Country Report for Tonga

Technical Analysis of Appliance Markets to Support the Pacific Appliance Labelling and Standards (PALS) Programme

Prepared for

Renewable Energy and Energy Efficiency Partnership (REEEP)

By

International Institute for Energy Conservation – Asia (IIEC Asia)

12th Floor, United Business Center II Building, 591, Sukhumvit Road Wattana, Bangkok 10110, THAILAND

November 2012
CONTENTS

1 ACKNOWLEDGMENTS ............................................................................................................. 1
2 INTRODUCTION ....................................................................................................................... 2
   2.1 Country Background ......................................................................................................... 2
   2.2 Objective ....................................................................................................................... 2
3 FINDINGS .................................................................................................................................. 3
   3.1 Import Statistics ............................................................................................................. 3
   3.2 Market Characteristics .................................................................................................. 18
   3.3 Energy Labels ................................................................................................................ 19
   3.4 Information Gaps ......................................................................................................... 20
4 CONCLUSION .......................................................................................................................... 21
5 ANNEX – COUNTRY DATA SHEETS ...................................................................................... 22
6 REFERENCES .......................................................................................................................... 30

FIGURES

Figure 3.1 – Number of Refrigerators and Freezers Imported per Year (units) ......................... 4
Figure 3.2 – Annual Percentage Breakdown of Refrigerator Imports by Country of Origin (based on import units) .................................................................................................. 4
Figure 3.3 – Annual Percentage Breakdown of Freezer Imports by Country of Origin (based on import units) .................................................................................................. 4
Figure 3.4 – Import Value (T$) per Year for Freezers and Refrigerators .................................. 5
Figure 3.5 – Annual Percentage Breakdown of Refrigerator Imports by Country of Origin (based on import value) ................................................................................... 5
Figure 3.6 – Annual Percentage Breakdown of Freezer Imports by Country of Origin (based on import value) ................................................................................... 6
Figure 3.7 – Number of Air Conditioners (All Sizes) Imported per Year (units) ..................... 6
Figure 3.8 – Annual Percentage Breakdown of Air Conditioner (All Sizes) Imports by Country of Origin (based on import units) ............................................................... 7
Figure 3.9 – Import Value (T$) per Year for Air Conditioners (All Sizes) ............................... 7
Figure 3.10 – Annual Percentage Breakdown of Air Conditioner (All Sizes) Imports by Country of Origin (based on import value) ............................................................... 8
Figure 3.11 – Number of Domestic Washing Machines and Dish Washers Imported per Year (units) .................................................................................................................. 8
Figure 3.12 – Annual Percentage Breakdown of Domestic Washing Machine Imports by Country of Origin (based on import units) ............................................................... 9
Figure 3.13 – Annual Percentage Breakdown of Domestic Dish Washing Machine Imports by Country of Origin (based on import units) ............................................................... 9
Figure 3.14 – Import Value (T$) per Year for Domestic Dish Washers and Washing Machines.... 10
Technical Analysis of Appliance Markets to Support
The Pacific Appliance Labelling and Standards (PALS) Programme
Renewable Energy & Energy Efficiency Partnership (REEEP)

Figure 3.15 – Annual Percentage Breakdown of Domestic Washing Machines Imports by Country of Origin (based on import value) ................................................................. 10
Figure 3.16 – Annual Percentage Breakdown of Domestic Dish Washer Imports by Country of Origin (based on import value) ................................................................. 10
Figure 3.17 – Number of Electric Water Heaters Imported per Year (units) ............................................ 11
Figure 3.18 – Annual Percentage Breakdown of Electric Water Heaters by Country of Origin (based on import units) ............................................................................... 11
Figure 3.19 – Import Value (T$) per Year for Electric Water Heaters ......................................................... 12
Figure 3.20 – Annual Percentage Breakdown of Electric Water Heater Imports by Country of Origin (based on import value) ................................................................. 12
Figure 3.21 – Number of Electric Fans Imported per Year (units) ............................................................. 13
Figure 3.22 – Annual Percentage Breakdown of Electric Fan Imports by Country of Origin (based on import units) ............................................................................... 13
Figure 3.23 – Import Value (T$) per Year for Electric Fans ........................................................................ 14
Figure 3.24 – Annual Percentage Breakdown of Electric Fan Imports by Country of Origin (based on import value) ............................................................................... 14
Figure 3.25 – Import Value (T$) per Year for Incandescent Lamps, Fluorescent Lamps and Other Lamps .............................................................................................................. 15
Figure 3.26 – Annual Percentage Breakdown of Incandescent Lamps by Country of Origin (based on import value) ............................................................................... 15
Figure 3.27 – Annual Percentage Breakdown of Fluorescent Lamps by Country of Origin (based on import value) ............................................................................... 16
Figure 3.28 – Annual Percentage Breakdown of Other Lighting by Country of Origin (based on import value) ............................................................................... 16
Figure 3.29 – Number of Televisions Imported per Year (units) ................................................................ 17
Figure 3.30 – Annual Percentage Breakdown of Television Imports by Country of Origin (based on import units) ............................................................................... 17
Figure 3.31 – Import Value (T$) per Year for Televisions .......................................................................... 17
Figure 3.32 – Annual Percentage Breakdown of Television Imports by Country of Origin (based on import value) ............................................................................... 18
Figure 3.33 – Electrical Appliance Shop in Tonga selling Refrigerators and Freezers with Singaporean Energy Label (left) and European Energy Label (right) ......................... 19
Figure 3.34 – Electrical Appliance Shop in Tonga selling Refrigerators with Aus/NZ Energy Labels 20

