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# **Tonga**

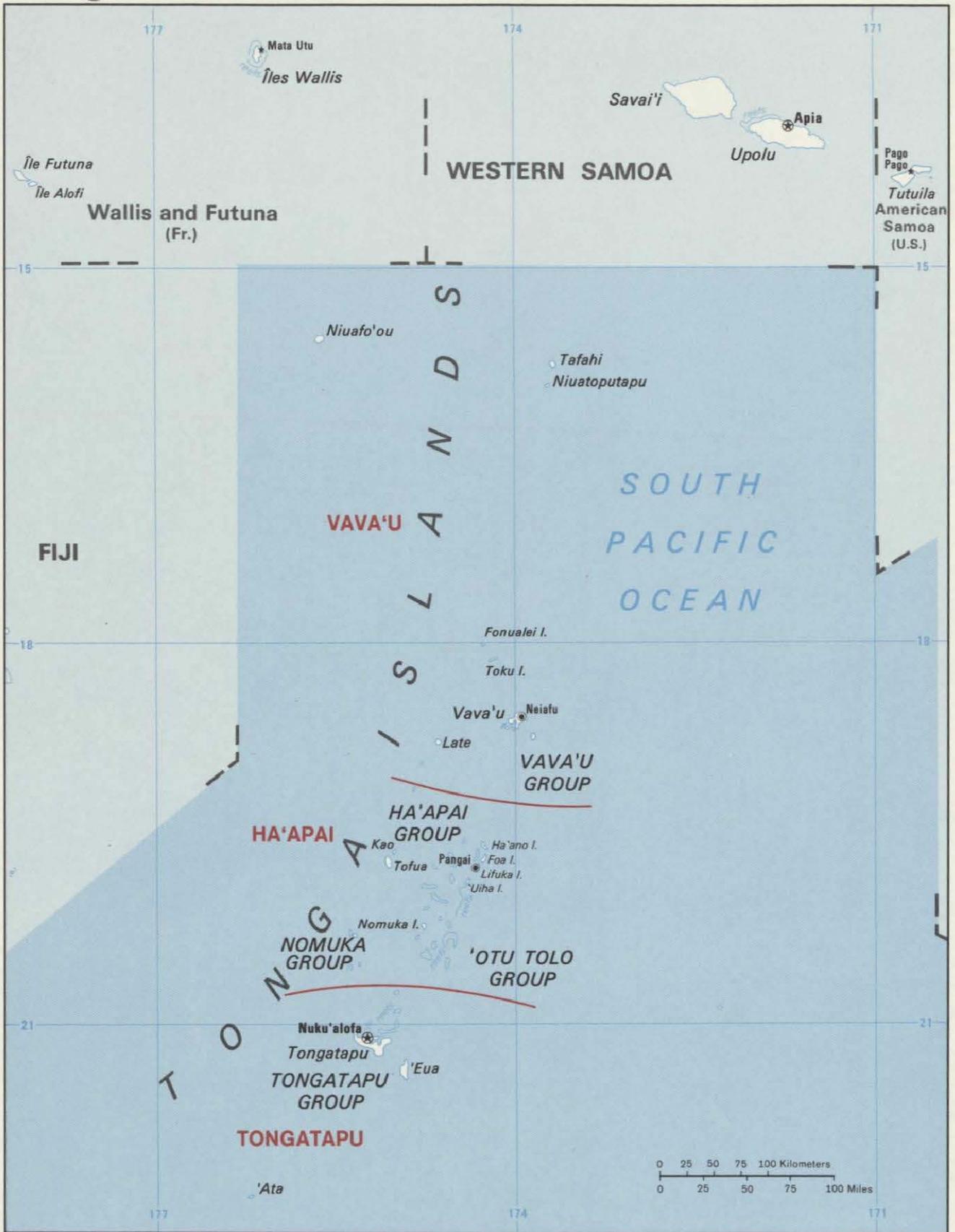
## **A Country Profile**

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**March 1980**

**Office of Foreign Disaster Assistance  
Agency for International Development  
Washington, D.C. 20523**

# Tonga



503685 6-78 (543822)  
 Mercator Projection  
 Scale 1:5,000,000

- ⊗ National capital
- ★ Territorial capital
- District capital
- District boundary

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Fiji  
Tonga  
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Island Countries of the  
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\* in preparation

TONGA: A COUNTRY PROFILE

prepared for

The Office of U. S. Foreign Disaster Assistance  
Bureau for Private and Development Cooperation  
Agency for International Development  
Department of State  
Washington, D. C. 20523

by

Evaluation Technologies, Inc.  
Arlington, Virginia  
under contract AID/SOD/PDC-C-0283

The profile on Tonga is one in a series designed to provide baseline country data in support of the planning, analysis and relief operations of the Office of U. S. Foreign Disaster Assistance (OFDA). Content, scope and sources have evolved over the course of the last three years, and no doubt will continue to do so. The relatively narrow focus is intentional. To avoid redundancy, some topics one might expect to find in a "country profile" are not covered here.

If the information provided can also be useful to others in the disaster assistance and development communities, so much the better. Every effort is made to obtain current, reliable data; unfortunately it is not possible to issue updates as fast as changes would warrant. A cautionary note, therefore, to the reader: statistics are indicators at best, and if names and numbers matter, the bibliography will point to a current source.

We invite your comments and corrections. Address these and other queries to OFDA, AID, as given above.

March 1980

TO:

COUNTRY PROFILE USER Dear \_\_\_\_\_

Please use this form to note any changes, additions, corrections or suggestions you think would update and improve this country profile. Since our aim is to make these profiles as relevant as possible, your critique is essential and very much wanted. Return comments to Lucy Drobot, OFDA Country Profiles, Room 1262A.

NAME/OFFICE: \_\_\_\_\_ PHONE: \_\_\_\_\_ Date: \_\_\_\_\_

| TOPIC | COMMENTS |
|-------|----------|
|       |          |

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Island Countries of the  
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1.5 Time Zones

EST +17; GMT +12

1.6 US Mission and Staff

US has no consular or diplomatic offices in Tonga. Ambassador, resident in Wellington, New Zealand, represents US in New Zealand, Western Samoa, and Tonga.

Ambassador - Anne Clark Martindell

1.7 Sister Cities

None

1.8 Host Mission and Staff

Only Tongan diplomatic mission abroad represented by high commissioner in United Kingdom.

1.9 Treaties and Agreements

With US:

Consuls  
Extradition  
Peace Corps  
Trade and Commerce  
Trade-marks  
Visas

With UK:

Statement made by Tongan Prime Minister at time of Independence asserts that treaties between Tonga and United Kingdom are binding until legally terminated.

### 1.10 International Organization Memberships

Commonwealth of Nations, South Pacific Forum, Asian Development Bank (ADB), South Pacific Commission.

### 1.11 Travel and Visa Information

Valid passport, onward airline ticket required of U.S. citizens; visas not required for visits of up to 30 days but are required for longer visits and may be obtained in Tonga or at United Kingdom consulates.

Smallpox vaccination certificate required of travelers arriving from a country any part of which is infected; yellow fever certificate required of travelers one year of age and over arriving from infected areas.

