



Office of the Council for the Ongoing Government of Tokelau
Tokelau National Statistics Office

Analysis of 2014 imports into Tokelau from Samoa

Part 2:

Stores' invoices reconciled with cargo manifests,
and quality of life implications

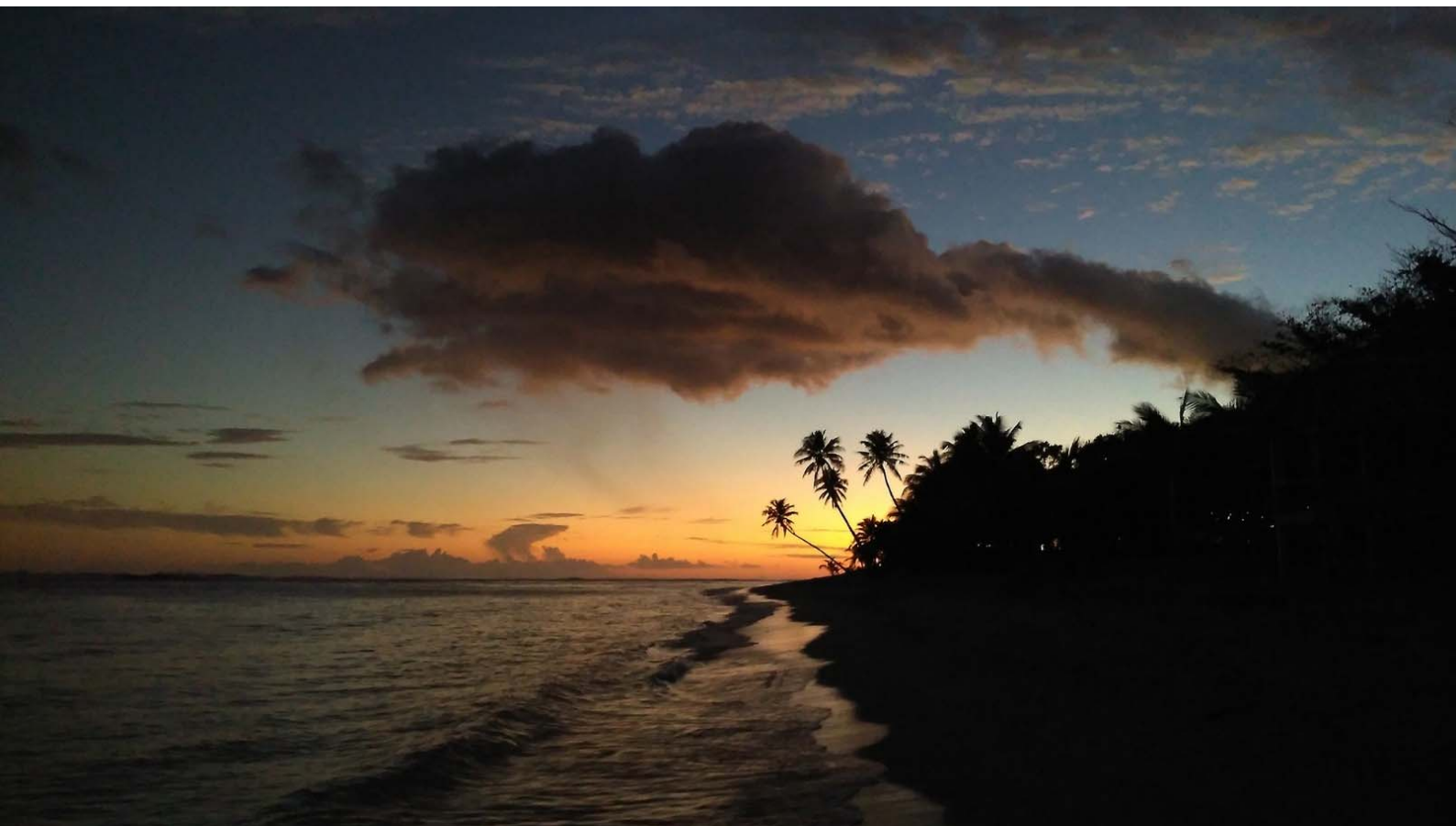


Table of Contents

Kotokotoga.....	3
Abstract.....	4
Acknowledgements.....	4
INTRODUCTION.....	5
METHODS.....	6
Cargo manifests	6
Harmonised System	6
Revising and refining the calculations of original stores import data	6
Correction and expansion of calculations of weights and volumes	8
RESULTS	9
Summary of analysis using Harmonised System.....	9
Cigarette smoking	9
Alcoholic drinks	10
Solid waste	11
Presentation of results per capita.....	12
Cigarette smoking	12
Alcoholic drinks	13
Comparison with New Zealand and international recommendations.....	13
Food and non-alcoholic drinks.....	14
Intake of sugar	15
DISCUSSION.....	17
Environmental impacts	18
Comparison to historic records.....	18
CONCLUSION.....	20
REFERENCES	21
Acronyms used and their meaning:	25
Some Tokelauan terms	25
APPENDICES	26
Appendix E: Tokelau aggregate data	31
Confidential: Data on 2014 imports by individual atolls: Atafu.....	36
Confidential: Data on 2014 imports by individual atolls: Nukunonu.....	40
Confidential: Data on 2014 imports by individual atolls: Fakaofu.....	44

Kotokotoga

Vakilikiliga o na koloa ki Tokelau 2014 Vaega 2: Ko na inivoihi a na koloa e fakatuhatuha ma na menifehi uta, ma o latou afiaga ki te olaga o tagata. Ofiha mo Fakamaumauga a Tokelau 2016.

<http://www.tokelau.org.nz/Bulletin/September+2016/2014+imports+final.html>

Ko te pepa nei e maua ai na Fakamatalaga hako, ni mau tuku hako pe ni a ta Tokelau na fakatau mai i fafo i te 2014, e patino ki na meakai (maihe te huka), meainu e aunoa ma te alakaholo, mea inu e iei te alakaholo, hikaleti vena ma na otaota makeketu.

Ko te pepa nei e mafai ke fatu ai ni polihi e mafai ke fakaleleia atili ai te olaga i Tokelau, ona kua iei na fakafitauli lahi ona ko na famai he pipihi.