TABLES

Table 2.1 – General Information on Tonga .............................................................................................. 2
Table 3.1 – Brand and countries of manufacture of most common electrical appliances in Tonga 18
Table 3.2 – Proportion of Electrical Appliances with Energy Labels ................................................... 19
Table 5.1 – Physical Units Imported per Year ......................................................................................... 22
Table 5.2 – Percentage Breakdown of Imports by Country of Origin (based on import units) for 2007 and 2008 .......................................................... 23
Table 5.3 – Percentage Breakdown of Imports by Country of Origin (based on import units) for 2009 and 2010 .......................................................... 24
Table 5.4 – Percentage Breakdown of Imports by Country of Origin (based on import value) for 2011 ................................................................. 25
Table 5.5 – Import Value (T$) Per Year ................................................................. 26
Table 5.6 – Percentage Breakdown of Imports by Country of Origin (based on import value) for 2007 and 2008 ................................................................. 27
Table 5.7 – Percentage Breakdown of Imports by Country of Origin (based on import value) for 2009 and 2010 ................................................................. 28
Table 5.8 – Percentage Breakdown of Imports by Country of Origin (based on import value) for 2011 ................................................................. 29
1 ACKNOWLEDGMENTS

The Technical Analysis of Appliance Markets to Support the Pacific Appliance Labeling and Standards (PALS) Programme covers 17 Pacific Island Countries and Territories (PICTs). The report and research were conducted by Mr. Sommai Phon-Amnuaisuk and Mr. David Morgado from the International Institute for Energy Conservation (IIEC). It was prepared for the Renewable Energy and Energy Efficiency Partnership (REEEP) with overall guidance from Mr. Tom Thorsch Krader.

The IIEC would like to show its appreciation for the kind support and contributions from the PALS country focal points (Mrs. Silivia ‘Atiola and Mr. Ofa Sefana), the Secretariat for the Pacific Community, the national statistics and customs authorities in Tonga and the Tonga Energy Road Map Implementation Unit (Mr. Feleti Wolfgramm).
2 INTRODUCTION

2.1 Country Background

<table>
<thead>
<tr>
<th>Table 2.1 – General Information on Tonga</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neighbouring Countries</td>
</tr>
<tr>
<td>Capital City</td>
</tr>
<tr>
<td>Currency</td>
</tr>
<tr>
<td>Population Size (habitants)</td>
</tr>
<tr>
<td>Number of Households</td>
</tr>
<tr>
<td>Electrification Rate (%)</td>
</tr>
</tbody>
</table>

Source: Tonga Department of Statistics; SPC, 2011

2.2 Objective

The objective of this study is to analyse the characteristics of major appliance and lighting products and markets in Tonga, in order to inform and support decision making on the most suitable Standards & Labelling (S&L) strategy for Tonga.

The study focuses on the following electrical appliances:

- Refrigerators
- Freezers
- Air Conditioners
- Lamps – including incandescent, linear fluorescent and compact fluorescent
- Televisions
- Other relevant products.
3 FINDINGS

3.1 Import Statistics

The electrical appliance information presented in this section is based on data provided by the Tongan Customs and Statistics Department and covers the most common electrical appliances in the country.

The Figures below show the total number of electrical appliance units imported annually into Tonga from 2007 to 2011, the total annual import value (T$) of each type of electrical appliance imported into Tonga from 2007 to 2011 as well as the respective share of import value according to country of origin. Note that there is no data on the number of incandescent and (linear) fluorescent lamp units imported, only its respective imported value. Figures with no values for a given year imply data was not available.

Tonga is one of the few countries in the Pacific region with customs information on the number of units imported per country of origin. This report provides analysis on the country of origin of electrical appliances based on import value and import unit data. Using number of units imported is a more accurate way of determining the market share of each country as the import value share is influenced by exchange rates and equipment costs, i.e. the average electrical equipment import value from Australia/New Zealand and Europe are typically higher than that of the People’s Republic of China (China). Note also that all customs departments are focus on determining the value of the imported electrical appliances for taxation purposes and therefore the number of units is not usually a priority or correctly indicated by the supplier and/or customs officer, especially with regard to small electrical appliances such as lamps. An on-site survey was conducted to enable a better assessment of the country of origin of electrical appliances in Tonga (see section Error! Reference source not found. and Error! Reference source not found.).

3.1.1 Refrigerators and Freezers

According to Figure 3.1 the number of imported units of refrigerators and freezers fluctuated slightly over the last five years with annual differences amounting to about 200 units. Note that the difference in annual values could be due to bulk purchase of electrical appliances by local wholesalers, retailers or private companies (e.g. hotel sector) in a given year or interpretation of international harmonized system codes used to identify the type of electrical appliances by the national customs department.

Based on the import unit data for refrigerators, the share of Australian and New Zealand products fell from approximately 70% in 2007 to 30% in 2011. There is growing share of refrigerators arriving from Singapore, Fiji and other countries. Based on import value this tendency is not evident. The same applies to import units for freezers, with a greater share of appliance being sourced from China. Nevertheless, based on import units, the average share of freezers originating from New Zealand is 36%, followed by China with 33, Singapore with 7% and Australia with 6%.