### 1.12 Ethnic and Sociocultural Groups

Closely related in culture, language, and racial type to Samoans, over 90% of population are descendants of original Polynesian inhabitants. Long-term contact with Fiji brought some Melanesian traits to population as a whole. European settlers formed nucleus of small European community and slightly larger Euronesian group. Another small census group comprises other Pacific Islanders.

### 1.13 Languages

Tongan and English are official languages. As is the case in Western Samoa, the local Polynesian dialect used for instruction in primary schools, with English taught as a second language.

### 1.14 Religions

Majority (60%) are members of Wesleyan church. Mormons claim 20% of population; other denominations represented are Anglicans, Roman Catholics (Marist Mission), and Seventh Day Adventists.

### 1.15 Education and Literacy

Education is compulsory and free in state schools for children ages 6 to 14. 3% of primary, 90% of secondary schools are run by missions. Literacy: 90-95%.

## 2. Government

### 2.1 National Government

Constitutional monarchy based on fusion of traditional chiefs' authority with British parliamentary law. Government comprised of sovereign, privy council/cabinet, legislative assembly, and judiciary.

Primary executive is King-in-Council who appoints and presides over council members: premier, deputy premier, other ministers, governors of Vava'u and Ha'apai. Privy Council advises ruler and, during intervals between legislature's sessions, makes ordinances which must be confirmed by legislature to become law. Lesser executive decisions made by Cabinet.

The unicameral legislative assembly consists of Cabinet members, 7 nobles chosen by 33 hereditary nobles of Tonga (from among whom King appoints Speaker), and 7 representatives elected by universal adult suffrage for 3-year terms.

Judiciary comprised of Court of Appeal (Privy Council), Supreme Court, Land Court, and Magistrates' Courts.

### 2.2 Regional Organization

Local government is limited to town officials, who represent central government in villages, and district officials, who have jurisdiction over groups of villages. Both are popularly elected. Ha'apai and Vava'u have appointed governors.

### 2.3 Major Government Figures (February 1980)

|                              |                                |
|------------------------------|--------------------------------|
| King.....                    | Tupou IV, Taufa'ahau           |
| Premier.....                 | Tu'ipelehake, Fatafehi, Prince |
| Deputy Premier.....          |                                |
| Min. of Agriculture.....     | Tu'ipelehake, Fatafehi, Prince |
| Min. of Defense.....         | Tupouto'a, Prince              |
| Min. of Education.....       | Kavaliku, S. Langi             |
| Min. of Finance.....         |                                |
| Min. of Foreign Affairs..... | Tupouto'a, Prince              |

Min. of Health.....Tapa, Sione, Dr.  
Min. of Industry, Trade & Commerce.....Vaea, Baron  
Min. of Lands.....Tuita, S.L.  
Min. of Police.....Akau'ola, George  
Min. of Works.....Kavaliku, S. Langi

### 3. Disaster Preparedness

#### 3.1 Host Country Disaster Plan

Tonga has no national plan although the government has been investigating means for establishing one. A Central Hurricane Relief Committee was formed in 1973 to direct and coordinate relief activities.

In the event of a disaster, the Superintendent of Telephones and Telegraphs receives a warning which is transmitted to the Secretary of the Government who alerts police, medical services, army, and Prime Minister's Office.

The public is informed of approaching hurricanes by means of emergency radio broadcasting. Problems of transport and communications delay damage assessment and rescue operations.

#### 3.2 US Plan

No mission plan.

#### 3.3 Voluntary Agencies

Red Cross: Tonga Red Cross, P.O. Box 456, Nuku'alofa. Although not yet a recognized national society, the Red Cross provides basic first aid care, and courses in first aid for the police, the defense forces, and the general public. It also distributes food and clothing.

Catholic Tonga Development Committee. Bishop's House, Nuku'alofa, Tonga.

#### 3.4 International Organizations

UNDP: covered by UNDP South Pacific Regional Office located in Manila: Metropolitan Bank; 6813 Ayala Avenue, Makati, Rizal. Cable: UNDEVPRO Manila. Telex: RCA 722 2250. Telephone: 86 40 11

WHO and UNICEF are also represented.

### 3.5 Disaster Types and History

Hurricanes, floods, earthquakes; tsunamis, volcanic eruptions, droughts, epidemics.

Hurricanes are the most common type, occurring on an average of one every 2 to 3 years. In March 1961, Vava'u and Ha'apai groups suffered severe hurricane damage; 2 years later the whole country was hit again; worst damage occurring on Ha'apai and Niuatoputapu. In 1969, gales damaged crops in Ha'apai and Tongatapu. More recently, tropical cyclones struck in December 1977 and February 1978, causing damage to crops and structures in Ha'apai group.

Earthquakes in 1917 and 1919 in the Tonga Trench were felt in Tongatapu and Ha'apai. An earthquake on June 22, 1977 caused extensive structural damage on main island. Tsunamis generated by earthquakes in Tonga Trench recorded 5/1/17, 6/26/17, 11/16/17, and 4/30/19, but affected islands were not indicated.

4. Population4.1 National Demographic Characteristics

An enumerated population of 90,128 was arrived at by 1976 census (46,029 males, 44,099 females); 93,000 is mid-1978 estimate. Considerable migration, mainly to New Zealand, has reduced overall growth rate to 1.5% per annum from natural rate of 2.5% during 1974-76 period. Recent limits set by New Zealand on number of Tongan immigrants, combined with strong bias toward youth in the population (50% under 16 years of age), may have serious consequences for future growth and employment. Urban population was about 20% in 1966, but Nuku'alofa, the only real city and capital (population 18,396 according to 1976 census), was growing at a rate of 8.5% per year at mid-decade. Population density for country as a whole is 124 persons per square kilometer.

4.2 Regional Distribution

Over 70% of population lives in the three major island groups - Tongatapu, Ha'apai, and Vava'u with almost two-thirds inhabiting main island of Tongatapu. 1976 census reports population of major islands and groups as follows: Tongatapu (54,437), Vava'u (15,056), Ha'apai (10,812), Eua (4,486), Niuas (2,328), Nuku'alofa (capital) (18,396.)

Regional Population

| <u>Name of Island</u> | <u>Area<br/>(sq. mi.)</u> | <u>Population</u> |             | <u>Density/sq. mi.</u> |             |
|-----------------------|---------------------------|-------------------|-------------|------------------------|-------------|
|                       |                           | <u>1966</u>       | <u>1975</u> | <u>1966</u>            | <u>1975</u> |
| Tongatapu District    | n.a.                      | 47,920            | 67,576      | 313                    | n.a.        |
| 'Atata                | 0.20                      | 146               | 201         | 535                    | 1,005       |
| 'Eueiki               | 0.41                      | 128               | 155         | 256                    | 378         |
| Tongatapu             | 99.24                     | 47,606            | 67,220      | 313                    | 677         |
| Ha'apai District      | n.a.                      | 10,591            | 11,144      | 490                    | n.a.        |
| Foa                   | 5.17                      | 1,617             | 1,906       | 266                    | 369         |
| Fonoifua              | 0.15                      | 96                | 128         | 424                    | 853         |
| Fotuha'a              | 0.44                      | 167               | 167         | 451                    | 379         |
| Ha'afeva              | 0.70                      | 533               | 541         | 681                    | 773         |
| Ha'ano                | 2.54                      | 1,196             | 1,151       | 491                    | 453         |
| Kofu                  | 0.13                      | 169               | 185         | 962                    | 1,423       |