I te tulaga o te malohiaga, ko ki tatou, ko a tatou mea e kai, inu, ulaula ma na fakamalohiga tino. Ko te pepa tenei e maua katoa ai te tulaga o te fakaaogaga o na mea e takua i luga o te tagata tau tokatahi i Tokelau. Ko ienei mau na fatu i ni vakilikiliga fakaeteete eo na inivoihi o na falekoloa mo te tauhaga katoa, 2014, ma fakamaonia e na menifehi vaka.

Ko te tala kua maua, e he lelei. Ko te 50%o tagata o Tokelau e ulaula e tuha e 20 ia hikaleti i te aho (ko na fautuaga a te ola malolo, e tatau ke helo). Ko te inu alakaholo o na tino e 15 agai ki luga e maua te 26.5 o inumaga mahani i te vaiaho (ko te fautuaga a te ola malolo e he tatau ke ova i te 10 inumaga mahani a te fafine kae e he hilia i te 15 mo tane)

Ko te huka e fakaaoga, i te huka mama ma te huka i loto na meakai, e maua te 940 o te tino matua i te vaiaho, e tuha e 236 ia hipuni ti (ko fautuaga a te (WHO) e tatau lava ke 84 ki te lahi e 168 ia hipuni ti i te vaiaho mo tagata matutua kae 42 ki te 84 ia hipuni ti mo tamaiti).

Ko na meakai ma na meainu lalahi e kaumai e kitea ai te he lelei o na mea e kai , ona e gaohi i ni ala kehekehe, kae e he ko ni mea katoatoa, ma kua takua ko ni meakai “kino” ona e he aoga mo te ola: e maualuga te gako, mahoia ma te mahima, kae maualalo i te vaitamini ma na gauga veti ma na fualakau.

Ko te malohi o te inu alakaholo e iei foki te hao ki te malohiaga e fakaaoga. Ko na koloa kaumai e tutupu ai na fakafitauli ki te hikomaga e ve ko na otaota makeketu e talanoagia i te pepa tenei.

Ko te fakamoemoe ko te fakamaumauga tenei e maua ai ni mafauauga lelei, te fakavae mo ni polihi mo te ola malolo ma te hikomaga ma kavea ma fakavae e mafai ke ahehi ai te tini o na polihi e fatu. E fakatu atu ke toe tatua he vakilikiliga venei i te lumanaki ke onoono haele ai te agai ki mua.

Abstract

Analysis of 2014 imports into Tokelau from Samoa Part 2: Stores' invoices reconciled with cargo manifests, and quality of life implications. Tokelau National Statistics Office 2016.