---

1 Calendar Years
2 Country from which the electric appliance was imported. Different from country of manufacture. E.g. Appliance can be manufactured in Thailand but imported through Singapore.
3 See methodology and harmonized system codes section in main report.
Technical Analysis of Appliance Markets to Support Renewable Energy & Energy Efficiency Partnership (REEEP)

The Pacific Appliance Labelling and Standards (PALS) Programme

November 2012

Figure 3.1 – Number of Refrigerators and Freezers Imported per Year (units)

Figure 3.2 – Annual Percentage Breakdown of Refrigerator Imports by Country of Origin (based on import units)

Figure 3.3 – Annual Percentage Breakdown of Freezer Imports by Country of Origin (based on import units)
The overall import value of both refrigerators and freezers decreased gradually from 2007 to 2011 (Figure 3.4) as an increasing number of refrigerators were sourced from countries other than Australia and New Zealand.

Figure 3.4 – Import Value (T$) per Year for Freezers and Refrigerators

As shown by Figure 3.5 and Figure 3.6, 30% to 40% of refrigerators and 50% to 60% of freezers were imported from Australia and New Zealand (largest share) from 2007 to 2011. This market share has remained stable during this period, particularly for New Zealand. However, there is an increasing volume of imports from China.

Figure 3.5 – Annual Percentage Breakdown of Refrigerator Imports by Country of Origin (based on import value)
3.1.2 Air Conditioners

Figure 3.7 shows that the number of imported units of air conditioners (all sizes) fluctuated slightly from 2008 to 2011 (no data available for 2007) with annual differences amounting to about 100-200 units.

Based on import unit data, there has been a gradual fall in air conditioner imports from Australia and New Zealand and respective increase from other countries such as China, Fiji and Singapore. Based on import value, this gradual decrease is not evident.
Figure 3.8 – Annual Percentage Breakdown of Air Conditioner (All Sizes) Imports by Country of Origin (based on import units)

Air conditioners (all sizes) have the highest import value of all electrical appliances imported into Tonga and covered under this report (Figure 3.9).

There has been a gradual increase in import value of air conditioners from 2007 to 2011, with growing import values originating from Thailand and other countries. The share of import value for air conditioners sourced from Australia and New Zealand followed a gradual downward trend from 2007 to 2011, although New Zealand still holds an average 38% share of total import value (Figure 3.10).
3.1.3 Domestic Dish Washing and Washing Machines

An average 2,300 household washing machines were imported per year. Comparatively, less than 100 household dish washing machines were imported into Tonga on an annual basis (Figure 3.11).

Based on import unit data, since 2008 there was a considerable decrease in household washing machines sourced from New Zealand from 69% to 6% in 2011. On the contrary, the imports from China rose to 52% in 2011. On average, the share of washing machine imports from China is 29%, New Zealand with 28% and Australia with 5% (Figure 3.12).

For dish washers, there is only import unit data for 2008 and 2009 which provides limited information on the import origin trend and indicates the dish washers were imported either from Singapore, Australia and New Zealand. The import value data is more comprehensive and covers 2007 to 2011 (Figure 3.13).
Household washing machines and dish washers import value rose significantly by more than T$400,000 from 2010 to 2011 (Figure 3.14).

From 2007 to 2011, for household washing machines, the People’s Republic of China (China) was the main country of origin, with an average 35% share, against 18% for New Zealand and 10% for Australia (Figure 3.15).

There is no clear trend in terms of country of origin for dish washer appliances, although the majority were sourced from New Zealand followed by Australia and Singapore (Figure 3.16).
Figure 3.14 – Import Value (T$) per Year for Domestic Dish Washers and Washing Machines

Figure 3.15 – Annual Percentage Breakdown of Domestic Washing Machines Imports by Country of Origin (based on import value)

Figure 3.16 – Annual Percentage Breakdown of Domestic Dish Washer Imports by Country of Origin (based on import value)
3.1.4 Electric Water Heaters

In 2008, more than 1,100 electric water heaters were imported into Tonga, however, since then the imports of water heaters decreased significantly to only 24 units in 2010 and 54 units in 2011 (Figure 3.17). The difference in annual values could be due to bulk purchase of electrical appliances by local wholesalers, retailers or private companies (e.g. hotel sector) in a given year or interpretation of international harmonized system codes used to identify the electric water heaters by the national customs department.

![Figure 3.17 – Number of Electric Water Heaters Imported per Year (units)](image)

Based on import unit data for electric water heaters, there is no clear main country of origin although majority were sourced from China and New Zealand. On average, 39% of electric water heaters originated from China, 32% from New Zealand and 12% from Australia (Figure 3.18).

![Figure 3.18 – Annual Percentage Breakdown of Electric Water Heaters by Country of Origin (based on import units)](image)

The import value of electric water heaters fell significantly from 2008 to 2010 by more than T$100,000. Based on import value, the share of imports from Australia and New Zealand is higher than when based on import unit data, yet in both the combination of Aus/NZ has a higher share.
On average, based on import value, 43% of electric water heaters were sourced from New Zealand, 27% from China and 13% from Australia.

![Import Value (T$) per Year for Electric Water Heaters](image1)

**Figure 3.19 – Import Value (T$) per Year for Electric Water Heaters**

![Annual Percentage Breakdown of Electric Water Heater Imports by Country of Origin (based on import value)](image2)

**Figure 3.20 – Annual Percentage Breakdown of Electric Water Heater Imports by Country of Origin (based on import value)**

### 3.1.5 Electric Fans

An average 2,500 electric fans were imported annually into Tonga, based on 2008 to 2011 customs data (Figure 3.21). The significant increase in electric fans import in 2009 could be related to bulk purchase or significant customer demand for electric fans in 2009. The high number of imported units is then reflected in lower number of imports of electric fans in subsequent years, comparatively to 2008 and 2009.

