

# AUSTRALIA

## 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

Australia<sup>1</sup> is the largest country in the Pacific, comprising the mainland Australian continent, the island of Tasmania and numerous smaller islands. Neighbouring Papua New Guinea and Indonesia are to the north; the Solomon Islands and Vanuatu are to the north-east and New Zealand to the south-east (Fig. 1). Its population is mostly urban and growing, with a fertility rate of 1.8 children and life expectancy of 83.2 years. Around 65 per cent of the population is of legal working age (15–64 years) (Fig. 2).

Figure 1. Map of Australia

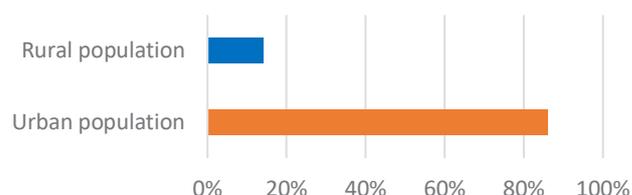


Figure 2. Australia population statistics

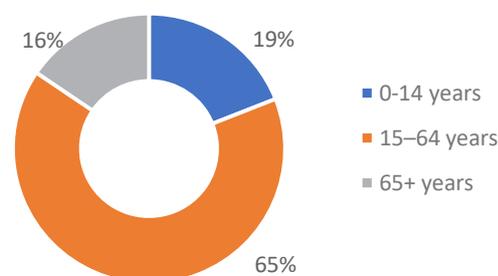
Population:<sup>2</sup> 24.59 million



Population growth rate	Fertility rate	Life expectancy at birth
1.59%	1.8 children	83.2 years



Population age categories



Note: All data is for 2017, except fertility rate and life expectancy at birth, which is from 2018. Source: ILO compilation using World development indicators, last updated: 28/06/2018; <http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators#> and UN ESCAP Statistics. [http://data.unescap.org/escap\\_stat/](http://data.unescap.org/escap_stat/) (accessed on 29 October 2018).

<sup>1</sup> Australia became a member of the International Labour Organization in 1919.

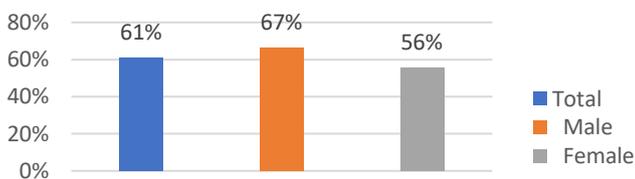
<sup>2</sup> Population data based on 2017 data.

## LABOUR FORCE

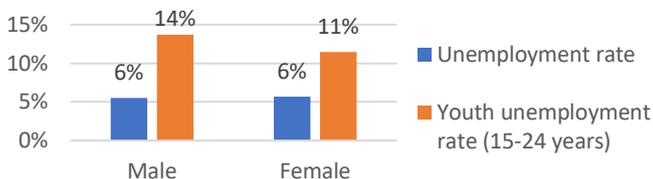
In 2018, the labour force participation rate was 65.2 per cent and the employment-to-population ratio was 61.1 per cent. Both these rates are more than 10 to 11 percentage points higher for men than for women. The total unemployment rate in 2018 was 5.59 per cent, and the youth unemployment rate was 12.6 per cent, with the male unemployment rate for this group being 2.25 percentage points higher than the female. The proportion of youths aged 15-24 years not in education, employment or training was 8.7 per cent in 2016.<sup>3</sup> Employment is heavily reliant on services, followed by industry, and on medium to high-skilled occupations (Fig. 3).