<http://www.tokelau.org.nz/Bulletin/September+2016/2014+imports+final.html>

This paper provides accurate, objective data on what Tokelauans imported in 2014 focusing on food (especially sugar), non-alcoholic and alcoholic drinks, cigarettes, as well as solid waste. This can form the basis for health – and environment – policies that will improve the quality of life in Tokelau, where non-communicable diseases are already a big problem.

In terms of energy, we are but what we eat, drink, smoke and exercise. The present study gives overall and per capita consumption patterns in Tokelau. This is based on carefully analysed invoices to the stores on the atolls from the entire year 2014 verified against all 2014 shipping manifests.

The news is not good. About 50 percent of Tokelauans smoke, on average almost a 20-pack per day (health recommendation: nil). Alcohol intake of all 15+ aged Tokelauans who drink alcohol averages probably to 26.5 standard drinks per week (health recommendation: no more than 10 per week for women, 15 for men). Sugar intake, both in pure form and hidden in other foods, is on average per adult equivalent 940 grammes per week, that's 236 teaspoons (WHO recommendation: ideally 84 to a maximum of 168 teaspoons per week for adults, and 42 to 84 teaspoons for children).

The top food and drink items that are imported reflect a rather unhealthy diet of highly processed refined (rather than whole) foods that are now considered “bad” in nutritional terms: high in fat, sugar, starch and salt; and very low in vitamins and dietary fibre. High alcohol consumption further contributes to excess energy intake. Imported items also create environmental issues such as solid waste, that are addressed in this document.

The hope is that this information will provide food for thought, the basis of healthy and environmentally sound policies, and a baseline against which the success of such policies can be measured in future. Repeating this analysis in few years to monitor progress is recommended.

Acknowledgements

Many people have shown an interest in this topic and they are thanked for their contribution to the discussion. In particular, I thank Tokelau National Statistician Kele Lui, General Manager Public Service (National) Joe Suveinakama, Dr Silivia and Mr Alapati Tavite (Department of Health), Professor Elaine Rush (Auckland University of Technology), Dr Sunia Foliaki (Massey University), and Dr Alessandro Romeo (Food and Agriculture Organisation). The support of the Council for the Ongoing Government of Tokelau, and the Taupulega of the three nuku, is gratefully acknowledged – as is Mr Keli Kalolo for translations into Tokelau language.

Cover photo: We may choose not to see it, but there's an ominously obese genie hanging over our beautiful tropical Pacific paradise (sunset at Faofao, Upolu, Samoa, August 2016, JJ)

INTRODUCTION

This document continues the analysis of the goods that Tokelauans have imported from Samoa in the year 2014. It focuses on what has been bought through the cooperative stores, especially in terms of foods, non-alcoholic and alcoholic drinks, cigarettes, and fuel; plus the environmental aspect thereof. The study covers 55 shipments in 2014 from Apia in Samoa, the nearest port, by the vessels *PV Matua*, *Lady Naomi*, *Samoa Express*, and *Southern Phoenix*. The Samoan freighter *Fasefulu* and the purpose-built Tokelau ferry *Mataliki* were not yet in operation then.

The first part of the study looked exclusively at the (rather precise) invoices of store supplies, and used Tokelau's specific Classification of Individual Consumption According to Purpose (COICOP) for analysis. Refer to this first part of the study also for an overview of the Tokelau context please.¹

This second part aims to reconcile those data with the shipping manifests that accompany each boat trip. Following international practice, these manifests have been analysed using the "Harmonised System (HS)" (NZHSC version 12.06). While manifests are not as detailed when it comes to individual items, they are comprehensive for each shipment in terms of total weight and volume, and include goods imported by the villagers themselves. Alcohol and tobacco are specifically listed on the manifests, for taxation purposes.

Analysing the shipping manifests has highlighted some errors in the earlier study (some duplicates, omissions and inaccuracies) that have now been corrected. By including private imports, the manifests have proved invaluable in reconciling the smoking and alcoholic drink data in particular, which are of major interest in terms of public health policies. Such policies have in fact been proposed to take effect on 2017, and the present study has already contributed to providing helpful statistics in terms of baseline and techniques for further monitoring.

Per capita consumption is calculated on the basis of the December 2013 head count total population (1383) and working age population (873). In addition, calculations on the sugar intake by Tokelauans are given on the basis of adult-equivalent population (1215), in further support of health policies.

