ILO compilation using "2018 EPI Scores – Current". EPI Yale. Retrieved 14-06-2018. Available: <https://epi.envirocenter.yale.edu>

³ Yale Center for Environmental Law & Policy / Center for International Earth Science Information Network at Columbia University. "2018 EPI Scores – Current". EPI Yale. Retrieved 14-06-2018. Available: <https://epi.envirocenter.yale.edu>

⁴ Average calculated from the scores for 32 Asia-Pacific countries.

Figure 7. Average Asia-Pacific region EPI environmental category scores

Environmental Performance Index (2018)

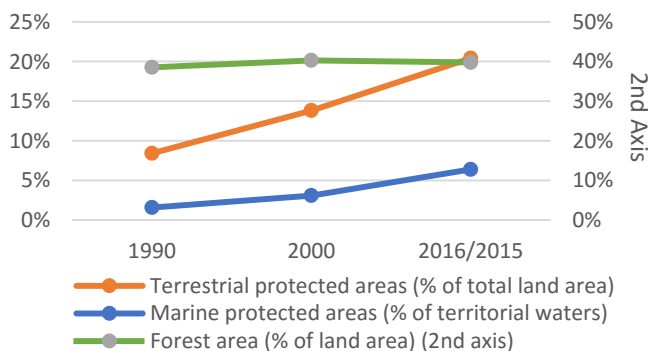


Note: Each score is an average of all data for ILO member states in the Asia-Pacific region, excluding four countries with no data (Cook Islands, Marshall Islands, Palau and Tuvalu).

Source: ILO compilation using “2018 EPI Scores – Current”. EPI Yale. Retrieved 14-06-2018. Available: <https://epi.envirocenter.yale.edu>

Forest area as a percentage of total land area did not change much from 1990 to 2014, while both terrestrial and marine protected areas had notable increases (Fig. 8). Among the sectors with the greatest potential for green jobs creation, only agriculture currently has a large employment footprint in the Asia-Pacific region.

Figure 8. Forest area, terrestrial and marine protection areas, 1990-2016



Note: The graph reflects averages for all ILO member states in the Asia-Pacific region excluding Cook Islands, Marshall Islands (1990) and Palau (1990). The latest data for the forest area is from 2015 and other data is from 2016.

Source: ILO compilation using World Development Indicators, last updated: 28 June 2018; <http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators#> (accessed on 20 July 2018).

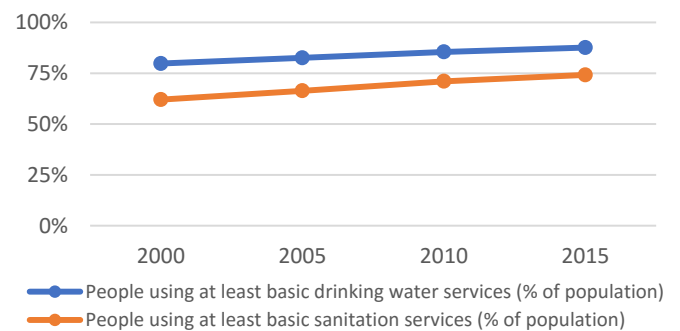
⁵ CO² refers to carbon dioxide.

⁶ The value is calculated based on CAGR (compound annual growth rate).

⁷ <https://www.carbonneutral.com/uploads/others/China-carbon-emissions-a-global-dilemma.pdf>

Since 2000, there has been a gradual increase in access to basic drinking water, to an average of 87.6 per cent in 2015, and an increase in access to basic sanitation, to an average of 74.2 per cent (Fig. 9). Both are still below the ideal threshold of 100 per cent. Only 0.3 per cent of the labour force was employed in water supply, sewerage, waste management and remediation activities in recent years (Fig. 13). Improvement in water supply and sanitation access will provide decent job opportunities in the future.