Based in import unit data, the electric fans were imported mainly from New Zealand, Australia and China. On average, from 2008 to 2011, 35% of units were imported from China, 30% from New Zealand and 12% from Australia (Figure 3.24).
There is no data for electric fans import value for 2007. From 2008 to 2011, the import values for electric fans fluctuated from approximately T$110,000 to T$140,000 (Figure 3.23). In 2011, 70% of electric fans were sourced from New Zealand (56%) and Australia (18%). The import value originating from China remained relatively consistent over a four-year period with 15% average share, while the import value of electric fans from Fiji peaked in 2010 with a 20% share.
3.1.6 Lighting Appliances

Figure 3.25 illustrates the limited customs data available on incandescent lamps, fluorescent lamps and other lighting\textsuperscript{4} appliances. The import value of incandescent lamps remained levelled from 2008 to 2011, while the import value of fluorescent lamps increased, potentially indicating an increase in lighting efficiency in Tonga (i.e. replacement of incandescent lighting) or simply an increase in the demand for fluorescent lamps. There is no international harmonized system code for compact fluorescent lamps (CFLs) and therefore it is not possible to determine the market penetration of these energy efficient lighting appliances against i.e. incandescent lamps. It might

\textsuperscript{4} Other lighting includes ballasts for fluorescent lamps and other lamps not classified under other harmonized codes. This code could potentially include compact fluorescent lamps although these are more likely to be covered under the harmonized system code for fluorescent lamps. See section on harmonized system codes in the main report for more details.
be advantageous, under the PALS Programme to identify a single harmonized system code for CFLs in the Pacific region for future analysis.

In addition and according to Figure 3.26, New Zealand was the main source of incandescent lamps, based on import value, with more than a 50% share from 2008 to 2011. However, an increasing number of incandescent lamps originated from other countries such as China and Fiji.

![Figure 3.25 – Import Value (T$) per Year for Incandescent Lamps, Fluorescent Lamps and Other Lamps](image)

![Figure 3.26 – Annual Percentage Breakdown of Incandescent Lamps by Country of Origin (based on import value)](image)

A similar trend can be seen in Figure 3.27 for fluorescent lamps with Fiji and US capturing a significant share in 2011. Import value data for 2012 will help determine if this change in market share is punctual or long-lasting. Figure 3.28 shows an opposite trend for other lighting appliances with a growing share from both New Zealand and Australia. Note that the lighting appliances from China are likely to have a much lower import value that those of Australia and New Zealand and therefore the share on unit basis is likely to be much higher than that represented here based on import value alone.
3.1.7 Televisions

Figure 3.29 shows that there is limited data on the number of televisions imported into Tonga on an annual basis. The main challenge, common to most Pacific Islands, is the existence of several international harmonized system codes for different types of television related appliances leading to, potentially, different interpretations by each customs officer. For example, when analysing customs data it is challenging to determine what was interpreted by the customs officer as television receivers and reception apparatus for television. This is showcased when, for a given year, there are substantial imports of television receivers and no imports of televisions.

Based on import unit data, the main countries of import of televisions are China and New Zealand, however this only based on data available for 2008 and 2009 (Figure 3.30). Based on import value alone the main country of import is New Zealand.
Figure 3.29 – Number of Televisions Imported per Year (units)

Figure 3.30 – Annual Percentage Breakdown of Television Imports by Country of Origin (based on import units)

Figure 3.31 – Import Value (T$) per Year for Televisions
As shown above, the import value of televisions is only available for 2008 and 2009. The US and New Zealand were the main source of television imports in Tonga but the limited data available does not enable a clear trend for analysis of most suitable S&L (Figure 3.31 and Figure 3.32).

![Figure 3.32 – Annual Percentage Breakdown of Television Imports by Country of Origin (based on import value)](image)

### 3.2 Market Characteristics

The data presented in this section is based on an electric appliance survey of four major retailers and wholesalers in Tonga conducted by IIEC during July 2012. The data gathered includes information on appliance brands, country of manufacture, and complements existing customs data presented in Section 3.1. Note that information of electrical appliance brands and country of manufacture is not comprehensive. The country of manufacture of certain appliances is not easily identifiable and in some cases could only be identified through the product’s user manual.

<table>
<thead>
<tr>
<th>Electrical Appliance</th>
<th>Brand</th>
<th>Countries of Manufacture</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Air Conditioners (all sizes)</strong></td>
<td>Hitachi, Simmons</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Domestic Washing Machines</strong></td>
<td>Simpson, Heller, Fisher &amp; Paykel, Simmons</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Compact Fluorescent Lamps</strong></td>
<td>GE</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Linear Fluorescent Lamps</strong></td>
<td>Philips</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Freezers</strong></td>
<td>Prema, Kelvinator</td>
<td>Almost all non-AUS/NZ labelled refrigerators/freezers are manufactured in Thailand. The Haier brand with AUS/NZ labels are also from Thailand</td>
</tr>
<tr>
<td><strong>Incandescent Lamps</strong></td>
<td>Philips, GE</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Refrigerators</strong></td>
<td>Sharp, LG, Prema, Kelvinator, Westinghouse, Akira, Mabe, Fisher &amp; Paykel, Hitachi, Simmons, Haier</td>
<td>Almost all non-AUS/NZ labelled refrigerators/freezers are manufactured in Thailand. The Haier brand with AUS/NZ labels are also from Thailand</td>
</tr>
</tbody>
</table>
The table above shows a wide range of brands but there is limited information on the country of manufacture of each appliance indicating a more comprehensive market survey is required.