The first part of the 2014 imports study was published on the Tokelau website after approval from the Council of the Ongoing Government (OCOG) of Tokelau. A plain-English version² was presented to the Council in April 2016, which resulted in a request to make data available for individual atolls. These data have been made available to the Taupulega (village councils), during a consultation round to the three nuku (villages) in August 2016. The present report includes the revised aggregate calculations for Tokelau as a country only.

¹ Analysing 2014 imports from Samoa by Tokelau's co-operative and bulk stores, by Jaap ('iapi') Jasperse, September 2015. <http://www.tokelau.org.nz/Bulletin/November+2015/Tokelau+imports+from+Samoa.html>

² How much do Tokelauans consume – and throw away – in one year? A study of 2014 imports by the Tokelau National Statistics Office, 2015/16, summary version 2, August 2016. (pdf, 8 pages, 1.2MB) <http://www.tokelau.org.nz/site/tokelau/files/TokelauNSO/WhatTokelauansConsumedIn2014-15jul16.pdf>

METHODS

Cargo manifests

Parallel to the co-op and bulk store invoices analysed in Part 1, the Savalalo office of the Tokelau Apia Liaison Office (TALO) prepares Cargo Manifests for use by Tokelau and Samoa Customs officers. A sample is shown in Appendix A.

Copies of all available Excel spreadsheets used to prepare the Manifests for sign-off were received for 2014. Some additional manifests were obtained as hardcopy, thus covering all 2014 shipments. The detail in manifests is less than in the stores invoices, e.g. many small store stock items are lumped as “assorted goods”. In addition, the manifests list personal goods (unspecified) plus parallel imports of alcohol by individuals. The documents are comprehensive in terms of listing estimated volumes and weights of items. No monetary value is attached to them, however.

Similar to the shop data analysed in Part 1, a unit record file was prepared listing carrier, dates, products and destinations with the associated weights and volumes. Adding data from hardcopy and carefully removing duplicates, resulted in 1979 unit records with HS codes for the 2014 calendar year (cf. 4805 unit records for the updated stores’ invoices analysis using COICOP). Pivot tables were prepared for totalling these variables of individual items, and for verification against shipment totals listed on the documents.

Destinations of these shipments comprised the atoll stores, Taupulega, government departments and also 162 individuals. To protect the privacy of the latter, their names were anonymised while retaining the atoll identifier, as in AA15, NN12, FF07. Subsequent versions of the calculation spreadsheet use these codes only, with the code list (key) kept in a secure cabinet and pass-word protected files (as per the Tokelau Statistics Rules 2013, clause 11).

Harmonised System

In International Merchandise Trade Statistics, it is the Harmonised System classification that is used for categorising trans-border transport. The coding was applied to the extent possible, using the on-line classification code finder NZHSC version 12.06, on the StatisticsNZ website:

http://www.stats.govt.nz/tools_and_services/ClassificationCodeFinder.aspx

For example, for “Coconut cream” this delivers the HS code 2106909909. To aid interpretation, I have used full stops and an underscore 21.06.90_9909. The corresponding COICOP code is 01.14.032_01. No “easy” way to convert HS into COICOP or vice-versa was found, and the HS results will be discussed only in a generic way. Data can be made available for further analysis.

Classification in Broad Economic Categories (BEC) was not attempted at this stage, see

<http://unstats.un.org/UNSD/cr/registry/regcst.asp?Cl=10&Lg=1>.

This study was initially an exercise in International Merchandise Trade Statistics (IMTS) for Tokelau. As time progressed, the emphasis has shifted to healthy and environmental aspects of the imports, mostly in order to assist the government with policy development. Of particular interest was to get accurate import data for food, non-alcoholic and alcoholic drinks, cigarettes and sugar intake. Both COICOP and HS codes have proved invaluable for organising, sorting and cross-tabulating the results by atoll.

Revising and refining the calculations of original stores import data

Comparison with the 2014 Stores Import data derived from invoices showed that the initial analysis was incomplete: no invoices had been received for 10 shipments that had a manifest (3 of which had

no relevant consumer imports however: personal effects only). Conversely, there were 7 sets of invoices for which no manifest was available (see page 9); and 1 proved to be a duplicate so this was removed again, as were part-duplicate entries for another shipment.

It was possible to retrieve most relevant details from the manifest for some food, cigarettes, alcoholic drinks and fuel, to complement the earlier data. Only the PM *Matua* shipment 071 (12 February 2015) did not detail “Assorted foodstuffs” which were however for General Fono purposes (Atafu 90 cartons, Nukunonu 31 cartons), so these would have bypassed the stores anyway.