| Name of Island          | Area<br>(sq.mi.) | Population |         | Density/sq. mi. |       |
|-------------------------|------------------|------------|---------|-----------------|-------|
|                         |                  | 1966       | 1975    | 1966            | 1975  |
| Lifuka                  | 4.41             | 3,161      | 3,105   | 730             | 704   |
| Lofanga                 | 0.56             | 357        | 399     | 566             | 712   |
| Mango                   | 0.25             | 129        | 138     | 384             | 552   |
| Matuku                  | 0.13             | 138        | 184     | 800             | 1,415 |
| Mo'unga'one             | 0.45             | 273        | 268     | 535             | 595   |
| Nomuka                  | 2.75             | 872        | 1,004   | 366             | 365   |
| 'O'ua                   | 0.38             | 248        | 253     | 642             | 665   |
| Tungua                  | 0.59             | 444        | 579     | 541             | 981   |
| 'Uiha                   | 2.07             | 1,068      | 1,136   | 481             | 548   |
| Tofua                   | 21.48            | n.a.       | n.a.    | n.a.            | n.a.  |
| Vava'u District         |                  | 13,533     | 14,735  | 281             | n.a.  |
| Ofu                     | 0.48             | 270        | 353     | 442             | 735   |
| 'Olo'ua                 | 0.19             | 108        | 154     | 520             | 810   |
| Okoa                    | 0.13             | 174        | 208     | 847             | 1,600 |
| Ovaka                   | 0.50             | 145        | 122     | 325             | 244   |
| 'Utungake               | 0.36             | 354        | 313     | 544             | 869   |
| Runga                   | 1.81             | 344        | 323     | 204             | 178   |
| Kapa                    | 2.30             | 623        | 578     | 294             | 251   |
| Koloa                   | 0.87             | 246        | 302     | 282             | 347   |
| Lape                    | 0.15             | 47         | 54      | 273             | 360   |
| Noapapu                 | 1.03             | 292        | 251     | 339             | 243   |
| Pangaimotu              | 3.42             | 531        | 513     | 187             | 150   |
| Taunga                  | 0.14             | 118        | 124     | 448             | 885   |
| Vava'u (Mainland)       | 34.65            | 10,281     | 11,440  | 276             | 330   |
| Niuatoputapu District   |                  | 1,395      | 6,650   |                 |       |
| Tafahi                  | 1.32             | 101        | 182     | 45              | 138   |
| Niuatoputapu (Mainland) | 6.95             | 1,294      | 1,388   | 200             | 199   |
| Niuafou'ou              | 19.41            | n.a.       | 660     | n.a.            | 34    |
| 'Eua District           | 33.76            | 3,391      | 4,420   | 57              | 131   |
| Total                   | 288.55           | 77,429     | 100,105 | 268             | 347   |

## 5. Health, Nutrition, and Housing

### 5.1 Overall Health and Nutrition Status

Prevalence of gastroenteritis, typhoid fever, infantile diarrheas, and, with increasing frequency, infectious hepatitis reflects problems with water supply and sanitation. Immunization against typhoid is reducing incidence, but tracing of healthy carriers is difficult. Filariasis is a major health problem; dengue, also spread by mosquito vector, was reported in Eastern Tongatapu in 1973 and dengue-like fever in Nuku'alofa in 1975. Carrying out of South Pacific Commission's recommendations for vector control, sanitation, and health education has been hampered by lack of funds, but WHO is aiding national mass drug treatment program against filariasis begun in 1977. Pneumonia and respiratory infections are most common cause of illness, especially in children and aged. Tuberculosis is still a health problem but low mortality is reported. Skin infections (scabies, boils, carbuncles) occur frequently. Leptosporosis is also common. Tetanus neonatorum and poliomyelitis generally controlled by immunization.

Illnesses reported in 1976 included influenza (12,982 cases), gastro-intestinal infections (2,897), typhoid (92), filariasis (115), tuberculosis (67 new cases), leprosy (5 patients in leprosarium, 64 at home, no new cases.)

Worst nutritional problems are in towns where subsistence items are replaced by processed foods. Marasmus in infants of weaning age (8-15 months) is sometimes seen. Iron deficiency anemia occurs in women of child-bearing age. Goiter is common, especially in young women.

### 5.2 Vital Statistics

|                                     |              |
|-------------------------------------|--------------|
| Births per 1000 population          | 33-36 (1976) |
| Deaths per 1000 population          | 10-12 (1976) |
| Life expectancy at birth            | 56 (1972)    |
| Infants deaths per 1000 live births | 20.5 (1976)  |

### 5.3 Health Services and Facilities

Tonga's 10 health districts (for administrative purposes) are determined by location of its 3 hospitals and 7 rural dispensaries. Medical services and public health facilities provided by GOT. Three government hospitals: Valola Hospital in Nuku'alofa has 196 beds, 27 of them for isolation patients; hospital in Nioufu has 50 beds; Ha'apai hospital has 20 beds. Seven rural dispensaries, located at Mu'a, Kolovai, 'Eua, Nomuka, Ha'afeva, Niuatoputapu, and Niuafo'ou, provide some in-patient services (with 28-38 additional beds), out-patient services, minor surgery, and maternity care. Development plans call for a total of 342 beds by 1980. Projects include construction of another hospital at Ha'apai, a psychiatric ward and physiotherapy building at Valola Hospital and expansion of maternal, child, and rural mobile health centers and rural health centers. Additional services are provided by a clinic staffed by a child welfare sister and nurses who visit all villages on Tongatapu weekly; similar services exist on Vava'u and Ha'apai.

### 5.4 Health Personnel

No physicians in private practice; all medical services, with exception of mission clinics, are provided by GOT. Most Tongan medical officers are educated at the Fiji School of Medicine in Suva, though some have trained overseas in New Zealand or in other Commonwealth nations. Health ministry personnel in 1976 included 28 medical officers, 10 dental officers, 234 nurses, 37 public health nurses, and 10 health inspectors. Development Plan projects 40 medical officers (1/2,560), 14 dental officers (1/7,313) and 205 nurses (1/449) by 1980.

### 5.5 Diet Summary

Staples: mainly root crops - yams (preferred tuber, but being replaced by higher-yielding cassava), taro, tapioca, sweet potatoes, plantains, and bananas.

Vegetables: taro tops, pele leaves, cabbage, spinach, lettuce, tomatoes, and onions.

Fruits: variety of fruits (but especially breadfruit) eaten in season.

Meats: beef, mutton, pork, chicken on Sundays and special feasts.  
Suckling pig is special festival meat.

Seafood: Mussels and other shellfish, fresh and canned fish.  
Availability high in rural areas where villages tend to be  
located near lagoons and productive reefs.

Dairy products: tinned milk is more readily available than fresh.

Other: coconut milk used in all cooking; bread important in diet;  
tinned foods popular but expensive.

There is little regional variety in diet and no unacceptable foods  
except by small religious (Christian) groups.

### 5.6 Housing

Village houses usually have sloping thatched roofs and reed sides;  
supporting posts are ironwood and braided cord is used in lieu of nails.  
Urban houses are often wooden with corrugated iron roofs; unlike village  
dwellings, they may have several rooms and/or verandas.