Figure 9. Basic drinking water and sanitation access, 2000-2015



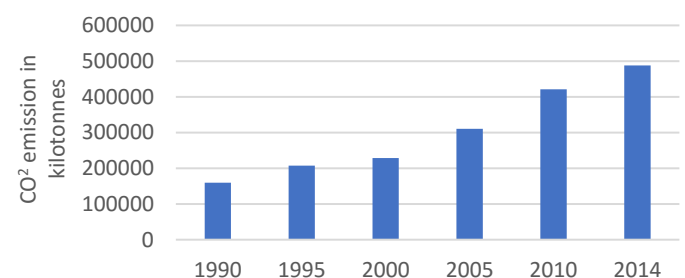
Note: Data is the average for all ILO member states in the Asia-Pacific region excluding Cook Islands, Marshall Islands (2000) and Tuvalu (2000).

Source: World Development Indicators, last updated: 28 June 2018; <http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators#> (accessed on 20 July 2018).

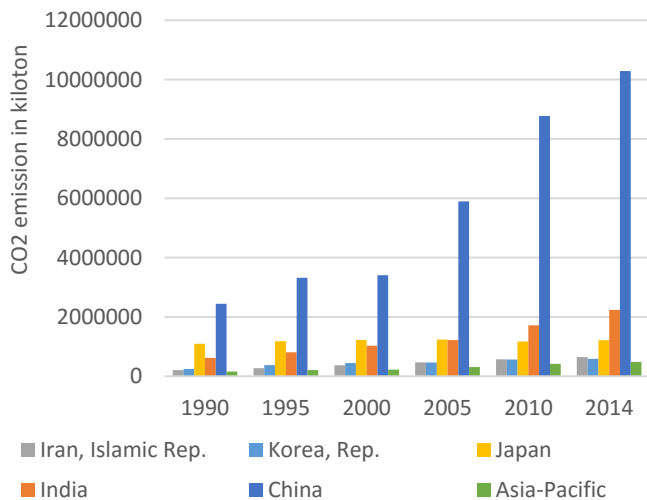
AIR QUALITY

The aggregate carbon dioxide (CO²) emission levels⁵ for the Asia-Pacific region have increased gradually, by an average of 4.8 per cent from 1990 to 2014.⁶ Among the top five CO² emitting countries in the Asia-Pacific region from 1990 to 2014, China had the largest share followed by India, Japan, Iran and the Republic of Korea (Fig. 10). One of the major reasons behind China’s high CO² emission levels is the country’s rapid industrialization, huge manufacturing sector, and lack of renewable energy sources.⁷ Of the five countries with the highest CO² emissions, the Republic of Korea had the lowest levels over the past 10 years.

Figure 10. CO² emissions in the Asia-Pacific region, 1990-2014



CO₂ emissions in the top five emitting countries in the Asia-Pacific



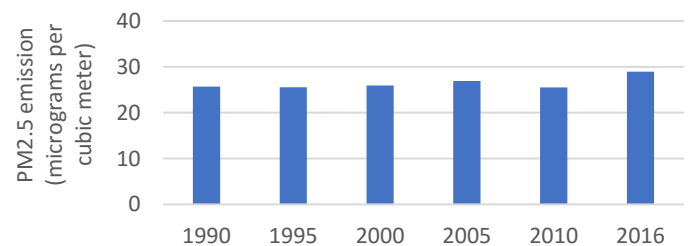
Note: The graph is the average of data from ILO member states in Asia-Pacific region excluding Cook Islands, Timor-Leste (1990, 1995, 2000).

Source: ILO compilation using World Bank indicators. (accessed on 23 July 2018) <https://data.worldbank.org/indicator/EN.ATM.CO2E.KT>