**Figure 3. Basic employment statistics for Australia, 2018**

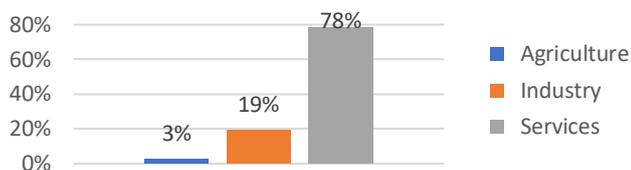
### Employment-to-population, 2018 (15+ years)



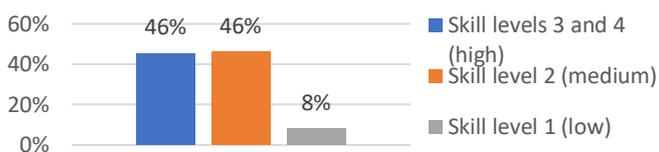
### Unemployment, 2018



### Employment by sector, 2018 (15+ years)



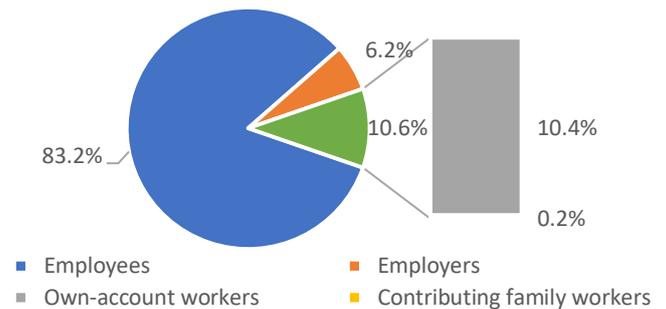
### Employment by occupation, 2018



Note: ILO estimates. 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 levels 3 and 4 (high) for managers, professionals and technicians.  
Source: ILO estimates and compilation using ILOSTAT, [www.ilo.org/ilostat](http://www.ilo.org/ilostat) (accessed 29 October 2018).

Vulnerable employment in Australia as of 2018 accounted for 10.6 per cent of the labour force, with the majority of those workers having own-account status (Fig. 4). 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.

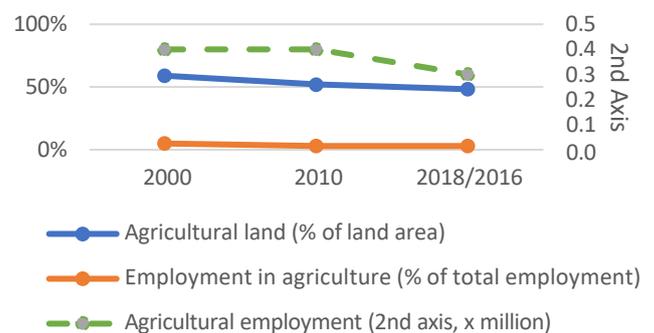
**Figure 4. Vulnerable employment, 2018**



Note: ILO estimates. Vulnerable employment includes own-account workers and contributing family workers from ILO status of employment data.  
Source: ILO estimates and compilation using ILOSTAT, [www.ilo.org/ilostat](http://www.ilo.org/ilostat) (accessed 29 October 2018).

Rural population growth was 0.85 per cent in 2017. The share of agricultural land in total land area decreased by 11 percentage points between 2000 and 2016, and agricultural employment also decreased from 0.4 million to 0.3 million people. The share of agricultural employment within total employment fell by approximately 2 percentage points due to faster job creation in other sectors (Fig. 5).

**Figure 5. Agricultural land and agricultural employment, 2000-2018**



Note: data for agricultural land is from 2016 and other data is from 2018.