#### Dwelling Types (number and %)

| <u>Type</u>                   | <u>Number</u> | <u>%</u> |
|-------------------------------|---------------|----------|
| European style*               | 4,521         | 40.46    |
| Tongan style **               | 4,294         | 38.43    |
| Iron roof with thatched walls | 610           | 5.46     |
| Thatched roof with wood walls | 777           | 6.95     |
| Iron roof with wood walls     | 482           | 4.31     |
| All others                    | 491           | 4.39     |
| Total                         | 11,175        | 100.00   |

\* Brick and cement

\*\* Thatched roof and walls

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## 6. Economy

### 6.1 Overview of Economy

Agriculture dominates the economy. Over half of GNP originates in subsistence sector. Reliance on two major export commodities, coconut products and bananas, leaves economy vulnerable to effects of weather and world market changes. A rudimentary manufacturing sector (3% of GDP) processes food, agricultural products, and construction materials; small scale industry produces handicrafts for local use and tourist trade. Local development is limited by narrow range of available raw materials (no minerals, with possible exception of oil; restricted forest reserves), small domestic market, and limited technical and managerial personnel. As stimulus to manufacturing sector, GOT has recently approved policy offering fiscal incentives and protection, and established a Small Industries Center to provide basic infrastructure. Tourism became an important income source in 1970's. An increase in tourist arrivals by air (from 4,400 in 1972 to more than 11,000 in 1977) and by cruise ship (around 50,000 passengers per year make one day visits) has necessitated planning for increased services.

Government efforts to expand and diversify economic activity to create jobs have had only limited success. Unemployment rate (13% according to 1976 census) is likely to increase with slowing of migration to New Zealand and growing number of young people in labor force.

Real income may have grown by 5-6% in 1977 when higher export prices for copra, increased tourist arrivals, and increased external assistance buoyed the economy. A down-turn followed in first part of 1978, however, as copra and other exports declined. Despite increasing trade deficits, overall balance of payments, supported by capital flows, have generally been in surplus; debt service ratio on external debt still low at 0.2% at end of June 1978.

No major change is expected in foreseeable future in external sector. Latter characterized by: heavy dependence on primary agricultural commodities directed toward essentially fixed markets; increasing trade gap (due in part to increasing costs of imported goods); significant proportion of income derived from remittances from Tongans living abroad; and growing dependence on external aid. Limited potential to increase exports to reduce trade gap is basic weakness of the economy.

### 6.2 Key Indicators

GNP at 1976 market prices: \$30 million, \$350 per capita. Growth rates of GNP per capita (real) 1960-76 and 1970-76: 0.2% and 0.8% respectively (1979 World Bank Atlas).

### 6.3 Imports

The composition of imports is changing as foodstuffs (including live animals) declined from 32% of total in 1972 to 27% in 1977, while manufactured goods increased from 18% to 22% during same period. Imports of fuel oil and related products rose from 5.4% of total in 1974 to 10% in 1977. Australia and New Zealand are major suppliers, chiefly of food.

|   | <u>Major Imports by End-Use</u> |             |             |
|---|---------------------------------|-------------|-------------|
|   | (T\$ 000)                       |             |             |
|   | <u>1973</u>                     | <u>1975</u> | <u>1977</u> |
| Mineral fuels, lubricants,<br>and related materials | 462                             | 747         | 1,798       |
| Food and live animals                               | 2,581                           | 3,557       | 4,745       |
| Manufactured goods                                  | 1,581                           | 2,660       | 3,718       |
| Machinery and transport<br>equipment                | 1,117                           | 2,033       | 2,228       |
| Chemicals   | 638                             | 808         | 1,136       |
| Total   | 7,997                           | 12,963      | 17,696      |

Source: Asian Development Bank, Economic Report on Tonga, 1978.

### 6.4 Exports

In 1977, copra accounted for about 63% of total exports, dessicated coconut 14%, bananas 6%. Exports of vegetables, fruits, handicrafts are growing and accounted for about 17% of total commodity exports in 1977. The Netherlands, Australia, New Zealand, and Norway are major customers.

|                                | <u>Major Exports</u><br>(T\$ '000) |             |             |             |
|--------------------------------|------------------------------------|-------------|-------------|-------------|
|                                | <u>1973</u>                        | <u>1975</u> | <u>1977</u> | <u>6/78</u> |
| <u>Copra</u>                   |                                    |             |             |             |
| Value (T\$000)                 | 2,175                              | 3,088       | 3,949       | 1,311       |
| Quantity (tons)                | 12,362                             | 18,401      | 12,338      | 5,080       |
| <u>Dessicated Coconut</u>      |                                    |             |             |             |
| Value (T\$000)                 | 329                                | 333         | 867         | 297         |
| Quantity (tons)                | 1,332                              | 774         | 1,006       | n.a.        |
| <u>Bananas</u>                 |                                    |             |             |             |
| Value (T\$000)                 | 304                                | 339         | 397         | 72          |
| Quantity (tons)                | 113                                | 116         | 127         | n.a.        |
| <u>Watermelons</u><br>(T\$000) | 157                                | 80          | 128         | n.a.        |
| <u>Vegetables</u><br>(T\$000)  | 74                                 | 107         | 99          | n.a.        |
| <u>Handicrafts</u><br>(T\$000) | 34                                 | 28          | 33          | n.a.        |

Source: Asian Development Bank, Economic Report on Tonga, 1978.

## 7. Agriculture

### 7.1 Overview of Agriculture

Agriculture contributes over half of GNP, over 90% of export earnings, and accounts for more than 50% of total employment. 75% of sector's production is consumed in country; shortages of traditional staple foods are unusual. Much subsistence production and marketing is non-monetary; unique land distribution system and strong kin group ties have facilitated equitable distribution of food crops. As a result, production statistics for such crops are incomplete. Staple crops include taro, yams, sweet potatoes, fruits, and vegetables. Production of major export crops, coconuts and bananas, has stagnated in recent years; some progress in development of minor cash crops - vanilla beans, peanuts, watermelons - and of fisheries.

### 7.2 Crop Production

Production of coconuts accounts for approximately 50% of cultivatable land (about 90,000 acres). Variable weather conditions, a large number of older trees, and damage from the rhinoceros beetle have caused production to fluctuate in recent years, although replanting schemes have been in operation for past decade. After a high of 18,400 tons in 1975, copra exports dropped to 12,000 tons in 1977; however, increased world prices offset decline in production. GOT target for copra exports is 15,000 tons per year.

Growth in banana production has been slow despite government extension services (aided by New Zealand and STABEX subsidy program to rehabilitate crops damaged by hurricanes and disease.) Unfavorable weather, irregular shipping, growing competition from other supply sources are factors. 1977 exports: 127,000 cases.

Other agricultural exports include watermelon, vegetables, kava, and vanilla beans, the last being third largest export commodity after copra (including dessicated coconut) and bananas, though share of total is small.

Livestock, traditionally raised on small scale by subsistence farmers, included (1976): cattle (6,856), pigs (34,700), poultry (about 100,000), horses (7,000.) Government programs to upgrade quality and production levels of cattle and poultry have been somewhat successful, less so for pigs.

Due to population increases, most forest land has been cleared for cultivation; only 5,700 acres, 3.5% of total land area, remain, mostly on Eua and outer islands. Demand for timber is rising rapidly with private housing a major consumer. Forestry's contribution to economy is negligible.