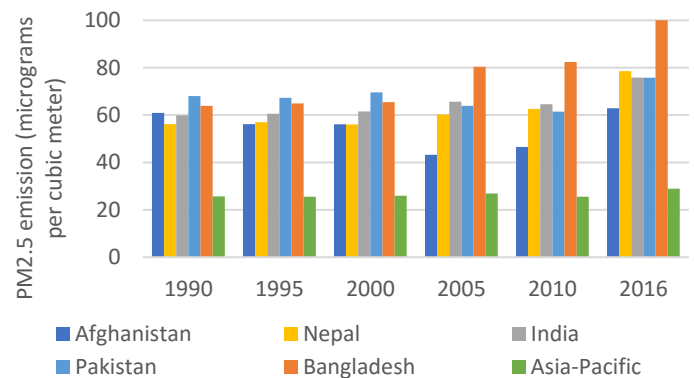
The aggregate PM_{2.5} (atmospheric particulate matter with a diameter of less than 2.5 micrometres) emission levels⁸ for the Asia-Pacific region have increased slightly by an average of 0.5 per cent from 1990 to 2016 (Fig. 11). Among the top five PM_{2.5} emitting countries in the Asia-Pacific region from 1990 to 2016, Bangladesh had the highest rate, followed by Nepal, India, Pakistan and Afghanistan. This is primarily because 80 per cent of the population in these regions rely on conventional biomass burning of livestock waste and fire wood⁹. The other sources are coal burning by industries and power-plants, agricultural burning and transport sources. Afghanistan had the lowest share of PM_{2.5} emission levels amongst the top five emitting countries in the Asia-Pacific region whereas Bangladesh shows an increasing trend of PM_{2.5} emissions (Fig.11).

In the Asia-Pacific region, rapid industrialisation and urbanization has resulted in increased environmental pollution which also impacts human health and labour productivity. Applying the Just Transition Guidelines, an area of possible intervention includes efforts to reduce harmful emissions that can potentially generate green jobs in high emitting sectors such as transportation and fuel-intensive industries. Reducing emissions is a significant challenge – which can be achieved not only by mitigation methods but also by adapting to, and coping with, the changes required by the transition to a low-carbon economy.

Figure 11. PM_{2.5} emissions in Asia-Pacific, 1990-2016



PM_{2.5} emissions in the top five emitting countries in Asia-Pacific



Note: The graph is the average of the data from ILO member states in the Asia-Pacific region excluding Cook Islands, Palau and Tuvalu.

Source: ILO compilation using World Bank indicators (accessed on 23 July 2018) <https://data.worldbank.org/indicator/EN.ATM.PM25.MC.M3>

CLIMATE CHANGE IMPACTS

According to the World Risk Report,¹⁰ 12 Asia-Pacific countries are among the top 20 countries globally that are most affected by disaster risks – they are exposed to natural hazards and, owing to their poor economic and social situations, are particularly vulnerable. The concern is that while only 8 per cent of the region's total land area is less than 5 metres above sea level, 10 per cent of the total population lives there.¹¹ According to the Emergency Events Database¹², there has been a general increase per decade since the 1970s in natural disasters¹³ and the value of associated damage costs (Fig. 12). Moreover, it shows that the damage costs have increased rapidly since 2000, although the number of disaster occurrences has decreased. Developing preventative measures to limit infrastructure and property damage and increasing institutional capacity to respond to climate events, particularly for small businesses, can be a source of decent job creation while building resilience.

⁸ Source: Brauer, M. et al. 2016, for the Global Burden of Disease Study 2016. Data provided by Institute for Health Metrics and Evaluation, University of Washington, Seattle. <https://data.worldbank.org/indicator/EN.ATM.PM25.MC.M3?view=chart>

⁹ Status of indoor air pollution (IAP) through particulate matter (PM) emissions and associated health concerns in South Asia. <https://www.ncbi.nlm.nih.gov/pubmed/29078189> and State of Global Air/2007- A Special Report on Global Exposure to Air Pollution and its disease burden. http://www.stateofglobalair.org/sites/default/files/SOGA2017_report.pdf

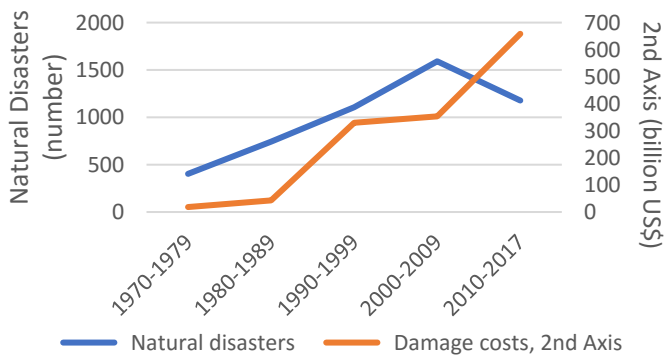
¹⁰ Bündnis Entwicklung Hilft and United Nations University – EHS (2017) World Risk Report 2017, available at: <http://weltrisikobericht.de/english/>

¹¹ World Development Indicators. <http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators#> (Accessed on 19 July 2018)

¹² EM-DAT: The Emergency Events Database - Universite catholique de Louvain (UCL) - CRED, D. Guha-Sapir - www.emdat.be, Brussels, Belgium. Data accessed on : July 20, 2018.

