

SECTOR ASSESSMENT (SUMMARY): ENERGY AND EDUCATION

I. Energy Sector

A. Sector Overview

1. Tonga is an island country of about 102,000 people. Most of its 176 islands are in Tonga's four main island groups: Tongatapu, Ha'apai, Vava'u, and Niuas (Niuatoputapu and Niuafu'ou). About 36 of the islands have permanent settlements, and more than 75% of the country's people live on Tongatapu, the main island and the location of the capital, Nuku'alofa. The Ha'apai island group, which was most affected by Tropical Cyclone Ian in January 2014, consists of 51 islands directly west of the Tonga Trench. These islands lie 204 kilometers (km) north of Tongatapu and 130 km south of Vava'u. Seventeen of the islands are inhabited, including the main islands of Lifuka and Foa. The two main villages in the archipelago are Pangai and Ha'ano.

2. The Tonga Electricity Act of 2007, which governs the country's electricity sector, established an electricity commission as the sector's independent regulator. An energy road map prepared by the government in 2009 has facilitated a change in institutional arrangements.¹ The government established a high-level committee in November 2009 to oversee and govern planning and implementation under the road map. It comprises the ministers of finance and national planning; labor and commerce; lands, survey and natural resources; and environment, as well as representatives of the Prime Minister's Office and Tonga Power Limited (TPL), the state-owned electricity utility. The road map reflects the government's development priorities in the energy sector, which are to improve energy efficiency and energy conservation by reducing the use of imported fuels and promoting indigenous renewable resources for power generation.

3. Overall responsibility for electricity sector policy and planning is shared by the Prime Minister's Office and the Ministry of Finance and National Planning, which is also TPL's contractual partner in the concession agreement that governs the vertically integrated power utility's operations. Under the concession, TPL is responsible for power delivery and operation and maintenance on the country's four main grids—one each for the four main island groups of Tongatapu, Vava'u, 'Eua, and Ha'apai. TPL generates, distributes, and retails electricity and undertakes system expansion and investment planning. Until 2011, most of the electricity in Tonga was generated by fuel-powered plants on the four main grids with a total installed capacity of 10.6 megawatts. On 24 July 2012, a 1.2 megawatt peak solar photovoltaic plant in Tongatapu was connected to the grid, initiating the grid-connected photovoltaic power generation era for TPL. All the country's electricity is produced with imported diesel.

4. The Ha'apai island group power station is located on the island of Lifuka and also serves the adjacent island of Lotofoa through a 6 kilovolt line. The Nomuka power station consists of two diesel electric sets. The power stations on the outer islands of the group—Ha'afeva, Ha'ano, and 'Uhia—each have two electric sets with a combined capacity of 59.5 kilowatts.

¹ Government of Tonga. 2010. *Tonga Energy Roadmap, 2010–2020*. Nuku'alofa.

B. Damage Overview

5. On 13 January 2014, TPL carried out an initial assessment of the damage inflicted by Cyclone Ian. It concluded that 90%–95% of the electricity network on the Ha’apai island group was extensively damaged and that some of the power generators needed servicing.²

6. The assessment found that the cyclone damaged 90% of the Ha’apai power network’s distribution lines, 40% of the high-voltage poles and 70% of the low-voltage poles, 65% of the transformers, 90% of the transformer structures, one of its two generators, and 95% of its streetlights. This left almost all of the island group without power and most of the streets without illumination at night. Community-owned solar systems in Tonga’s other outer islands were also damaged. The Ha’apai island group was left almost completely without power.

C. Recovery Strategy

7. The government’s request on 7 February 2014 for post-cyclone support from the Asian Development Bank (ADB) was based in part on ADB’s comparative advantage in infrastructure development and the expectation that its ongoing Outer Island Renewable Energy Project would allow the rapid inception, scaling up, and implementation of an emergency recovery project in the energy sector.³ Because ADB is also providing the government with technical assistance to help promote energy efficiency and grant financing for the Tonga–Fiji Submarine Cable Project and the Nukualofa Urban Sector Development Project,⁴ it is familiar with project design, management, and implementation issues in Tonga.

8. The Cyclone Ian Recovery Project will restore access to the electricity supply network and make it more resilient to extreme weather events and disasters. Restoring and upgrading the utilities will require considerable investment because the cyclone damaged 90% of the electricity network, which will require climate- and disaster-proofing. After the Government of New Zealand’s contributed \$1.4 million for the initial emergency restoration of power lines in the Ha’apai island group, TPL prepared a plan and cost estimates for repairing and climate- and disaster-proofing the network.

9. The project will reconstruct the distribution network and upgrade its capacity from 6.6 kilovolts to 11.0 kilovolts. This will include (i) reconstructing about 15.2 km of high-voltage overhead bundle lines, (ii) building about 32 km of low-voltage overhead lines, (iii) reconnecting underground cables of about 1,000 households and 30 commercial and government buildings to the TPL network, and (iv) constructing 2 km of underground cables of the Ha’apai Hospital and High School network. The project will also restore and climate-proof about 161 streetlights and purchase temporary solar lanterns and community solar chargers for about 100 households in the outer Ha’apai islands.