Development of fishing industry has been assisted by EEC and Japanese financing, and has included two tuna boats and cold storage facilities. An estimated 620 tons of fish were caught at Nuku'alofa in 1976 for local consumption; 9.5 tons of Albacore tuna were exported. Fish imports totalled 204 tons.

### 7.3 Crop Dates

| <u>Crop</u>    | <u>J</u>           | <u>F</u> | <u>M</u> | <u>A</u> | <u>M</u> | <u>J</u> | <u>J</u> | <u>A</u> | <u>S</u> | <u>O</u> | <u>N</u> | <u>D</u> | <u>Com-<br/>ments</u> |
|----------------|--------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------------------|
| Bananas        | H                  | H        | H        |          |          |          |          |          |          | H        | H        | H        | Y                     |
| Cassava        | No Definite Season |          |          |          |          |          |          |          |          |          |          | Y        |                       |
| Coconuts       |                    |          | H        | H        | H        | H        | H        | H        |          |          |          |          | Y                     |
| Groundnuts     | H                  | H        | H        | H        | H        | H        | H        | H        |          |          |          |          |                       |
| Kapok          |                    |          |          |          |          |          |          |          |          | H        | H        | H        |                       |
| Paper Mulberry | No Definite Season |          |          |          |          |          |          |          |          |          |          | Y        |                       |
| Pineapples     |                    |          |          |          |          |          |          |          | H        | H        | H        | H        | Y                     |
| Rice           |                    |          |          | H        | H        |          |          |          |          |          |          |          |                       |
| Sweet Potatoes |                    |          |          |          |          |          |          | H        | H        | H        | H        |          | Y                     |
| Yams           | H                  | H        | H        | H        | H        | H        | H        |          |          |          |          | H        | Y                     |

H= Harvest

Y= Some or all yield distributed throughout year

#### 7.4 Agricultural Imports

Food Imports, 27% of total in 1977, have included meat and meat preparations; dairy products (condensed milk, butter); fish and fish preparations; cereal and cereal preparations (flour, cabin biscuits); fruits and vegetables; sugar and honey; coffee, tea, cocoa, spices; beverages (aerated water, underproof spirits, beer, ale, stout.)

#### 7.5 Agricultural Exports

See General Exports, section 6.4, and Crop Production, section 7.2.

8. Physical Geography8.1 Climate

During the May-November dry season, Tongan climate is cooler than that of most tropical locations: highs rarely exceed 80°F and humidity is relatively low. Rainy season, December-April, has temperatures up to 90°F and high humidity. Mean daily temperatures range from 74°F on Tongatapu, the southernmost island group, to 80°F, on Niuaotupapu, which is 5 degrees closer to equator. Average rainfall also increases from south to north, from 67" to 117" annually. Mean daily humidity is 80%.

Cyclonic storms periodically affect the islands, particularly the northern groups. See Disaster History, section 3.5.

8.2 RainfallAnnual Rainfall by Island (Inches)

| <u>Year</u> | <u>Tongatapu</u> | <u>Ha'apai</u> | <u>Vava'u</u> | <u>Niuaotupapu</u> |
|-------------|------------------|----------------|---------------|--------------------|
| 1967        | 49.38            | 57.93          | 116.35        | 119.36             |
| 1968        | 70.89            | 56.26          | 70.42         | 84.07              |
| 1969        | 53.66            | 63.07          | 73.37         | 75.33              |
| 1970        | 77.59            | 84.98          | 83.83         | 98.09              |
| 1971        | 104.74           | 96.27          | 104.72        | 96.25              |
| 1972        | 93.54            | 99.05          | 68.18         | 117.37             |
| 1973        | 79.84            | 78.88          | 114.78        | 122.33             |
| 1974        | 101.20           | 80.74          | 191.24        | 92.50              |

Monthly Rainfall by Island (Inches)Ha'apai

| <u>Month</u> | <u>1970</u> | <u>1971</u> | <u>1972</u> | <u>1973</u> | <u>1974</u> |
|--------------|-------------|-------------|-------------|-------------|-------------|
| January      | 7.21        | 7.82        | 6.62        | 3.48        | 5.96        |
| February     | 11.93       | 6.56        | 5.51        | 12.22       | 15.85       |
| March        | 8.43        | 9.50        | 18.58       | 9.06        | 4.35        |
| April        | 12.82       | 8.01        | 12.93       | 13.05       | 9.99        |
| May          | 8.81        | 6.10        | 11.08       | 1.15        | 6.56        |
| June         | 4.18        | 1.88        | 4.27        | 4.56        | 4.79        |
| July         | 0.77        | 2.31        | 3.98        | 6.99        | 5.42        |
| August       | 0.52        | 3.41        | 8.81        | 2.46        | 2.86        |

| <u>Month</u>         | <u>1970</u> | <u>1971</u> | <u>1972</u> | <u>1973</u> | <u>1974</u> |
|----------------------|-------------|-------------|-------------|-------------|-------------|
| September            | 0.84        | 3.70        | 11.02       | 8.95        | 6.41        |
| October              | 3.59        | 2.79        | 12.34       | 4.48        | 7.81        |
| November             | 13.80       | 20.04       | 1.28        | 8.90        | 4.71        |
| December             | 12.08       | 24.14       | 1.73        | 3.59        | 6.01        |
| <u>Tongatapu</u>     |             |             |             |             |             |
| January              | 7.06        | 7.36        | 7.68        | 1.38        | 9.58        |
| February             | 14.70       | 8.26        | 6.32        | 10.06       | 18.17       |
| March                | 5.41        | 9.77        | 12.71       | 8.06        | 10.98       |
| April                | 4.35        | 6.92        | 4.85        | 11.94       | 13.60       |
| May                  | 3.78        | 7.39        | 6.49        | 1.45        | 3.08        |
| June                 | 3.26        | 1.41        | 5.87        | 4.06        | 4.54        |
| July                 | 2.47        | 0.71        | 6.24        | 4.27        | 2.63        |
| August               | 2.23        | 4.40        | 8.14        | 0.98        | 3.55        |
| September            | 1.63        | 7.80        | 13.32       | 8.16        | 7.71        |
| October              | 14.67       | 5.14        | 13.26       | 4.42        | 17.80       |
| November             | 4.16        | 14.77       | 1.28        | 13.50       | 6.64        |
| December             | 13.87       | 30.81       | 6.52        | 11.57       | 2.93        |
| <u>Vava'u</u>        |             |             |             |             |             |
| January              | 4.79        | 6.79        | 11.42       | 6.24        | 6.99        |
| February             | 8.28        | 16.32       | 6.72        | 17.42       | 5.58        |
| March                | 7.88        | 7.64        | 10.01       | 15.47       | 9.03        |
| April                | 10.49       | 9.86        | 5.30        | 11.98       | 14.28       |
| May                  | 4.80        | 14.55       | 4.06        | 1.22        | 16.72       |
| June                 | 7.85        | 1.93        | 1.46        | 2.24        | 6.40        |
| July                 | 2.12        | 3.13        | 6.21        | 18.38       | 2.80        |
| August               | 2.45        | 4.92        | 6.07        | 4.27        | 4.26        |
| September            | 1.99        | 6.85        | 6.49        | 7.74        | 3.14        |
| October              | 2.08        | 8.10        | 6.35        | 4.51        | 3.26        |
| November             | 12.97       | 6.69        | 1.73        | 13.11       | 12.32       |
| December             | 18.13       | 17.94       | 1.72        | 12.19       | 6.45        |
| <u>Niua-toputapu</u> |             |             |             |             |             |
| January              | 2.82        | 7.76        | 11.65       | 5.97        | 11.43       |
| February             | 6.13        | 12.94       | 7.96        | 10.93       | 16.96       |
| March                | 16.41       | 5.75        | 17.33       | 7.59        | 11.34       |
| April                | 14.64       | 12.51       | 7.47        | 16.18       | 3.36        |
| May                  | 4.22        | 12.83       | 6.32        | 11.03       | 7.43        |
| June                 | 4.44        | 1.93        | 7.27        | 1.46        | 4.46        |
| July                 | 5.41        | 3.63        | 2.30        | 21.32       | 1.07        |