In addition to the coop-store purchases, the manifests record parallel imports for spirits by individuals as referred to above. These (anonymised) data were added to the earlier lists of imports, to allow comprehensive analysis of alcohol consumption. The manifests specify the volumes of spirits bottles, which allowed some earlier data to be revised.

For some spirits, the manifests record different volumes (notably Potters whisky bottles: 1 litre, 1.075 or 1.5 or 1.75 litres). These volumes are all entered as if each bottle was 1 litre, although this could imply some underreporting of individually imported spirits (total taken to be 4,782 litres).

COICOP codes were added to all new items, and the earlier analysis of part I redone. Updates of volumes and weights of foodstuffs, cigarettes and alcoholic drinks are given as Tokelau aggregates in Appendix E.

Cost of the additional items were imputed from existing priced items of exactly the same volume.

In the process of analysing Beer, Cigarettes and Fuels, further pivot tables were provided using either (“Label contains”) product name or COICOP. This showed up a number of errors in the original coding: these were fixed, and the total quantities updated accordingly. The resulting figures for 2014 imports now have a very high degree of accuracy for food, drinks, smokes and solid waste.

Correction and expansion of calculations of weights and volumes

Part 1 of the study provided a “top 40” of foods and non-alcoholic drinks; this list has been corrected and expanded. The cut-off point for inclusion was whether a product exceeded either one tonne (1000 kg) or one cubic metre (1000 litres) - or roughly 1 kilo or 1 litre per capita per annum. While the direct conversion from kilos to litres and vice versa holds strictly speaking only for water, the approximation for other goods is considered within the level of reliability for the overall data set.

The ranking of foodstuffs in Part 2 has been corrected from the Part 1 version, to take into account any missed-out invoices (prices and codes imputed from manifest data) and also to realign weights and volumes. In addition, soluble drink powder weights were converted to ready-to-drink volumes.

For example, the milk consumption has been revised by multiplying by a factor 10 the amount of all forms of milkpowder in kilogrammes, to give the final volume of drinkable milk in litres. (“The weight of nonfat dry milk (NFDm) to use is about 10% of the water weight” - Wikipedia - Reconstitution https://en.wikipedia.org/wiki/Powdered_milk, accessed 14 September 2015).

For the fruit drink Tang, the raw powder weight is listed and the reconstituted volume based on the package instruction of 30 grammes per litre, turning a weight of 2.24 tonnes into a volume of 74.6 cubic metres of fruit drink³. Presumably this is prepared with tap water in Tokelau, as the result is almost three times the volume of bottled water imported. (Tap water is collected on roofs; a desalination plant is available on each atoll, but used only in emergencies / drought.)

The popular Raro drink has a recommendation of 80 grammes per litre on the packet which has been used for further volume calculations.

For the chocolate drink made from Milo powder, the package recommendation is 30 grammes per serving (240 ml) or 125 g/l, thus turning a weight of 3.37 tonnes into a volume of 27.0 cubic metres of water-based Milo drink. Using 1 teabag for a 240 ml serving provides for 26.0 cubic metres from 108,480 teabags. For neither of these drinks the possible addition of milk is considered.

These conversions are all reflected in the updated top 40 foods and top 10 drinks tables (Appendix E). In addition, for the miscellaneous goods such as Downy the conversion from oz to kg was changed from fl.oz to litres, and Chorox corrected from kg to litres as shown in the lists.

³ Wikipedia: “The recommended usage of original powdered Tang is two tablespoons per 8 US fluid ounces of water. A single 240 ml serving of Tang provides 9 grams (0.32 oz) of sugar; [vitamins] and no caffeine.” [https://en.wikipedia.org/wiki/Tang_\(drink\)](https://en.wikipedia.org/wiki/Tang_(drink)). Other sources state much higher sugar content: “Tang contains 24 grams of sugar in an 8 oz serving.” <http://sueingarden.hubpages.com/hub/Disadvantages-of-Drinking-Tang-Orange-Drink>, <http://www.livestrong.com/article/98705-tang-nutrition-information/>; see also <https://www.caloriecount.com/calories-tang-orange-flavor-drink-mix-i14403>: 93.2 g sugar per 100 g powder Sources accessed 14 September 2015 and 14 July 2016.