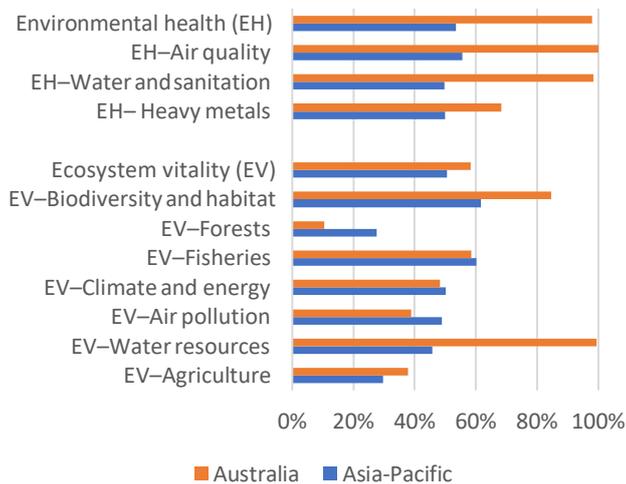
Source: ILO compilation using World development indicators, last updated: 28/06/2018 <http://databank.worldbank.org/> (accessed on 29 October 2018).

<sup>3</sup> World Development Indicators <http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators#> (accessed on 7 August 2018)

## ENVIRONMENTAL ISSUES

Australia ranks number 21 of 180 countries in the Environmental Performance Index (EPI)<sup>4</sup>, with a score of 74.12 (with 0 being furthest from the high-performance benchmark target of 100). Australia outperforms the average score for Asia and the Pacific (Fig. 6) in some of the EPI categories, including air quality, water and sanitation, heavy metals, agriculture, and biodiversity and habitat. However, there is room for improvement, especially in ecosystem vitality (forests, fisheries, air pollution, and climate and energy). Action to address climate change and improve environmental health, ecosystem vitality and resilience to weather disasters all have the potential to provide job creation, green economy growth and innovation in Australia.

**Figure 6. Environmental performance index for Australia, 2018**

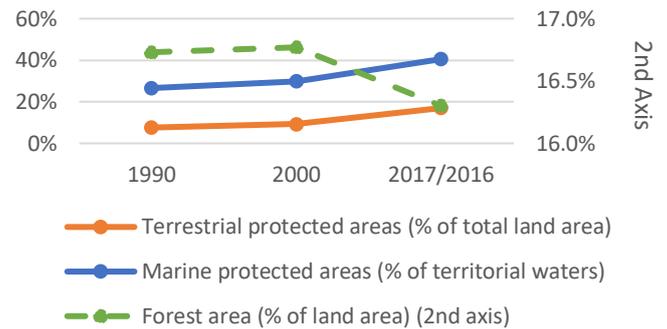


Note: Score 0 (worst) –100 (best). Asia-Pacific: data is for ILO member states in the region, excluding Cook Islands, Marshall Islands, Palau and Tuvalu.

Source: ILO compilation using “2018 EPI Scores – Current”; EPI Yale.

Forest area decreased between 1990 and 2016 to approximately 16.2 per cent of total land area. From 2000 to 2017, the share of terrestrial protected area increased, reaching 17 per cent of total land area, and the proportion of marine protected areas also increased (Fig. 7). There will be greater prospects for employment opportunities if there is a commitment to transition to a low-carbon and resource-efficient economy, such as jobs in resource management and environmental services.<sup>5</sup>

**Figure 7. Forest area, terrestrial and marine protection area, 1990-2017**

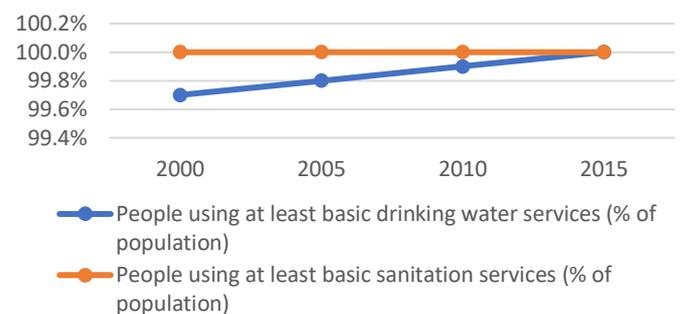


Note: The latest data for forest area is from 2016 and other data is from 2017.

Source: ILO compilation using World development indicators, last updated: 28/06/2018; <http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators#> (accessed on 18 March 2019).