| <u>Month</u> | <u>1970</u> | <u>1971</u> | <u>1972</u> | <u>1973</u> | <u>1974</u> |
|--------------|-------------|-------------|-------------|-------------|-------------|
| August       | 3.17        | 0.85        | 1.73        | 5.46        | 2.12        |
| September    | 1.78        | 8.52        | 15.44       | 7.09        | 4.90        |
| October      | 5.23        | 6.16        | 16.06       | 11.61       | 7.84        |
| November     | 8.20        | 3.62        | 10.31       | 17.16       | 12.72       |
| December     | 25.64       | 19.75       | 14.36       | 6.52        | 8.86        |

### 8.3 Temperatures

#### Mean Maxima and Minima for Tongatapu (centigrade)

| <u>Month</u> | <u>1970</u> |            | <u>1971</u> |            | <u>1973</u> |            | <u>1974</u> |            |
|--------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|
|              | <u>Max</u>  | <u>Min</u> | <u>Max</u>  | <u>Min</u> | <u>Max</u>  | <u>Min</u> | <u>Max</u>  | <u>Min</u> |
| January      | 29.3        | 22.7       | 28.7        | 23.2       | 29.9        | 24.0       | 30.3        | 24.4       |
| February     | 29.3        | 23.6       | 28.6        | 22.9       | 30.2        | 23.8       | 29.4        | 23.4       |
| March        | 29.2        | 23.3       | 29.4        | 24.1       | 29.7        | 22.8       | 29.4        | 23.3       |
| April        | 28.6        | 22.2       | 29.1        | 22.1       | 28.1        | 22.1       | 27.8        | 20.9       |
| May          | 27.2        | 20.3       | 26.6        | 19.6       | 26.7        | 20.8       | 26.4        | 20.9       |
| June         | 25.9        | 20.1       | 26.0        | 20.5       | 27.2        | 20.8       | 26.0        | 20.0       |
| July         | 25.1        | 18.8       | 24.9        | 18.3       | 25.5        | 18.9       | 25.7        | 18.6       |
| August       | 24.5        | 17.9       | 25.2        | 19.2       | 25.6        | 19.2       | ....        | ....       |
| September    | 25.4        | 19.4       | 25.8        | 19.2       | 26.1        | 19.5       | ....        | ....       |
| October      | 26.0        | 20.3       | 26.8        | 20.8       | 26.3        | 20.6       | ....        | ....       |
| November     | 27.0        | 20.9       | 27.9        | 22.2       | 27.4        | 22.4       | ....        | ....       |
| December     | 27.4        | 22.3       | 27.8        | 22.7       | 29.3        | 23.7       | ....        | ....       |

#### 8.4 Landforms

Tonga's islands, the summits of volcanic undersea mountains, fall into two roughly parallel chains: high active volcanic to the west and low inactive coral-capped to the east. Four major island groups have been designated (south and north): Tongatapu, Ha'apai, Vava'u, and Niuatoputapu. Total land area is 269 square miles, distributed among some 150 islands, 55 of them uninhabited. Largest island, Tongatapu, is 99 miles square and of low coral type. Islands are scattered for 500 miles along volcanic line running from New Zealand's north island to Samoa. To the east, the 2-mile deep Tonga Trench is a center of seismic activity. To the west, the Lau Ridge emerges as Fiji's Lau islands group; to the south, the Kermadec Islands are outliers of New Zealand. Niue is closest island on the east.

##### Island Groups:

Tongatapu: Tongatapu, Eua, Ata, Atata, Euaiki, Kala'au, Kenatea

Ha'apai: Lifuka, Fondifua, Kota, Kau, Tofua, Nomuka, Hunga Tonga, Hunga Ha'apai, Mango, Oua, Tungua, Matuku, Ha'afeva, Uiha, Fotuha'a, Lofanga, Foa, Ha'ano, Mo'unga'oneo and 17 uninhabited islands

Vava'u: Vava'u, 'Utungake, Late, Fonualei, Tanga, Ovaka, Hunga, Lape, Nuapapu, 'Ofa, Kapa, Pangaimotu, Ofu, Olo'ua, Koloa, Okoa and 19 uninhabited islands

Also: Niuatoputapu, Tafahi, Niuafuou

#### 8.5 Land Use

All land was originally owned by King but large grants were made to hereditary nobility. By law, every taxpayer (males aged 16 or over) is entitled to 8 1/4 acre allotment granted as lifetime inheritable leasehold from government or title-holder of estate. In actuality more taxpayers than surveyed allotments exist and about half the taxpayers do not hold an allotment, though they may borrow land from others. Cash payments for land, though illegal, are becoming more frequent. Because absentee ownership of land is common, considerable unexploited agricultural potential exists. Standard fallow period, 3-5 years, alternating with 2-3 year cropping period, has been shortened in heavily populated areas to 1-3 years with no change in traditional bush fallow cultivation methods; no serious problems have yet surfaced as a result.

### Distribution of Land

|   |      |
|---|------|
| Tax and town allotments   | 66%  |
| Government leases   | 0.9% |
| Leased by Tongans   | 0.6% |
| Leased by Commodity Boards                                      | 0.1% |
| Government land (uninhabited islands,<br>forest reserves, etc.) | 11%  |
| Hereditary estates  | 7%   |
| Foreign leases  | 1%   |
| Charitable leases (church)                                      | 2%   |
| Lakes and internal waters                                       | 4%   |
| Telekitonga and Teleitokelau Islands                            | 7%   |

#### 8.6 Waterways

Rivers are not important for transportation or irrigation; coastal waters far more crucial to human well-being. Islands with extensive coral reefs and lagoons are far richer in traditional marine resources than those with deep and unprotected offshore waters. Thus, Tongatapu and Ha'apai, both possessed of good fishing grounds, have high population density along productive shores, while 'Eua, which has narrow, sometimes dangerous reef, has few inhabitants despite large size and fertile soils.

#### 8.7 Mountains

High islands are mountainous and of volcanic origin. All Tongan islands based on summits of submarine mountains. Lofia, an active volcanic cone 3,380' high, is representative of high volcanic peak. The Vava'u islands are compact and hilly with terraced fields.