² Tonga Power Limited. 2014. *Ha’apai Restoration Investment Plan and Justification Report*. Nuku’alofa.

³ ADB. 2013. *Report and Recommendation of the President to the Board of Directors: Proposed Grant and Administration of Grant to the Kingdom of Tonga for the Outer Island Renewable Energy Project*. Manila.

⁴ ADB. 2010. *Report and Recommendation of the President to the Board of Directors: Proposed Grant and Administration of Grant to the Kingdom of Tonga for the Tonga–Fiji Submarine Cable Project*. Manila. ADB. 2011. *Report and Recommendation of the President to the Board of Directors: Proposed Grant and Administration of Grant to the Kingdom of Tonga for the Nuku’alofa Urban Development Project*. Manila.

II. Education Sector

A. Sector Overview

10. Tonga has an excellent education system with four basic levels: non-compulsory early childhood education for children 3–5 years old, primary education for ages 6–11 (classes 1–6), secondary education for ages 12–18, and post-secondary education for ages 18 and older. The Ministry of Education and Training is responsible for the general administration and implementation of policies and programs in formal education. About 99% of primary schools and 44% of secondary schools are state-owned. Churches and private organizations operate the rest. Tonga's 99% adult literacy rate is higher than those in ADB's other Pacific developing member countries.

11. Education in Tonga is compulsory and free for all children 6–14 years old. Children must complete grades 1–6. The public primary education system is made up of 112 government and 13 church schools with a total of 823 teachers. Student enrollment in 2002 was 17,051 (53% boys and 47% girls). Enrollment in primary school has long been universal, and most students continue on to secondary school. About 33,000 students attend the country's 125 primary schools, 49 secondary schools, and 7 technical and vocational education training and post-secondary schools.

12. About one-sixth of all public spending is allocated to the education sector, and outlays for private education almost match those of the government. A combination of history, investment, and community values explains the universal participation in basic education and the 99% adult literacy rate estimated in the 2006 census. Spending on technical and vocational education training and higher education has been growing, while the share of government funding allocated to primary education has diminished. During FY2007–FY2010, the share of primary education in total government spending declined from 46% to 34%, while that of higher education rose from 14% to 24%. Given high dropout and repetition rates in primary schools, this shift of resources is a concern.

B. Damage Overview

13. According to the Ministry of Education and Training, which administers all government schools in the Ha'apai island group, 16 of Ha'apai's 31 primary and secondary schools were damaged or destroyed by Cyclone Ian, which affected 1,293 students. Six of those damaged were nongovernment schools. The extent of the damage varied. Some school suffered broken windows and doors; buildings and roofs were damaged or destroyed at others. While education supplies have been provided, as well as tents to serve as temporary learning spaces, students urgently need to return to a safe, clean learning environment as soon as possible.

C. Recovery Strategy

14. The government requested ADB's support in the education recovery effort, based in part on ADB's comparative advantage in infrastructure development and its Climate Resilience Sector Project in the education sector.⁵

⁵ ADB. 2013. *Report and Recommendation of the President to the Board of Directors: Proposed Administration of Grant to the Kingdom of Tonga for the Climate Resilience Sector Project*. Manila.

15. The project will support the reconstruction, restoration, and climate- and disaster-proofing of schools and facilities that were damaged in Ha'apai.⁶ The reconstruction will include (i) constructing improved building structures (classrooms and staff quarters); (ii) providing appropriate water and sanitation amenities for schools; (iii) installing necessary fixtures and furniture such as blackboards, desks, and chairs; and (iv) removing asbestos-containing material from school, government, and residential buildings. This will allow classes to resume in a safe environment that is conducive to learning; in the future, it will reduce the number of days that schools are closed because of extreme weather and natural disasters. The reconstruction will be implemented in two phases. Primary schools will be rebuilt first as most of them are government owned, were severely damaged, and serve half of the affected student population. Secondary schools will be selected for reconstruction in line with the government's secondary school rationalization policy and with the agreement of ADB. The policy is being developed by the Ministry of Education and Training with the assistance of the New Zealand Government and will build on a concept note prepared by the Minister for Education and Training. The Ministry of Education and Training has provided a preliminary assessment of the damage, and the cost of reconstruction and building back better, including demolition and removal of debris. This output will use the implementation arrangements set up under the Climate Resilience Sector Project.

⁶ The damaged primary schools are Ha'ano, Fakakai, Mo'unga'one, Mata'aho, Lofanga, Faleloa, Fotua, Koulo, Pangai, and Tongoleleka. The damaged secondary schools are Ha'apai High School, Taufa'ahau Pilolevu College, St. Joseph's Community College, Tailulu College, 'Ofamo'oni School, and Petani Christian Bilingual Side School.