¹³ Climatological, hydrological and meteorological disasters.

Figure 12. Natural disaster occurrence and damage costs in Asia-Pacific countries



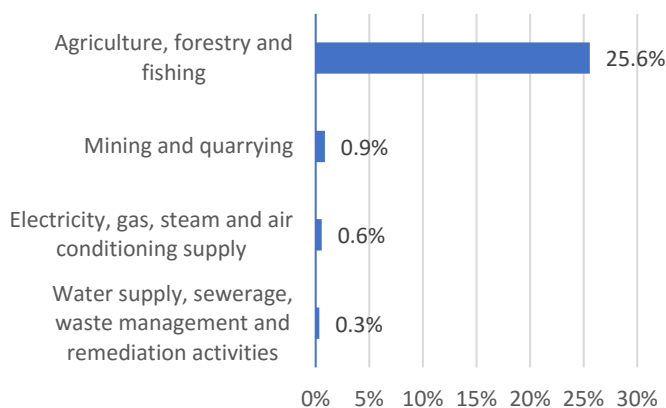
Note: Sum of data for ILO member states in Asia-Pacific. Natural events include climatological, hydrological and meteorological.

Source: EM-DAT: The Emergency Events Database - Universite catholique de Louvain (UCL) - CRED, D. Guha-Sapir - www.emdat.be, Brussels, Belgium. Data accessed on: 20 July 2018.

GREEN JOBS POTENTIAL

According to recent data, 25.6 per cent of employment in the Asia-Pacific region was in the agriculture, forestry and fishing sectors (Fig. 13). Although reliance on agriculture is already heavy, there are opportunities for additional job creation in the transition to sustainable production. There will also be increased job prospects in other sectors of the green economy where employment is currently much lower, such as new green jobs in resource management and protection and natural resource utilization within public administration.

Figure 13. Employment in sectors with strong green jobs potential, Asia-Pacific region



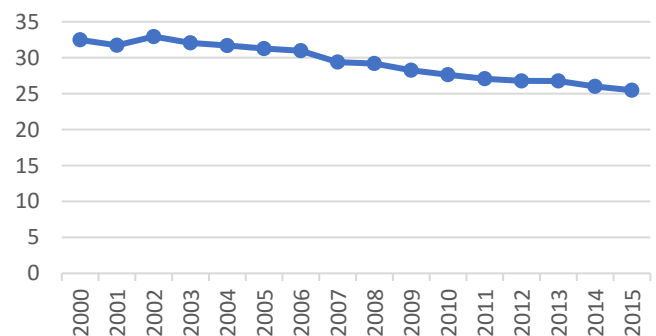
Note: These sectors have the most potential for green job opportunities. Employment by selected 1-digit sector level (ISIC - Rev. 4, 2008)

Asia-Pacific average calculated from the latest data available (2008-17). Bangladesh, Lao PDR, Mongolia, Myanmar, Philippines, Vietnam (2017); Australia, Fiji, Iran, Japan, Republic of Korea, Malaysia, Maldives, Pakistan, Thailand (2016); Indonesia, New Zealand (2015); Brunei Darussalam, Samoa, Sri Lanka (2014); Timor-Leste (2013); Cambodia, India (2012); Vanuatu (2009); Singapore (2008). Only data for mining and quarrying is available for Singapore. No data is available for Afghanistan, China, Cook Islands, Kiribati, Marshall Islands, Palau and Tuvalu.

Source: ILO compilation using ILOSTAT, www.ilo.org/ilostat (accessed 18 July 2018).