#### 8.8 Volcanism

| <u>Name</u> | <u>Activity</u>    | <u>Height</u> | <u>Location</u>                |
|-------------|--------------------|---------------|--------------------------------|
| Lofia       | Active             | 3,380'        | Tofua I, Ha'apai group         |
| Niafoou     | Erupted 1929, 1945 |               | W and N of Niuatopu-<br>tapu I |

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| <u>Name</u> | <u>Activity</u>                   | <u>Height</u> | <u>Location</u> |
|-------------|-----------------------------------|---------------|-----------------|
| Falcon I    | Erupted 1885, 1896,<br>1927, 1955 |               | Vava'u group    |
| Late I      | Dormant; last<br>erupted 1854     | 1,700'        | Vava'u group    |
| Fonualei I  | Dormant; erupted<br>1846          | 600'          | Vava'u group    |

### 8.9 Seismicity

Tonga is located along junction of 2 major crustal plates: Australian and Pacific. Here, along the oceanic trench, as the edge of one plate is subducted beneath the other, numerous shallow earthquakes occur. Melting occurs as the crustal rocks descend; when tension fractures take place along juncture, molten rock moves upward and is manifest at surface as volcanic activity. Seismic activity in Tonga-Kermadec region very high; 5 epicenter locations in Tonga in 1 year in relatively narrow zone (Benioff zone.) Ten active volcanos in western Tonga: Tofua, Late, and Fonualei above sea level; Falcon I., Metis shoal, and Home reef periodically appear and disappear; remaining four have been submarine throughout historic times. See also Disaster History, section 3.5.

## 9. Transportation and Logistics

### 9.1 Road Network

Government's policy of providing road access for each tax allotment is responsible for a network of dirt roads and tracks suited to rural needs. 598 miles of road, 72% on Tongatapu, in 1975. 67% of total were earthen; only 54 miles were sealed. Limited resources, rising traffic levels, and poor drainage resulted in considerable road deterioration during 1970-75 period.

#### GOT Agencies:

Four ministries deal with administration and development of road transport: Ministry of Police regulates transport services, Ministry of Lands proclaims public roads, Ministry of Works handles road construction and maintenance, and Ministry of Finance in charge of vehicle import licensing.

#### Surface Types:

| <u>Island Group</u>       | <u>Type of Road and Length (miles)</u> |              |              |              |
|---------------------------|--|--------------|--------------|--------------|
|                           | <u>Sealed</u>                          | <u>Coral</u> | <u>Earth</u> | <u>Total</u> |
| Tongatapu                 | 44                                     | 109          | 277          | 430          |
| Vava'u (excluding Neiafu) | 10                                     | 20           | 59           | 89           |
| Ha'apai (Lifuka)          | nil                                    | 7            | 21           | 28           |
| 'Eua                      | nil                                    | 10           | 41           | 51           |
| Total                     | 54                                     | 146          | 398          | 598          |

### 9.2 Vehicles

Number of vehicles licensed in 1976 was 1,650 which included 438 private cars, 220 motorcycles, 405 trucks.

### 9.3 Railroads

Tonga has no railroad.

#### 9.4 Ports

The Tonga or Friendly group lies between lat. 15 and 23 degrees south, and long. 173 and 175 degrees west.

Major ports of entry for external shipping are Nuku'alofa (Tongatapu) and Neiafu (Vava'u). Pangai, in Ha'apai group, is export port for copra and bananas. Port traffic has almost doubled since 1967.

##### Neiafu, Vava'u

Coordinates: Lat. 18° 39'S.; long. 173° 59'W.

Accommodation: Berth for vessels up to 60.95 m. length, 5.49 m. draft. Anchorage available.

Pilotage: Available at 24 hours notice. Compulsory.

Airport: Neiafu 9.6 km.

##### Nuku'alofa, Tongatapu

Coordinates: Lat. 21° 8'S.; long.; 175° 12'W. Port of Customs entry.

Accommodation: Queen Salote Wharf, 93.26 m. long, with 12.19 m. alongside. Vessels of 30,000 tons regularly berth. Warehouse facilities. Vuna Wharf, 60.95 m. long, with 7.31 m. alongside; suitable for vessels up to 121.9 m. long. Yellow Pier 30.48 m. long, with 4.27 m. alongside; suitable for vessels up to 36.57 m. long. Port open day and night. Cranes: One 25-ton mobile crane. Provisions: Supplies available. Water: Fresh water available at 8 to 10 fons/hr. at Queen Salote Wharf.

Bunkers: Small amounts of diesel available.

Pilotage: Available at 24 hours notice. Compulsory.

Traffic: 1976, 465 vessels, 650,000 tons of cargo handled.

Airport: Fua'mota 20.8 km.

Pangai, Ha'apai

Coordinates: Lat. 19° 40'S.; long. 174° 30'W. Anchorage port.

### 9.5 Shipping Lines

Regular services are maintained by:

Union Steamship Co. of New Zealand Ltd., POB 4, Nuku'alofa; fortnightly passenger and cargo services between Auckland, Fiji, Samoa, and Tonga; six weekly cargo services from Australia to Fiji, Samoa, and Tonga.

Bank Line: Burns Philp (Southsea) Co. Ltd., Nuku'alofa; approximately six weekly cargo services to the United Kingdom.

Pacific Navigation Co., POB 81, Nuku'alofa; formerly Tonga Shipping Agency; maintains a service from Sydney (Australia) to Nuku'alofa with the vessel Taulota, a fortnightly service between Auckland (New Zealand) and Nuku'alofa with the vessels Aoni and Frysna, a monthly scheduled service between Suva (Fiji) and Nuku'alofa, and local inter-island services.

Pacific Forum Line calls at Tonga, Fiji, the Samoas, New Zealand, and Australia.

Local ships connect all the islands.

### 9.6 Airports

Regular air service available to Fiji, Western Samoa, New Zealand, and Niue via Air Pacific and Polynesian Airlines. Domestic connections between Tongatapu and Vava'u, Ha'apai, and 'Eua. Only international airport, Fua'amotu on Tongatapu with 2100 m. sealed runway, can accommodate light jet aircraft (BAC -111). Government plans to upgrade it to full international specifications and possibly establish national airline since air traffic is expected to increase significantly in next 20 years. The Vava'u airstrip is 1,067 m. long, 23 m wide; the Salote Pilolevu Airfield on Lifuka Island, Ha'apai, has 820 m. coral-base runway; 'Eua has 689 m. grass runway.

NB: For up-to-date information consult latest issue of weekly International Notams, International Flight Information Manual, and/or ICAO's Air Navigation Plan for appropriate region.

TONGATAPU/  
Fua'Amotu Intl.

| <u>Location</u><br><u>Coordinates</u> | <u>Eleva-<br/>tion M/<br/>Temp C</u> | <u>Runway Characteristics</u> |                    |                               |           | <u>Aircraft<br/>Strength<br/>(1,000 kg)</u> | <u>Fuel/<br/>Octane</u> |
|---------------------------------------|--------------------------------------|-------------------------------|--------------------|-------------------------------|-----------|---|-------------------------|
|                                       |                                      | <u>NR/Type</u>                | <u>Slope<br/>%</u> | <u>Aircraft/<br/>Length M</u> | <u>CL</u> |   |                         |
| 21°14'30" S<br>175°08'32" W           | 38<br>28.1                           | 11/29                         | 0.27               | 1950                          | B         | LCN51h50                                    | 100<br>JA1              |

Remarks: REG-S; alternate aerodromes-Suva/Nausori Intl. Fuel available upon prior arrangement only. 24 hour prior notice to aerodrome required (48 hour notice for Sunday arrivals). No telex.