Since 2000, there has been an increase in access to basic drinking water, to an average of 100 per cent in 2015, and access to basic sanitation remained steady at an average of 100 per cent in 2015 (Fig. 8). Only 0.5 per cent of the labour force was employed in water supply, sewerage, waste management and remediation activities in 2017 (Fig. 13). Water supply and sanitation sectors could provide decent job opportunities in the future.

**Figure 8. Basic drinking water and sanitation access, 2000-2015**



Source: ILO compilation using World development indicators, last updated: 21/05/2018; <http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators#> (accessed on 29 October 2018).

Growth of the urban population in Australia has meant an increase in solid waste. Waste collection varies between the inner cities and the country's outer urban areas. According to the World Bank, municipal solid waste generation in Australia in 2004 was 2.23 kilograms per capita per day and is expected to decrease to 2.1 kilograms per capita per day by 2025.<sup>6</sup>

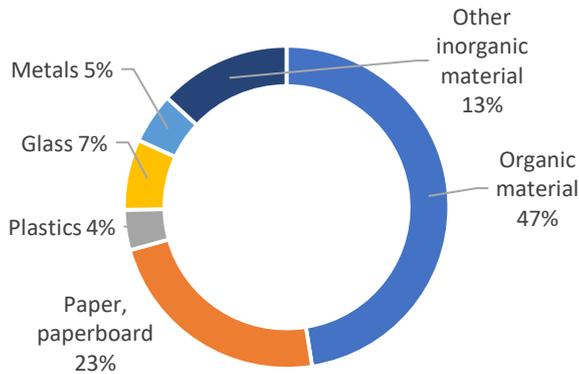
<sup>4</sup> Yale Center for Environmental Law and Policy / Center for International Earth Science Information Network at Columbia University. “2018 EPI Scores – Current”. EPI Yale. Retrieved 14/06/2018. Available at: <https://epi.envirocenter.yale.edu>.

<sup>5</sup> Organisation for Economic Co-operation and Development: The jobs potential of a shift towards a low-carbon economy, OECD Green Growth Papers, No. 2012/01 (Paris, 2012), <http://dx.doi.org/10.1787/5k9h3630320v-en>.

<sup>6</sup> World Bank: What a waste: A global review of solid waste management (Washington, DC, 2012).

The majority of the waste in 2005 was organic (47 per cent), followed by paper and paperboard (23 per cent) (Fig. 9). The implementation of an improved municipal waste management system for collection, safe and sustainable disposal, recycling and composting practices could create more green jobs that help the environment and general health.

**Figure 9. Waste composition, 2005**



Note: Data on textile waste composition is not available.

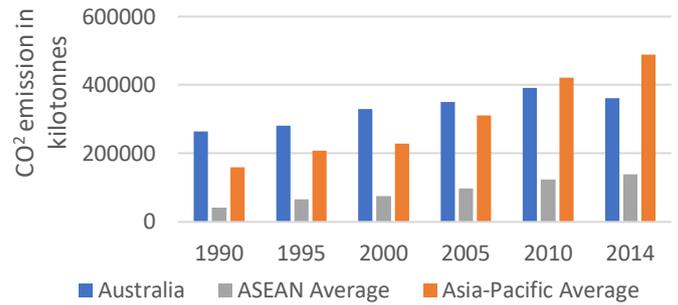
Source: ILO compilation using UNSD-Environment statistics (released on 30 April 2018; <https://unstats.un.org/unsd/envstats/qindicators.cshtml>) (accessed on 29 October 2018).

## AIR QUALITY

The carbon dioxide (CO<sup>2</sup>) emission levels for Australia have increased gradually, by an average of 1 per cent from 1990 to 2014 (Fig. 10).<sup>7</sup> The increase was due to electricity generation which, in Australia, relies mainly on coal as the largest single contributor.<sup>8</sup> The level of emissions since 2010 is significantly lower than the Asia-Pacific average and slightly higher than the ASEAN average.