### 3.3 Energy Labels

The data presented in this section is based on an electric appliance survey of four major retailers and wholesalers in Tonga conducted by IIEC during July 2012. The objective of the survey was to compile information on the proportion of energy labels for each type of electrical appliance and the respective country of origin of these labels. Table 3.2 only provides information on the electrical appliances which had affixed any type of energy label. Photographs of energy labels on electrical appliances in wholesaler and retailer shops in Tonga are shown in and Figure 3.33 and Figure 3.34.

**Table 3.2 – Proportion of Electrical Appliances with Energy Labels**

<table>
<thead>
<tr>
<th>Electrical Appliance</th>
<th>% with Energy Labels</th>
<th>Types of Energy Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Conditioners (all sizes)</td>
<td>50%</td>
<td>Air conditioners imported from Singapore all had Singaporean Energy Labels. Few numbers of air conditioners with Aus/NZ Energy Label</td>
</tr>
<tr>
<td>Freezers</td>
<td>50%</td>
<td>50% to 75% of freezers that possess energy labels have Australian/NZ Label (star ratings below 3) with the remaining share being Singaporean and European Energy Labels.</td>
</tr>
<tr>
<td>Refrigerators</td>
<td>75%</td>
<td>75% to 100% of refrigerators that possess energy labels have Australian/NZ Label (star ratings below 3) with the remaining share being Singaporean and European Energy Labels.</td>
</tr>
<tr>
<td>Televisions</td>
<td>0% - 25%</td>
<td>A small number of televisions had US Energy Star although not clearly identifiable. None had Aus/NZ Energy Labels</td>
</tr>
</tbody>
</table>

*Figure 3.33 – Electrical Appliance Shop in Tonga selling Refrigerators and Freezers with Singaporean Energy Label (left) and European Energy Label (right)*
Based on the information shown above, majority of refrigerators and freezers have Aus/NZ energy labels, while only a few air conditioners and televisions had Aus/NZ energy labels.

3.4 Information Gaps

This section summarizes the identified information gaps on electrical appliances in Tonga. The data presented in this report is based on one on-site survey of major wholesalers and retailers shops as well as available customs data in Tonga. This report does not cover electrical appliances imported privately.

As highlighted in Section 3.1, the main information gaps in the customs data provided are related to televisions and lighting appliances. There is a clear need for improvement in customs data compilation to differentiate between linear and compact fluorescent lamps to better evaluate the impact and market penetration of CFLs in the country. In addition, each customs department in the Pacific has a different interpretation of the international harmonized systems codes (>20 codes) for television appliances. Therefore it is challenging to analyse the television import statistics under one single harmonized code.
4 CONCLUSION

Based on analysis of the electrical appliances customs data for the period of 2007 to 2011 and the wholesaler and retailer shops survey conducted in July 2012, majority of electrical appliances imported into Tonga, particularly high energy consuming appliances such as refrigerators, freezers, air conditioners and freezers are sourced from New Zealand. However, there are an increasing number of electrical appliances, such as washing machines and freezers, being imported from China.

Therefore the development of a S&L programme for Tonga needs to take into account market demand and supply trends, as well as a range of other factors bearing on the design and effectiveness of S&L programmes. Furthermore, it should allow for the energy efficient appliances to enter the market at an affordable price, irrespective of origin or manufacture.

Finally, in order to further improve customs data compilation and analysis of market penetration of CFLs, in Tonga and the Pacific Region, a single harmonized system code for CFLs in the Pacific region should be discussed and established to enable a clear evaluation of the market uptake of CFLs in the future.
## Annex – Country Data Sheets

### Table 5.1 – Physical Units Imported per Year

<table>
<thead>
<tr>
<th>Electrical Appliance</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Linear) Fluorescent Lighting</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Air Conditioners (all sizes)</td>
<td>-</td>
<td>295</td>
<td>289</td>
<td>495</td>
<td>365</td>
</tr>
<tr>
<td>Domestic Dish Washers</td>
<td>-</td>
<td>183</td>
<td>74</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Domestic Washing Machines</td>
<td>1,902</td>
<td>2,333</td>
<td>1,786</td>
<td>1,870</td>
<td>3,538</td>
</tr>
<tr>
<td>Electric Water Heaters</td>
<td>621</td>
<td>1,119</td>
<td>208</td>
<td>24</td>
<td>54</td>
</tr>
<tr>
<td>Electric Fans</td>
<td>-</td>
<td>2,306</td>
<td>4,579</td>
<td>1,357</td>
<td>1,755</td>
</tr>
<tr>
<td>Freezers</td>
<td>1,053</td>
<td>745</td>
<td>1,091</td>
<td>833</td>
<td>1,060</td>
</tr>
<tr>
<td>Incandescent Lighting</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other Lighting</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Refrigerators</td>
<td>-</td>
<td>777</td>
<td>1,092</td>
<td>824</td>
<td>1,026</td>
</tr>
<tr>
<td>Televisions</td>
<td>-</td>
<td>157</td>
<td>551</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note – Large difference between annual values might indicate bulk purchase of appliances by wholesalers, retailers or private companies, assuming no change in customs department interpretation of harmonized system codes. The (-) sign indicated information was not available.
<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>2008</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Australia</td>
<td>New Zealand</td>
<td>China</td>
<td>Singapore</td>
<td>US</td>
<td>Thailand</td>
<td>Fiji</td>
<td>Others</td>
<td>Australia</td>
<td>New Zealand</td>
</tr>
<tr>
<td>Electric Fans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13%</td>
<td>16%</td>
<td>61%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>Air Conditioners</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9%</td>
<td>24%</td>
<td>34%</td>
<td>0%</td>
<td>10%</td>
</tr>
<tr>
<td>Refrigerators</td>
<td>6%</td>
<td>72%</td>
<td>6%</td>
<td>0%</td>
<td>17%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>7%</td>
<td>35%</td>
</tr>
<tr>
<td>Freezers</td>
<td>4%</td>
<td>52%</td>
<td>11%</td>
<td>10%</td>
<td>3%</td>
<td>0%</td>
<td>0%</td>
<td>9%</td>
<td>1%</td>
<td>3%</td>
</tr>
<tr>
<td>Domestic Dish Washing Machines</td>
<td>4%</td>
<td>32%</td>
<td>18%</td>
<td>33%</td>
<td>4%</td>
<td>6%</td>
<td>1%</td>
<td>1%</td>
<td>5%</td>
<td>17%</td>
</tr>
<tr>
<td>Domestic Washing Machines</td>
<td>4%</td>
<td>32%</td>
<td>18%</td>
<td>33%</td>
<td>4%</td>
<td>6%</td>
<td>1%</td>
<td>1%</td>
<td>5%</td>
<td>17%</td>
</tr>
<tr>
<td>Electric Water Heaters</td>
<td>2%</td>
<td>49%</td>
<td>28%</td>
<td>0%</td>
<td>0%</td>
<td>19%</td>
<td>0%</td>
<td>0%</td>
<td>23%</td>
<td>3%</td>
</tr>
<tr>
<td>Televisions (Linear)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>18%</td>
<td>50%</td>
<td>0%</td>
<td>0%</td>
<td>25%</td>
</tr>
<tr>
<td>Fluorescent Lamps</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Lighting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incandescent Lamps</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 5.3 – Percentage Breakdown of Imports by Country of Origin (based on import units) for 2009 and 2010