Aids: LVA (11), LR, MD, MC, MT, MTX, L9.

### Key

#### Abbreviations

INSTR Instrument Approach Runway  
 N-INSTR Non-Instrument Runway  
 PA I Precision Approach Runway Category I  
 PA II Precision Approach Runway Category II  
 REG-NS Intl Non-Scheduled Air Transport, Regular Use  
 REG-S International Scheduled Air Transport, Regular Use

#### Radio Aids

ILS Instrument Landing System  
 DME Distance Measuring Equipment  
 VOR VHF Omni-Directional Range  
 RL Radio Locator

#### Lighting Aids

LPA Precision Approach Lighting System  
 LSA Simple Approach Lighting System  
 LVA Visual Approach Slope Indicator System  
 LAV Abbreviated Approach Slope Indicator System  
 LR Runway Edge, Threshold & Runway End Lighting  
 LC Runway Center Line Lighting  
 LTD Runway Touchdown Zone Lighting  
 LTX Taxiway Lighting  
 LB Aerodrome or Identification Beacon  
 LO Obstruction Lighting

Marking Aids

|     |   |
|-----|---|
| MD  | Runway Designation Markings                     |
| MC  | Runway Center Line Markings                     |
| MT  | Runway Threshold Markings                       |
| MTD | Runway Touchdown Markings                       |
| MS  | Runway Sidestripe Markings                      |
| MFD | Fixed Distance Markings                         |
| MTX | Taxiway Center Line & Holding Position Markings |
| MO  | Obstruction Markings                            |

Runway Surface and Length

|   |   |
|---|---|
| H | Hard Surface (numbers = ft. in hundreds)    |
| S | Non-Hard Surface (number = ft. in hundreds) |

Additional Lighting

|    |  |
|----|--|
| L1 | Portable Runway Lights (electrical)    |
| L2 | Boundary Lights                        |
| L3 | Runway Flood Lights                    |
| L4 | Low Intensity Runway Lights            |
| L5 | Low Intensity Approach Lights          |
| L6 | High Intensity Runway Lights           |
| L7 | High Intensity Approach Lights         |
| L8 | Sequenced Flashing Lights              |
| L9 | Visual Approach Slope Indicator (VASI) |

9.7 Personal Entry Requirements

Passport required; visa not required. Smallpox vaccination, cholera and yellow fever immunization required for arrivals from infected areas.

9.8 Aircraft Entry Requirements

All private and non-scheduled commercial aircraft overflying need not obtain prior permission.

All private and non-scheduled commercial aircraft landing for commercial or non-commercial purposes must obtain prior permission from the Civil Aviation Authority, Director of Works, P.O. Box 52, Nuku'alofa, Kingdom of Tonga (telegraphic address: WORKS NUKU'ALOFA/telex: none) at least two days prior to departure. All requests must include all details pertinent to the flight.

### 9.9 Airlines

Domestic: South Pacific Island Airways, which took over Tonga Internal Air Service in 1976, operates 3 flights weekly to Vava'u, Ha'apai, Nuku'alofa, and 'Eua; connects with Pago-Pago (American Samoa).

Overseas: Air Pacific, using BAC-111's, stops at Fua'amotu (Tongatapu) on flights between Suva and New Zealand. HS 748's are employed by Air Pacific and Polynesian Airlines in regional services. Air New Zealand planned to begin service in 1978 between Auckland and Apia via Tonga.

### 9.10 Air Distances

|                                     | <u>Statute<br/>Miles</u> |
|-------------------------------------|--------------------------|
| Tonga (Fua'Amotu) International to: |                          |
| Tonga (Ha'apai)                     | 114                      |
| Wallis Island                       | 556                      |
| Wellington International            | 1507                     |
| Tonga (Ha'apai) to:                 |                          |
| Tonga (Vava'u)                      | 86                       |
| Fiji (Nandi) to:                    |                          |
| Tonga International                 | 540                      |
| Western Samoa (Faleolo) to:         |                          |
| Tonga International                 | 553                      |

10. Power and Communications10.1 Electric Power

Nuku'alofa (and most villages on Tongatapu) and Neia'fu on Vava'u are only areas supplied with electricity. Total capacity on Tongatapu is 3,000 kW and on Vava'u, 110 kW (mid-1975). The system is 230V AC, 50 cycles, generated by diesel motors.

Tonga Electric Power Board is responsible for supply and distribution of power.

By 1980 capacity is expected to reach 7,070 kW while number of consumers rises from 2,400 to 4,400, and consumption from 5.1 million kWh to 8.1 million kWh. Installations for 'Eua and Ha'apai should be operative by 1980.

|                                       | At the end of<br><u>1974-75</u> | <u>1979-80</u> | Increase<br><u>%</u> |
|---------------------------------------|---------------------------------|----------------|----------------------|
| Generating Capacity (kilowatt)        |                                 |                |                      |
| Tongatapu                             | 3,000                           | 6,400          | 113.3                |
| Vava'u                                | 110                             | 450            | 309.0                |
| Ha'apai                               | n.a.                            | 110            | n.a.                 |
| 'Eua                                  | n.a.                            | 110            | n.a.                 |
| Total                                 | 3,110                           | 7,070          | 127.3                |
| Connections to Power Supply (numbers) |                                 |                |                      |
| Tongatapu                             | 2,276                           | 4,000          | 75.7                 |
| Vava'u                                | 127                             | 300            | 136.2                |
| Ha'apai                               | n.a.                            | 70             | n.a.                 |
| 'Eua                                  | n.a.                            | 35             | n.a.                 |
| Total                                 | 2,403                           | 4,405          | 83.3                 |
| Energy Consumption (kilowatt hours)   |                                 |                |                      |
| Tongatapu                             | 4,865,314                       | 7,700,700      | 58.3                 |
| Vava'u                                | 231,226                         | 380,000        | 64.3                 |
| Ha'apai                               | n.a.                            | 9,200          | n.a.                 |
| 'Eua                                  | n.a.                            | 4,500          | n.a.                 |
| Total                                 | 5,096,540                       | 8,094,400      | 58.8                 |

### 10.2 Telecommunications

Radio-telephone connects Nuku'alofa with inland and with overseas via Suva, Fiji, and Pago Pago. Major islands are linked by telegraph and restricted radio-telephone. Fiji's director of telecommunications rated Tonga's connection with Fiji as adequate (mid-1970's) but saw national network as "totally inadequate" and staff organization as "deficient." A planned, ADB financed 2-phase project to upgrade facilities on main islands has been reduced to a project which will modernize and expand telephone system at Nuku'alofa (installation of central automatic exchange of 1500 lines.)

There were 590 telephone subscribers in Tonga at the end of 1974.

### 10.3 Radio Network

Tonga Broadcasting Commission: POB 36, Nuku'alofa. Started operating July 1961; government and commercially sponsored programs from two 10 kW medium wave 1020 kHz transmitters in English and Tongan with some Fijian and Samoan. Transmits from 7 am to 10 am, 12 noon to 2 pm and 6:30 pm to 10 pm Monday through Saturday, and from 7 pm to 10 pm Sunday. Reception is excellent in Tonga, in Gilbert and Ellice Islands, Fiji, Samoa, and Niue.

Station A32 also broadcasts personal messages to areas not covered by telephone and telegraph.

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