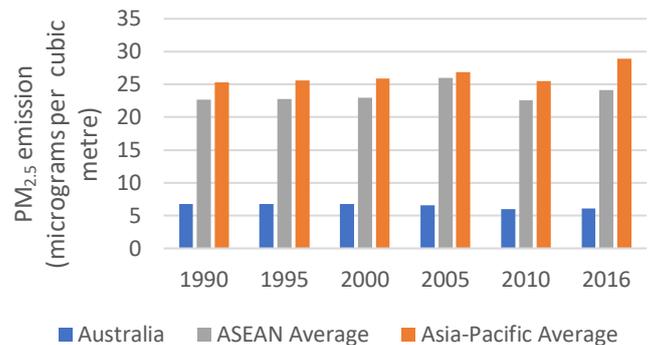
The PM<sub>2.5</sub> (atmospheric particulate matter with a diameter of less than 2.5 micrometres) emission rate for Australia shows a slight decrease since 2005 (Fig. 11). Overall PM<sub>2.5</sub> emissions did not exceed the World Health Organization's Air Quality Guideline threshold level, thus indicating low emissions. Australia also shows lower levels of emissions than the ASEAN and Asia-Pacific averages. Coal fired power generation and diesel vehicles are the major source of PM<sub>2.5</sub> emissions in Australia.<sup>9</sup>

**Figure 10. CO<sup>2</sup> emissions for Australia, 1990-2014**



Note: Data for ASEAN and Asia-Pacific are the average of all the ILO member states of the regions. Asia-Pacific data excludes Cook Islands, Timor-Leste (1990, 1995, 2000).  
Source: ILO compilation using World Bank indicators;  
<https://data.worldbank.org/indicator/EN.ATM.CO2E.KT?locations=IR> (accessed on 29 October 2018).

**Figure 11. PM<sub>2.5</sub> emissions for Australia, 1990-2016**



Note: Data for ASEAN and Asia-Pacific are the average of all the ILO member states of the regions. Asia-Pacific data excludes Cook Islands, Palau and Tuvalu.

Source: ILO compilation using World Bank indicators;  
<https://data.worldbank.org/indicator/EN.ATM.PM25.MC.M3?view=chart> (accessed on 29 October 2018).

Applying the Just Transition Guidelines, an area of possible intervention includes efforts to reduce harmful emissions, which could 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.

<sup>7</sup> The value is calculated on the basis of CAGR (compound annual growth rate).

<sup>8</sup> Parliament of Australia. How much Australia emits:

[https://www.aph.gov.au/About\\_Parliament/Parliamentary\\_Departments/Parliamentary\\_Library/Browse\\_by\\_Topic/ClimateChangeold/whyClimate/human/howMuch/howMuch](https://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/Browse_by_Topic/ClimateChangeold/whyClimate/human/howMuch/howMuch).

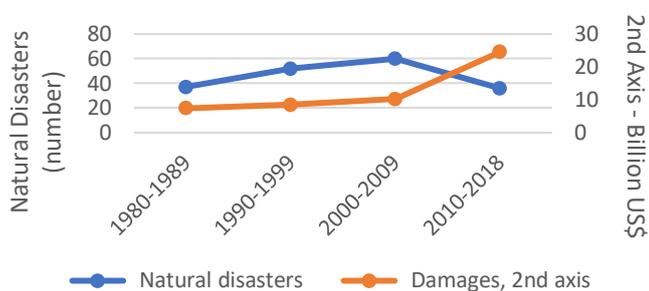
<sup>9</sup> Fine particulate matter (PM<sub>2.5</sub>) ambient air quality (2016): <https://soe.environment.gov.au/theme/ambient-air-quality/topic/2016/fine-particulate-matter-pm25>.