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Australia</td>
<td>New Zealand</td>
</tr>
<tr>
<td>Electric Fans</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Air Conditioners</td>
<td>12%</td>
<td>17%</td>
</tr>
<tr>
<td>Refrigerators</td>
<td>10%</td>
<td>23%</td>
</tr>
<tr>
<td>Freezers</td>
<td>10%</td>
<td>30%</td>
</tr>
<tr>
<td>Domestic Dish Washing Machines</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Domestic Washing Machines</td>
<td>9%</td>
<td>69%</td>
</tr>
<tr>
<td>Electric Water Heaters</td>
<td>0%</td>
<td>86%</td>
</tr>
<tr>
<td>Televisions</td>
<td>5%</td>
<td>27%</td>
</tr>
<tr>
<td>(Linear) Fluorescent Lamps</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other Lighting</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Incandescent Lamps</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Table 5.4 – Percentage Breakdown of Imports by Country of Origin (based on import value) for 2011

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Australia</th>
<th>New Zealand</th>
<th>China</th>
<th>Singapore</th>
<th>US</th>
<th>Thailand</th>
<th>Fiji</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Fans</td>
<td>8%</td>
<td>45%</td>
<td>21%</td>
<td>7%</td>
<td>4%</td>
<td>0%</td>
<td>11%</td>
<td>4%</td>
</tr>
<tr>
<td>Air Conditioners</td>
<td>2%</td>
<td>22%</td>
<td>27%</td>
<td>10%</td>
<td>2%</td>
<td>7%</td>
<td>14%</td>
<td>17%</td>
</tr>
<tr>
<td>Refrigerators</td>
<td>7%</td>
<td>25%</td>
<td>5%</td>
<td>17%</td>
<td>3%</td>
<td>4%</td>
<td>7%</td>
<td>34%</td>
</tr>
<tr>
<td>Freezers</td>
<td>6%</td>
<td>22%</td>
<td>18%</td>
<td>5%</td>
<td>1%</td>
<td>0%</td>
<td>3%</td>
<td>46%</td>
</tr>
<tr>
<td>Domestic Dish Washing Machines</td>
<td>40%</td>
<td>60%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Domestic Washing Machines</td>
<td>4%</td>
<td>6%</td>
<td>52%</td>
<td>2%</td>
<td>1%</td>
<td>1%</td>
<td>2%</td>
<td>33%</td>
</tr>
<tr>
<td>Electric Water Heaters</td>
<td>33%</td>
<td>7%</td>
<td>44%</td>
<td>0%</td>
<td>7%</td>
<td>0%</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>Televisions</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(Linear) Fluorescent Lamps</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other Lighting</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Incandescent Lamps</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

The (-) sign indicated information was not available
### Table 5.5 – Import Value (T$) Per Year