The share of renewable energy in total energy consumption has steadily declined from an average of 32.5 per cent in 2000 to 25.5 per cent in 2015 as other energy sources have grown more rapidly (Fig. 14). Nonetheless, seven countries utilize more than 50 per cent renewable energy in their total energy consumption, with Nepal having the highest usage at 85 per cent (Fig. 15). Total renewable energy electricity generation increased over the last 16 years, with a high reliance on hydropower (Fig 16). In 2017, the Asia-Pacific region accounted for more than 59 per cent of the 10.3 million persons employed in the renewable energy sector worldwide (with 41 per cent in China and around 7 per cent in India)¹⁴. Most of the region's employment is in solar photovoltaics (47 per cent) followed by large-scale hydropower (13.9 per cent) (Fig. 17). The Asia-Pacific average employment rate in electricity, gas, steam and air conditioning was 0.6 per cent in recent years (Fig. 13). However, with the increasing reliance on renewable energy, these utility subsectors will provide new job opportunities in the future.

Figure 14. Trend in renewable energy share within total energy consumption, 2000-15

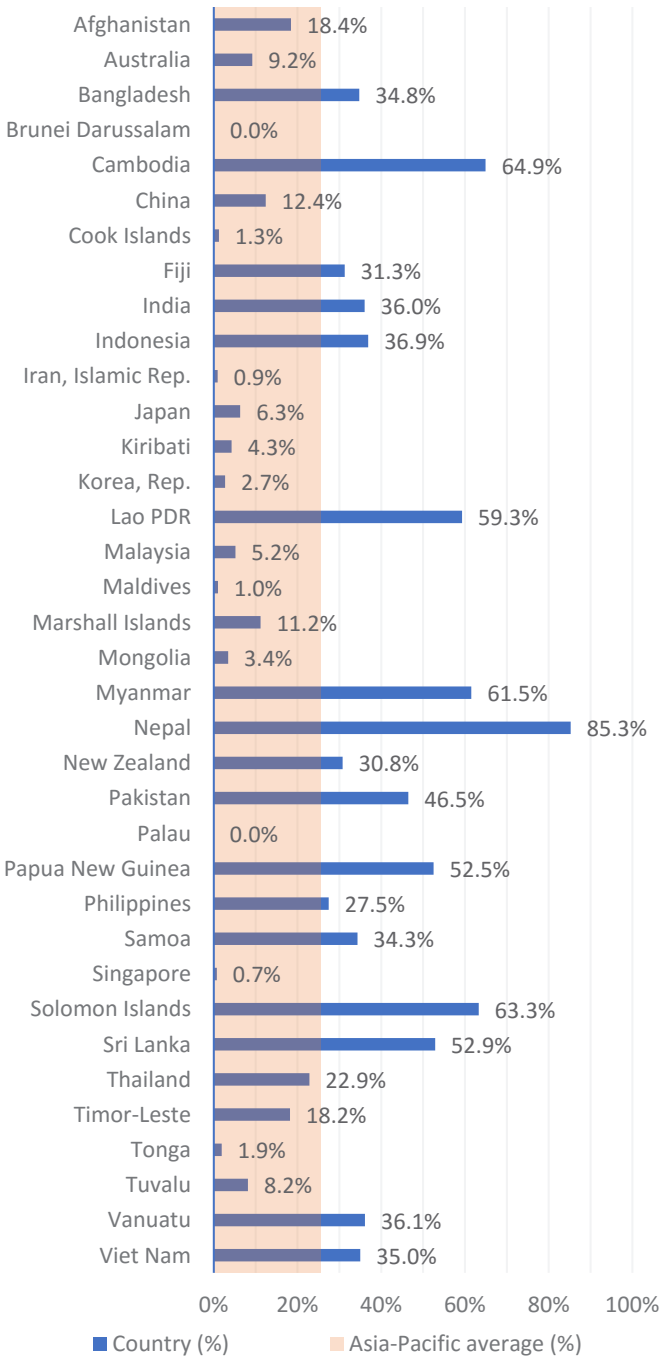


Note: Data is the average for all ILO member states in the Asia-Pacific region.

Source: ILO compilation using UN SDG Indicators: Global Database. Available at: <https://unstats.un.org/sdgs/indicators/database/> (accessed on 19 July 2018).