## CLIMATE CHANGE IMPACTS

According to the *World Risk Report*,<sup>10</sup> Australia has a low World Risk Index score. It ranks number 121 of 171 countries because of its low exposure to natural hazards and unlimited institutional capacity to cope and adapt. Part of the country's vulnerability relates to the 4.5 per cent of the total population who, in 2010, lived in the 0.6 per cent of the total land area that is less than 5 metres above sea level.<sup>11</sup> According to the *Emergency Events Database*,<sup>12</sup> there was a substantial increase in natural disasters<sup>13</sup> and associated damage costs between the 1980s and 2018, with disaster numbers decreasing after that (Fig. 12).

The natural disasters in that time were mostly tropical cyclones, storms, floods, droughts and forest fires. Damage costs have increased significantly since 2010. Developing preventative measures to limit infrastructure and property damage and increase institutional capacity to respond to climate events, particularly for small businesses, can be a source of decent job creation while building resilience.

**Figure 12. Natural disaster occurrence and damage costs in Australia**

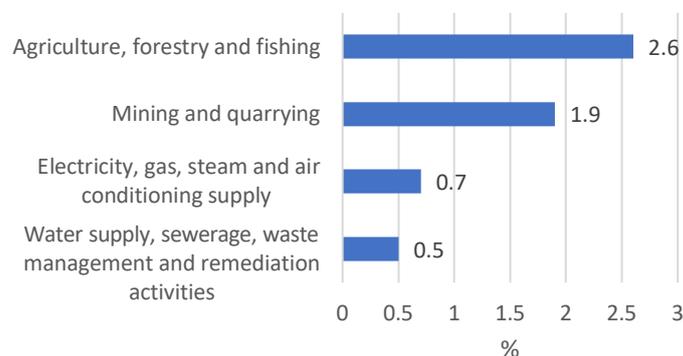


Note: Natural events include climatological, hydrological and meteorological disasters.  
Source: EM-DAT: The emergency events database - Université catholique de Louvain (UCL) - CRED, D. Guha-Sapir - [www.emdat.be](http://www.emdat.be), Brussels, Belgium. Data accessed on: 29 October 2018.

## GREEN JOBS POTENTIAL

In 2016, 2.6 per cent of total employment was in the agriculture, forestry and fishing sector (Fig. 13). Although reliance on agriculture is not significant, there are opportunities for job creation in sustainable production and organic farming.

**Figure 13. Employment in sectors with strong green jobs potential in 2016**



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

Source: ILO estimates and compilation using ILOSTAT, [www.ilo.org/ilostat](http://www.ilo.org/ilostat) (accessed 29 October 2018).

In 2016, more than 95 per cent of the population relied primarily on clean fuel and technology, in the sense that these do not create pollution within the home.<sup>14</sup> The share of renewable energy in total energy consumption has kept pace with overall consumption. In 2000, it was 8.4 per cent but fell to 8.1 per cent in 2010 and, after some fluctuation, reached 9.2 per cent in 2015 (Fig. 14). Renewable energy electricity generation has increased over the last 16 years, with hydropower being the main source in 2016 (Fig. 15).

In 2018, almost 14 thousand people were employed in the renewable energy sector, with 43.9 per cent employed in solar photovoltaics (Fig. 16). The country's employment rate in electricity, gas, steam and air conditioning was only 0.7 per cent in 2017 (Fig. 13). With the push for increasing reliance on renewable energy, there is the potential for decent job opportunities in the future.

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

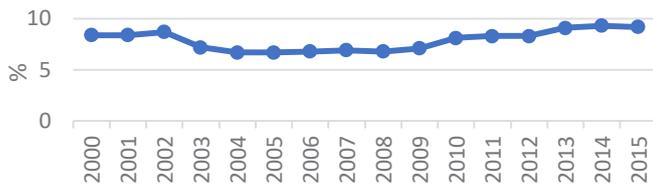
<sup>11</sup> World Development Indicators. <http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators#> (accessed on 7 August 2018).