<table>
<thead>
<tr>
<th>Electrical Appliance</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(Linear) Fluorescent Lighting</em></td>
<td>-</td>
<td>135,217</td>
<td>154,861</td>
<td>215,967</td>
<td>6,712</td>
</tr>
<tr>
<td><em>Air Conditioners (all sizes)</em></td>
<td>395,955</td>
<td>553,814</td>
<td>275,233</td>
<td>523,154</td>
<td>723,853</td>
</tr>
<tr>
<td><em>Domestic Dish Washers</em></td>
<td>4,739</td>
<td>7,957</td>
<td>19,260</td>
<td>5,400</td>
<td>131,307</td>
</tr>
<tr>
<td><em>Domestic Washing Machines</em></td>
<td>603,672</td>
<td>532,159</td>
<td>479,155</td>
<td>484,279</td>
<td>974,154</td>
</tr>
<tr>
<td><em>Electric Water Heaters</em></td>
<td>72,614</td>
<td>112,032</td>
<td>45,232</td>
<td>4,153</td>
<td>35,176</td>
</tr>
<tr>
<td><em>Electric Fans</em></td>
<td>-</td>
<td>101,740</td>
<td>144,179</td>
<td>111,232</td>
<td>141,953</td>
</tr>
<tr>
<td><em>Freezers</em></td>
<td>664,655</td>
<td>415,085</td>
<td>452,028</td>
<td>431,744</td>
<td>600,987</td>
</tr>
<tr>
<td><em>Incandescent Lighting</em></td>
<td>-</td>
<td>69,068</td>
<td>9,793</td>
<td>27,382</td>
<td>84,843</td>
</tr>
<tr>
<td><em>Other Lighting</em></td>
<td>227,825</td>
<td>219,482</td>
<td>200,228</td>
<td>109,282</td>
<td>681,804</td>
</tr>
<tr>
<td><em>Refrigerators</em></td>
<td>449,282</td>
<td>552,856</td>
<td>453,235</td>
<td>510,434</td>
<td>214,410</td>
</tr>
<tr>
<td><em>Televisions</em></td>
<td>-</td>
<td>74,712</td>
<td>101,747</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

*Note: Large difference between annual values might indicate bulk purchase of appliances by wholesalers, retailers or private companies, assuming no change in customs department interpretation of harmonized system codes. The (-) sign indicated information was not available.*

*November 2012*
### Table 5.6 – Percentage Breakdown of Imports by Country of Origin (based on import value) for 2007 and 2008

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th></th>
<th>2008</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Australia</td>
<td>New Zealand</td>
<td>China</td>
<td>Singapore</td>
</tr>
<tr>
<td>Electric Fans</td>
<td></td>
<td>35%</td>
<td>26%</td>
<td>11%</td>
</tr>
<tr>
<td>Air Conditioners</td>
<td>3%</td>
<td>38%</td>
<td>12%</td>
<td>18%</td>
</tr>
<tr>
<td>Refrigerators</td>
<td>16%</td>
<td>22%</td>
<td>27%</td>
<td>22%</td>
</tr>
<tr>
<td>Freezers</td>
<td>5%</td>
<td>57%</td>
<td>14%</td>
<td>7%</td>
</tr>
<tr>
<td>Domestic Dish</td>
<td>34%</td>
<td>3%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Washing Machines</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domestic</td>
<td>6%</td>
<td>26%</td>
<td>25%</td>
<td>26%</td>
</tr>
<tr>
<td>Washing Machines</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electric</td>
<td>23%</td>
<td>57%</td>
<td>16%</td>
<td>0%</td>
</tr>
<tr>
<td>Water Heaters</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Televisions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Linear)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluorescent</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Lamps</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>3%</td>
<td>43%</td>
<td>38%</td>
<td>1%</td>
</tr>
<tr>
<td>Lighting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incandescent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lamps</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Table 5.7 – Percentage Breakdown of Imports by Country of Origin (based on import value) for 2009 and 2010