¹⁴ Source: IRENA (2018); Renewable electricity capacity and generation statistics, June 2018. Available at: <http://resourceirena.irena.org>

Figure 15. Renewable energy share in the total final energy consumption, by countries

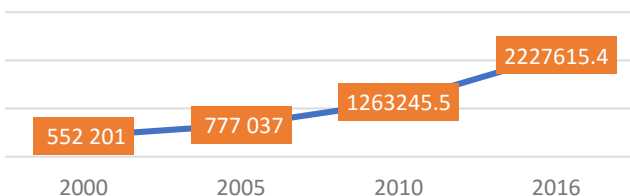


Note: Data is the average for all ILO member states in the Asia-Pacific region.

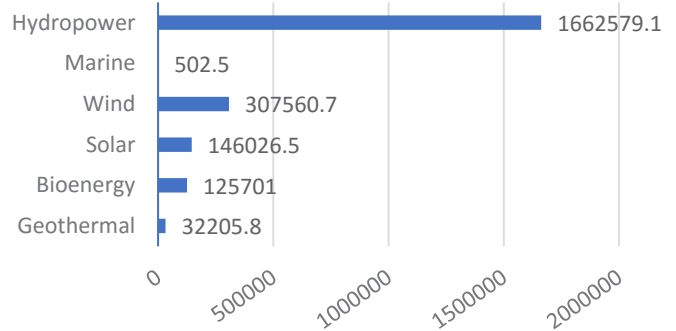
Source: ILO compilation using UN SDG Indicators: Global Database. Available at: <https://unstats.un.org/sdgs/indicators/database/> (accessed on 19 July 2018).

Figure 16. Renewable energy generation, AP

Total renewable energy electricity generation (gigawatt hours - GWh)



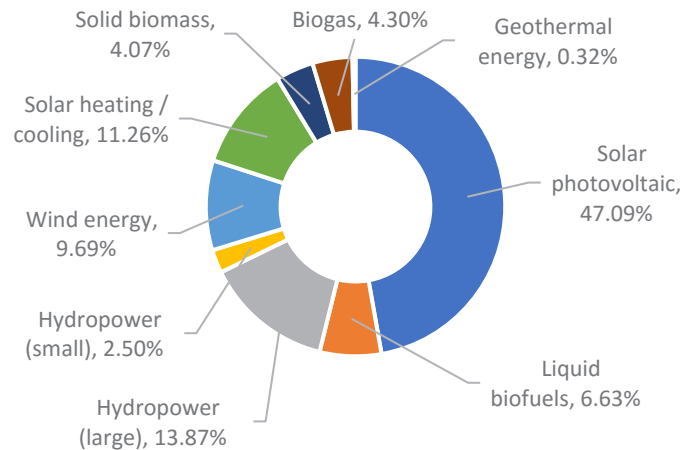
Renewable energy electricity generation (GWh) in 2016, by technology



Note: Data is the sum of all ILO member states in the Asia-Pacific Region.

Source: ILO compilation using IRENA (2018); Renewable electricity capacity and generation statistics, June 2018. Available at: <http://resourceirena.irena.org> (accessed 19 July 2018).

Figure 17. Renewable energy employment, by energy source, 2017



Note: Data not available for Afghanistan, Brunei Darussalam, Cambodia, Cook Islands, Fiji, Kiribati, Republic of Korea, Lao PDR, Maldives, Marshall Islands, Mongolia, Palau, Papua New Guinea, Samoa, Solomon Islands, Sri Lanka, Timor-Leste, Tonga, Tuvalu and Vanuatu.

Source: ILO compilation using IRENA (2018); Renewable electricity capacity and generation statistics, June 2018. Available at: <http://resourceirena.irena.org> (accessed 19 July 2018).

Better data collection relating to the green economy and the environmental sector would be very valuable for policy-makers in Asia-Pacific countries. Better data on green and decent jobs is particularly needed to assess the impact of climate change and climate-related policies on social inclusion. Without better data, it will be difficult to determine what policy changes are needed to assure a just transition to environmental sustainability and to monitor progress going forward.

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