

# SINGAPORE

## EMPLOYMENT AND ENVIRONMENTAL SUSTAINABILITY FACT SHEETS 2017

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<sup>1</sup> on employment and environmental sustainability: (i) employment in environmental sectors; (ii) skill levels; (iii) vulnerability of jobs; (iv) jobs in renewable energy; and (v) scoring on the Environmental Performance Index.

Figure 1. Map of Singapore



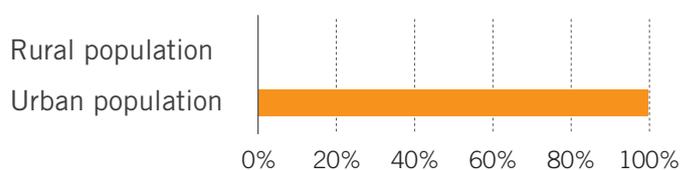
Singapore<sup>2</sup> is an island nation in South-East Asia (Fig. 1). Its population is 100 per cent urban and growing, with a fertility rate of 1.2 children and life expectancy at 82.6 years. Around 73 per cent of the population is of legal working age (15–64 years) (Fig. 2).

Figure 2. Demographics for Singapore

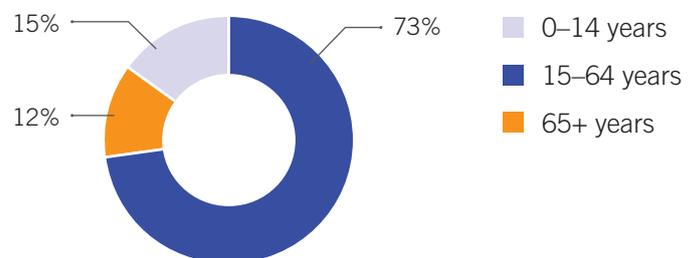
Population: 5.6 million



Population growth rate	Fertility rate	Life expectancy at birth
1.3%	1.2 children	82.6 years



Population age categories



Note: All data for 2016, except fertility and life expectancy, which are 2015.

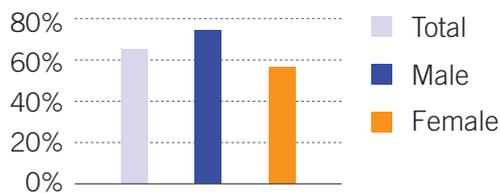
Source: ILO compilation using World Bank: World development indicators, last updated 20 July 2017, <http://databank.worldbank.org> (accessed 30 July 2017).

1. The fact sheet is based on available data only.  
2. Singapore became a member of the International Labour Organization in 1965.

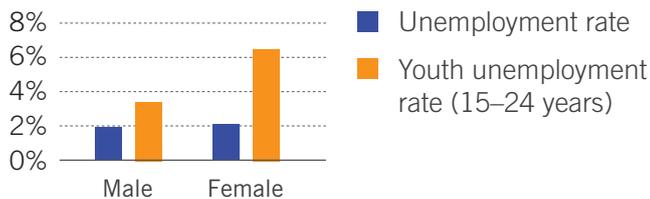
As of 2017, the labour force participation rate is 66.8 per cent and the employment-to-population ratio is 65.4 per cent. Both of those rates are more than 18 percentage points higher for men than for women. The total unemployment rate is 2 per cent, and the youth unemployment rate is 4.9 per cent, with the female youth rate 3.1 percentage points higher than the male rate. The youth (aged 15–24 years) not in employment, education or training rate was 11.4 per cent in 2014. Formal employment is heavily reliant on services<sup>3</sup> and on highly skilled occupations (Fig. 3).

**Figure 3. Basic employment statistics for Singapore, 2017**

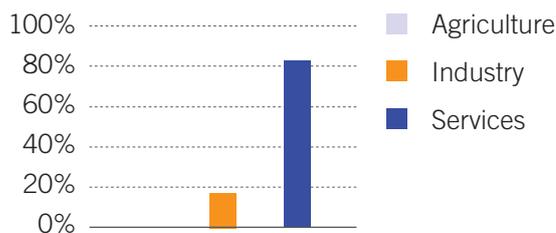
#### Employment-to-population ratio (15+ years)