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Electric Fans</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>15%</td>
<td>9%</td>
</tr>
<tr>
<td>New Zealand</td>
<td>29%</td>
<td>48%</td>
</tr>
<tr>
<td>China</td>
<td>22%</td>
<td>13%</td>
</tr>
<tr>
<td>Singapore</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>US</td>
<td>1%</td>
<td>4%</td>
</tr>
<tr>
<td>Thailand</td>
<td>7%</td>
<td>0%</td>
</tr>
<tr>
<td>Fiji</td>
<td>3%</td>
<td>0%</td>
</tr>
<tr>
<td>Others</td>
<td>22%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Air Conditioners</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>New Zealand</td>
<td>59%</td>
<td>0%</td>
</tr>
<tr>
<td>China</td>
<td>26%</td>
<td>33%</td>
</tr>
<tr>
<td>Singapore</td>
<td>7%</td>
<td>9%</td>
</tr>
<tr>
<td>US</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>Thailand</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Fiji</td>
<td>3%</td>
<td>0%</td>
</tr>
<tr>
<td>Others</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Refrigerators</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>10%</td>
<td>8%</td>
</tr>
<tr>
<td>New Zealand</td>
<td>34%</td>
<td>39%</td>
</tr>
<tr>
<td>China</td>
<td>11%</td>
<td>7%</td>
</tr>
<tr>
<td>Singapore</td>
<td>10%</td>
<td>8%</td>
</tr>
<tr>
<td>US</td>
<td>8%</td>
<td>3%</td>
</tr>
<tr>
<td>Thailand</td>
<td>0%</td>
<td>5%</td>
</tr>
<tr>
<td>Fiji</td>
<td>26%</td>
<td>22%</td>
</tr>
<tr>
<td>Others</td>
<td>9%</td>
<td>7%</td>
</tr>
<tr>
<td><strong>Freezers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>9%</td>
<td>21%</td>
</tr>
<tr>
<td>New Zealand</td>
<td>46%</td>
<td>0%</td>
</tr>
<tr>
<td>China</td>
<td>12%</td>
<td>16%</td>
</tr>
<tr>
<td>Singapore</td>
<td>10%</td>
<td>0%</td>
</tr>
<tr>
<td>US</td>
<td>10%</td>
<td>0%</td>
</tr>
<tr>
<td>Thailand</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Fiji</td>
<td>2%</td>
<td>0%</td>
</tr>
<tr>
<td>Others</td>
<td>11%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Domestic Dish Washing Machines</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>New Zealand</td>
<td>31%</td>
<td>31%</td>
</tr>
<tr>
<td>China</td>
<td>4%</td>
<td>0%</td>
</tr>
<tr>
<td>Singapore</td>
<td>56%</td>
<td>0%</td>
</tr>
<tr>
<td>US</td>
<td>4%</td>
<td>0%</td>
</tr>
<tr>
<td>Thailand</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Fiji</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Others</td>
<td>5%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Domestic Washing Machines</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>New Zealand</td>
<td>14%</td>
<td>18%</td>
</tr>
<tr>
<td>China</td>
<td>42%</td>
<td>43%</td>
</tr>
<tr>
<td>Singapore</td>
<td>14%</td>
<td>3%</td>
</tr>
<tr>
<td>US</td>
<td>7%</td>
<td>2%</td>
</tr>
<tr>
<td>Thailand</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Fiji</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Others</td>
<td>14%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Electric Water Heaters</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>2%</td>
<td>9%</td>
</tr>
<tr>
<td>New Zealand</td>
<td>12%</td>
<td>18%</td>
</tr>
<tr>
<td>China</td>
<td>79%</td>
<td>65%</td>
</tr>
<tr>
<td>Singapore</td>
<td>0%</td>
<td>33%</td>
</tr>
<tr>
<td>US</td>
<td>2%</td>
<td>0%</td>
</tr>
<tr>
<td>Thailand</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Fiji</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Others</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Televisions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Linear) Fluorescent Lamps</td>
<td>18%</td>
<td>0%</td>
</tr>
<tr>
<td>Australia</td>
<td>9%</td>
<td>0%</td>
</tr>
<tr>
<td>New Zealand</td>
<td>52%</td>
<td>65%</td>
</tr>
<tr>
<td>China</td>
<td>0%</td>
<td>3%</td>
</tr>
<tr>
<td>Singapore</td>
<td>20%</td>
<td>0%</td>
</tr>
<tr>
<td>US</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Thailand</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Fiji</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>Others</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Other Lighting</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Linear) Fluorescent Lamps</td>
<td>9%</td>
<td>0%</td>
</tr>
<tr>
<td>Australia</td>
<td>64%</td>
<td>84%</td>
</tr>
<tr>
<td>New Zealand</td>
<td>6%</td>
<td>0%</td>
</tr>
<tr>
<td>China</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Singapore</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>US</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Thailand</td>
<td>21%</td>
<td>0%</td>
</tr>
<tr>
<td>Fiji</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Others</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Incandescent Lamps</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>8%</td>
<td>6%</td>
</tr>
<tr>
<td>New Zealand</td>
<td>82%</td>
<td>77%</td>
</tr>
<tr>
<td>China</td>
<td>8%</td>
<td>3%</td>
</tr>
<tr>
<td>Singapore</td>
<td>0%</td>
<td>2%</td>
</tr>
<tr>
<td>US</td>
<td>0%</td>
<td>5%</td>
</tr>
<tr>
<td>Thailand</td>
<td>0%</td>
<td>5%</td>
</tr>
<tr>
<td>Fiji</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Others</td>
<td>0%</td>
<td>2%</td>
</tr>
</tbody>
</table>
### Table 5.8 – Percentage Breakdown of Imports by Country of Origin (based on import value) for 2011

<table>
<thead>
<tr>
<th></th>
<th>Australia</th>
<th>New Zealand</th>
<th>China</th>
<th>Singapore</th>
<th>US</th>
<th>Thailand</th>
<th>Fiji</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Electric Fans</strong></td>
<td>12%</td>
<td>56%</td>
<td>10%</td>
<td>3%</td>
<td>9%</td>
<td>0%</td>
<td>6%</td>
<td>3%</td>
</tr>
<tr>
<td><strong>Air Conditioners</strong></td>
<td>1%</td>
<td>27%</td>
<td>3%</td>
<td>2%</td>
<td>0%</td>
<td>45%</td>
<td>5%</td>
<td>17%</td>
</tr>
<tr>
<td><strong>Refrigerators</strong></td>
<td>6%</td>
<td>20%</td>
<td>24%</td>
<td>13%</td>
<td>5%</td>
<td>3%</td>
<td>5%</td>
<td>23%</td>
</tr>
<tr>
<td><strong>Freezers</strong></td>
<td>9%</td>
<td>46%</td>
<td>11%</td>
<td>5%</td>
<td>2%</td>
<td>0%</td>
<td>3%</td>
<td>25%</td>
</tr>
<tr>
<td><strong>Domestic Dish Washing Machines</strong></td>
<td>38%</td>
<td>62%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Domestic Washing Machines</strong></td>
<td>12%</td>
<td>9%</td>
<td>44%</td>
<td>2%</td>
<td>1%</td>
<td>1%</td>
<td>3%</td>
<td>28%</td>
</tr>
<tr>
<td><strong>Electric Water Heaters</strong></td>
<td>33%</td>
<td>11%</td>
<td>3%</td>
<td>0%</td>
<td>6%</td>
<td>0%</td>
<td>7%</td>
<td>39%</td>
</tr>
<tr>
<td><strong>Televisions</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>(Linear) Fluorescent Lamps</strong></td>
<td>0%</td>
<td>10%</td>
<td>11%</td>
<td>0%</td>
<td>37%</td>
<td>0%</td>
<td>41%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Other Lighting</strong></td>
<td>72%</td>
<td>10%</td>
<td>17%</td>
<td>0%</td>
<td>2%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Incandescent Lamps</strong></td>
<td>8%</td>
<td>52%</td>
<td>13%</td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
<td>12%</td>
<td>13%</td>
</tr>
</tbody>
</table>

The (-) sign indicated information was not available.
6 REFERENCES


Tonga Department of Statistics, 2012