<sup>12</sup> EM-DAT: The emergency events database - Université catholique de Louvain (UCL) - CRED, D. Guha-Sapir - [www.emdat.be](http://www.emdat.be), Brussels, Belgium. Data accessed on: 20 July 2018.

<sup>13</sup> Climatological, hydrological and meteorological disasters.

<sup>14</sup> The proportion of the population with a primary reliance on clean fuels and technology is calculated as the number of people using clean fuels and technologies for cooking, heating and lighting divided by the total population reporting any cooking, heating or lighting, expressed as a percentage. "Clean" is defined by the emission rate targets and specific fuel recommendations (against unprocessed coal and kerosene) included in the normative World Health Organization guidelines for indoor air quality; see the data for household fuel combustion; <https://unstats.un.org/sdgs/metadata/files/Metadata-07-01-02.pdf>.

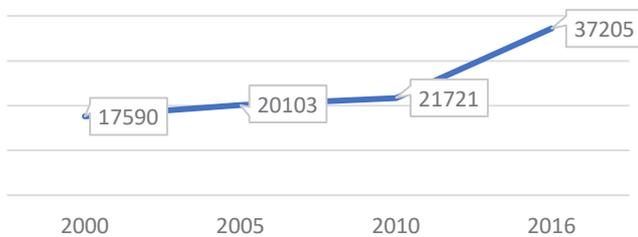
**Figure 14. Renewable energy share in total energy consumption, 2000-15**



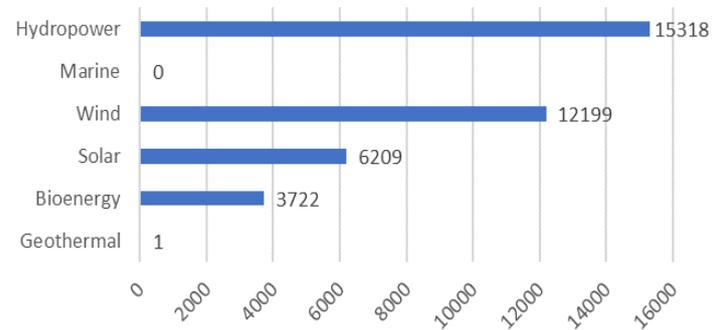
Source: ILO compilation using United Nations statistics division. SDG indicators: Global database. Available at: <https://unstats.un.org/sdgs/indicators/database/> (accessed on 29 October 2018).

**Figure 15. Renewable energy electricity generation, 2000-2016**

**Total renewable energy electricity generation (gigawatt hours - GWh)**

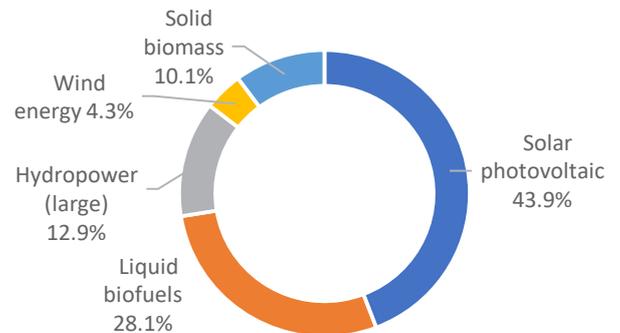


**Renewable energy electricity generation (GWh) in 2016, by technology**



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

**Figure 16. Renewable energy employment, by energy source, 2018**



Note: Data limitations apply for certain technologies in certain countries. The lack of data reported for any specific technology may thus be indicative of a data gap, rather than the absence of renewable energy jobs using that technology.

Source: ILO compilation using source: IRENA (2018); available at: <http://resourceirena.irena.org>.

Better data collection relating to the green economy and the environmental sector would be very valuable for policy-makers in Asia-Pacific countries. In particular, better data on green and decent jobs is 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 ensure a just transition to environmental sustainability and to monitor progress going forward.



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