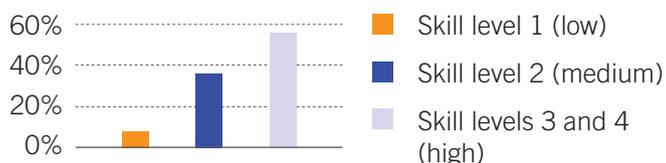
#### Unemployment



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



#### Employment by occupation

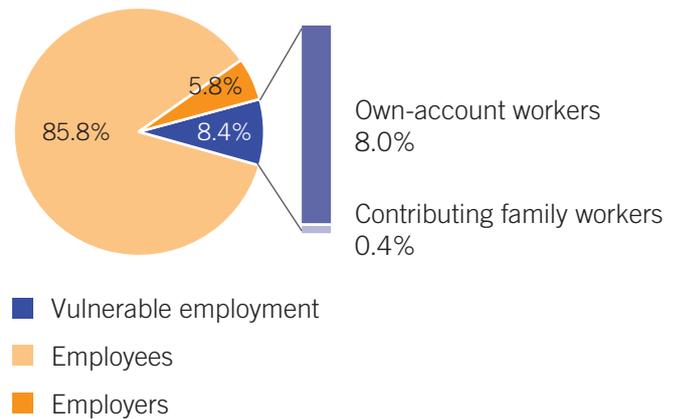


Note: ILO estimates; labour force participation rate and unemployment: aged 15 years and older. Youth unemployment: aged 15–24 years. Employment by occupation: skill level 1 (low) for elementary occupations; skill level 2 (medium) for clerical, service and sales workers, skilled agricultural and trade workers, plant machinists and assemblers; and skill level 3 and 4 (high) for managers, professionals and technicians.

Source: ILO compilation using ILOSTAT, <http://www.ilo.org/ilostat> (accessed 17 July 2017).

Vulnerable employment in Singapore accounts for 8.4 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, by status, 2017**



Note: Vulnerable employment includes own-account workers and contributing family workers.

Source: ILO compilation using ILOSTAT, <http://www.ilo.org/ilostat> (accessed 17 July 2017).

According to the *World Risk Report*,<sup>4</sup> Singapore has a very low World Risk Index score. It ranks 159 (of 171 countries) because of its very low exposure to natural hazards and its institutional capacity to respond and adapt to a hazardous event. Only 8.2 per cent of the total land area is below 5 meters above sea level, although 10.3 per cent of the total population lived in that area in 2010.<sup>5</sup> According to the Emergency Events Database,<sup>6</sup> no natural disaster hit Singapore between 1940 and 2017; although in 2013, the country was afflicted with severe smoke haze from forest fires occurring in Sumatra Island of Indonesia.<sup>7</sup> Singapore is not immune to climate change impacts, however. According to the National Climate Change Secretariat's Strategy Group (in the Prime Minister's Office), from 1972 to 2014, the annual mean temperature increased in Singapore, the mean sea level in the Straits of Singapore also increased, and rainfall became more intense. These changes impact urban infrastructure, water resources, biodiversity, public health, food security and demand for electricity. Although Singapore has a well-established institutional capacity, further developing preventive

3. Informal employment (self-employed and contributing family members) is excluded from the agriculture calculations.

4. Bündnis Entwicklung Hilft and United Nations University: *World risk report 2016* (Berlin, 2016), <http://weltrisikobericht.de/english/>.

5. World Bank: World development indicators, last updated 20 July 2017, <http://databank.worldbank.org/>.

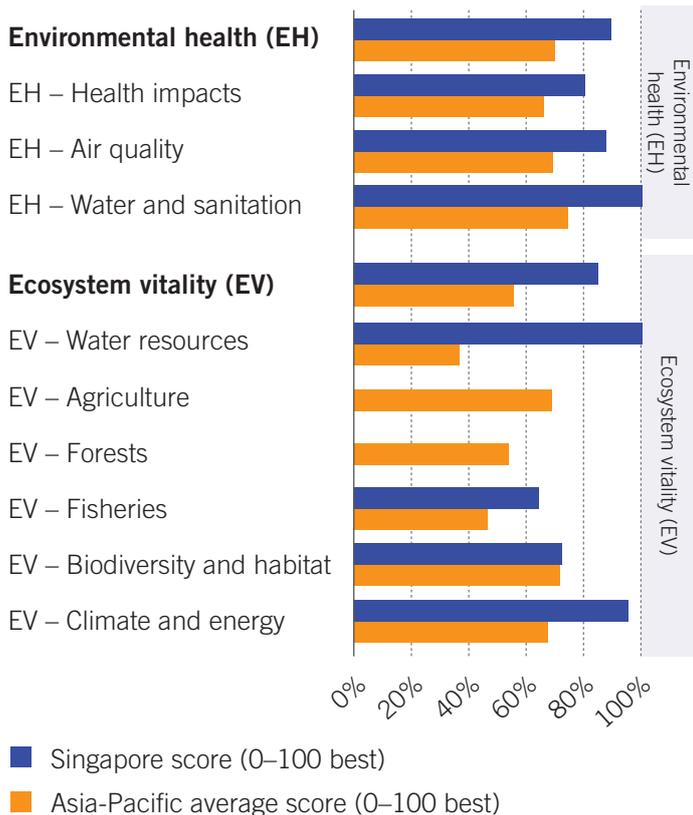
6. EM-DAT: The Emergency Events Database – Université catholique de Louvain (UCL) – CRED, D. Guha-Sapir – [www.emdat.be](http://www.emdat.be), Brussels, Belgium.

7. See <http://www.adrc.asia/nationinformation.php?NationCode=702&Lang=en&NationNum=07>.

measures to limit infrastructure and property damage and increasing capacity for small businesses to respond to climate events can be a source of decent job creation while increasing resilience.

Singapore ranks 14 of 180 countries in the Environmental Performance Index (EPI), with a score of 87.04 (with 0 furthest from the high-performance benchmark target of 100). Singapore outperforms the average score for Asia and the Pacific in all of the EPI categories for which a score was recorded (Fig. 5). Despite the excellent performance in environmental health and ecosystem vitality, there is room for improvement within ecosystem fisheries and biodiversity and habitat. Action to improve ecosystem vitality, climate change and resilience to weather disasters have the potential to provide job creation, green economy growth and innovation in the country.

**Figure 5. Environmental Performance Index 2016 for Singapore**

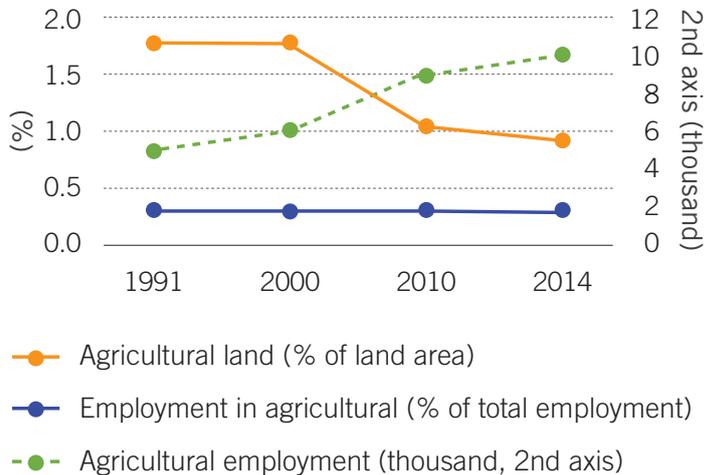


Note: Score 0–100 best. Singapore: No score for EV–Agriculture and EV–Forests due to lack of data. Asia-Pacific: Each score is an average of all data for ILO member States in the region, excluding four countries with no data (Cook Islands, Marshall Islands, Palau and Tuvalu).

Source: ILO compilation using A. Hsu et al.: *2016 Environmental Performance Index* (New Haven, CT, Yale University, 2016), [www.epi.yale.edu](http://www.epi.yale.edu).

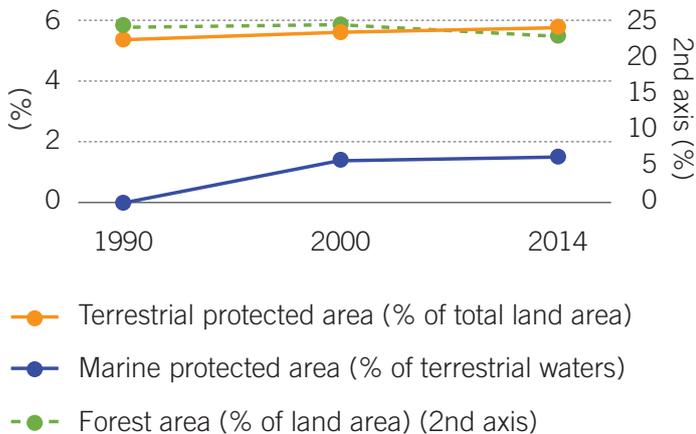
There is no rural population within Singapore. The share of agricultural land in total land area is minimal and decreased between 1991 and 2014, while agricultural employment increased from 5,000 to 10,000 people. The share of agricultural employment in total employment remained stable, at 0.3 per cent (Fig. 6). Forest area slightly decreased its share of total land area between 1990 and 2014, to 23.1 per cent, while the terrestrial protected area remained stable, at 5.8 per cent (2014), and the marine protected area increased, from none in 1990 to 1.5 per cent of total territorial waters in 2014 (Fig. 7). There will be greater prospects for employment opportunities with the commitment to transition to a low-carbon and resource-efficient economy, such as jobs in resource management and environmental services.<sup>8</sup>

**Figure 6. Agricultural land and agricultural employment, 1991–2014**



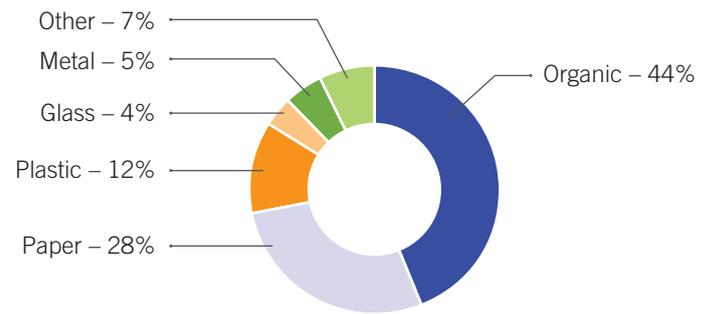
Source: ILO compilation using World Bank: World development indicators, last updated 20 July 2017, <http://databank.worldbank.org/>; ILOSTAT, <http://www.ilo.org/ilostat> (accessed 30 July 2017).

8. 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>.

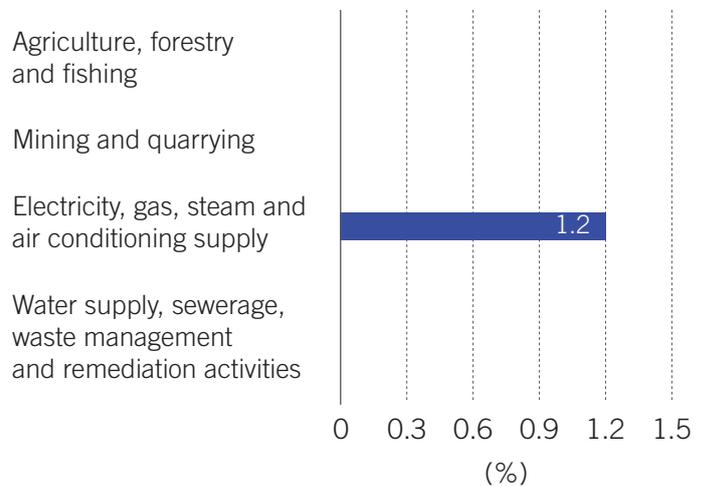
**Figure 7. Forest area and terrestrial and marine protected areas, 1990–2014**

Source: ILO compilation using World Bank: World development indicators, last updated 20 July 2017, <http://databank.worldbank.org/> (accessed 30 July 2017).

All Singapore households have access to improved water supply and sanitation.<sup>9</sup> According to the World Bank and based on the most recent available data,<sup>10</sup> the country's municipal solid waste generation in 2000 was 1.49 kg per capita per day and is expected to increase to 1.8 kg per capita per day by 2025. The largest share of the waste in 2000 was organic (at 44 per cent), followed by paper (at 28 per cent) and plastics (at 12 per cent) (Fig. 8). In 2007, 100 per cent of Singapore waste was collected, with 15 per cent of it disposed into landfill (which includes ash from incineration), and 47 per cent was recycled.<sup>11</sup> Singapore has a structured solid waste management system: Recyclable items are sorted and collected for processing, and the remaining waste is sent to waste-to-energy plants for incineration.<sup>12</sup> Incineration reduces the volume of solid waste by 90 per cent, and the steam is turned into electricity. Only 1.2 per cent of the country's labour force was employed in water supply, sewerage, waste management and remediation activities<sup>13</sup> in 2016 (Fig. 9). Continued upgrading and maintenance of the infrastructure and utilities especially in waste management provides opportunities for further job creation.

**Figure 8. Waste composition, 2000**

Source: ILO compilation using World Bank: What a waste: A global review of solid waste management (Washington, DC, 2012).

**Figure 9. Employment in sectors with strong green jobs potential, 2000**

Note: These sectors have the most potential for green job opportunities. Employment by selected 1-digit sector level (ISIC-Rev. 4, 2008). The "electricity, gas, steam and air conditioning supply" category also includes agriculture, forestry and fishing; mining and quarrying; and water supply, sewerage, waste management and remediation activities.

Source: ILO compilation using ILO: *Key indicators of the labour market (KILM), Ninth edition* (Geneva, 2016).

In 2014, more than 95 per cent of the country's population relied primarily on clean fuel and technology, in the sense that they do not create indoor pollution within the home.<sup>14</sup> The share of renewable energy in total energy consumption is small and fluctuated between 2000

9. World Bank: World development indicators, last updated 20 July 2017, <http://databank.worldbank.org/>.

10. World Bank: *What a waste: A global review of solid waste management* (Washington, DC, 2012).

11. *ibid.*

12. See <http://www.nea.gov.sg/energy-waste/waste-management/solid-waste-management-infrastructure>.

13. This figure also includes agriculture, forestry and fishing; mining and quarrying; and water supply, sewerage, waste management and remediation activities.

14. The proportion of population with 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 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>.

and 2014, although there was a slight increase over the full period. In 2014, the share of renewable energy was 0.6 per cent (Fig. 10). Renewable energy generation increased between 2011 and 2015, with bioenergy and solar the main sources in 2015 (Fig. 11). In 2016, 4,000 people were employed in the renewable energy sector, all working in solar photovoltaic (Fig. 12). With the need for increasing reliance on renewable energy, these utility subsectors will provide job opportunities in the future.

**Figure 10. Renewable energy share in total final energy consumption, 2000-14**



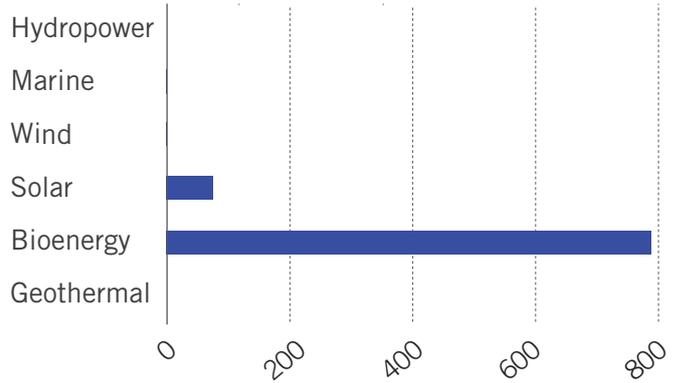
Source: ILO compilation using UN: SDG indicators: Global database (2017), <https://unstats.un.org/> (accessed 17 July 2017).

**Figure 11. Renewable energy generation, 2011-15**

**Total renewable energy electricity generation (GWh)**

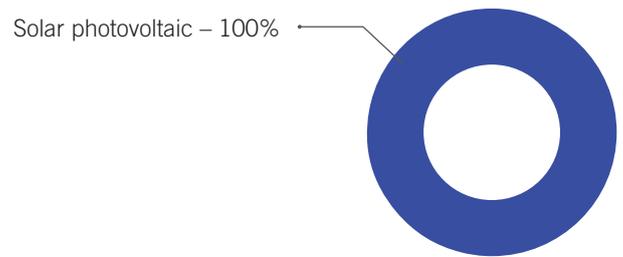


**Renewable energy electricity generation (GWh), by technology 2015**



Source: ILO compilation using International Renewable Energy Agency: Dashboards (2017), <http://resourceirena.irena.org/gateway/dashboard/> (accessed 17 July 2017)

**Figure 12. Renewable energy employment, by energy source, 2016**



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 International Renewable Energy Agency: Dashboards (2017), <http://resourceirena.irena.org/gateway/dashboard/> (accessed 17 July 2017).

Better data collection relating to the green economy and the environmental sector would be valuable for policy-makers in Singapore and Asian-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.

Disclaimer: The designations used in International Labour Organization publications, which are in conformity with United Nations practice, and the presentation of material therein do not imply the expression of any opinion whatsoever on the part of the International Labour Organization concerning the legal status of any country, area or territory or of its authorities, or concerning the delimitation of its frontiers