RESULTS

All results presented in the tables and body of this report are aggregate Tokelau figures. To preserve the anonymity of villagers, data by atoll are provided in separate confidential documents for use by nuku only. Comparisons to the aggregate national figures have been presented to the Taupulega.

Recalculation of the original data in part I of the report brings the total sum of imports by the cooperative and bulk stores up to NZ\$5,239,472 (compared to NZ\$5,180,009 in Part 1, an extra 1.1% in costs only). The Food and non-alcoholic beverages (COICOP code 01) component of this revised figure was NZ\$2.0 million, and of Alcoholic beverages and tobacco (COICOP code 02) NZ\$1.4 million.

Summary of analysis using Harmonised System

A high-level listing of Harmonised System codes of Tokelau imports is shown in Appendix B. With detailed information lacking, 8% of item numbers could not be coded. This amounts to 15 percent of both volume and of weight of imports.

A comparison with the COICOP analysis of Part 1 shows that the stores invoices data captured 74 percent of counted items, 42 percent by volume and 57 percent by weight of the shipping manifest data. The weight and volumes of the shipping manifests include large single items such as trucks, water reservoirs and an empty shipping container, which implies a near comprehensive coverage of foodstuffs in Part 1 of the analysis from stores' invoices.

Cigarette smoking

The updated records show a clearer difference between atolls, unlike in the initial report. This is partly because the original spreadsheet had some cell reference errors; and partly because a large cigarette shipment from one manifest had not shown up in the shop invoices. (A shipment by *Lady Naomi* V995 of 2 July 2014 included 220,000 cigarettes. These were added to the total count.)

Comparing cigarette data from the invoices with the manifests showed a major undercount in the latter. For seven shipments shown on invoices, either no manifest had initially been made available, or the manifests did not show the cigarettes invoiced to the shops. The implication is that the missing or incomplete cargo manifests for these seven shipments led to an undercount of about one-third of cigarettes compared to the stores' invoices. So analysing supplied manifests alone would have been very unreliable.

Further investigation with the Director of Transport led to all but one of the missing cargo manifests being located, reducing the discrepancy between stores invoices and manifests from 43 to 11 percent – or even to 4 percent once the 20 April shipping manifest was supplemented by Samoa Customs. All this confirms that the stores records are to be considered reliable measures to be used for discussion and policy development on foods, drinks, smoking and solid waste.

Table showing undercount of cigarettes (990,000 sticks) on incomplete or missing manifests; the reconciled number of cigarettes imported into Tokelau in 2014 amounted to a total of 3 million sticks.

Shipment shown on stores invoices	Date	Cigarette sticks
PV Matua 068	28 January 2014	130,000
<i>Lady Naomi</i> 97 (ex Samoa Customs)	20 April 2014	180,000
PV Matua 096	16 September 2014	120,000
PV Matua 097	25 September 2014	120,000
<i>Samoa Express</i> 081/ Matua 105	23/25 November 2014	60,000
PV Matua 106	3 December 2014	190,000
PV Matua 108/ <i>Naomi</i>	17/19 December 2014	190,000

Alcoholic drinks

Whereas Part 1 based its volumes on average prices, in part 2 actual volumes are analysed, taking into account the additional parallel imports of spirits by individuals. Despite the two approaches, the results are remarkably similar (beer 6%, store spirits 1% variation only) and equally concerning from a public health point of view.

In this report, volumes have been further analysed to provide indicators of individual consumption of alcohol. For this purpose, volumes are translated into standard drinks of 10 g alcohol, which is the amount a healthy liver can detoxify within one hour of consumption. The formula is alcohol percentage of the drink times its volume in litres times 0.789 (= density of alcohol by room temperature). Hence one 750 ml bottle of beer 5% equates to 3 standard drinks. Spirits is taken to be 40% alcohol. Overall imports are discussed first; per capita consumption is discussed in the following chapter.

Wine

Imports of wine amounted to only about 500 litres in 2014. The volumes listed on the Manifests are reasonably close to the calculated content from invoices, comparing to a volume of 350 litres based on an unweighted, averaged wine price. So consumption of wine in Tokelau is negligible – indeed the bulk of this is altar wine taken for religious ritual. No further analysis is done.

Beer

The gross volume data for beer that are listed on cargo manifests are very high at 84,000 litres, but this includes packaging; and a single error in the number of pallets of beer can have a great impact. It was possible to recalculate the net beer volume data from the cargo manifests which resulted in a volume of 68,000 litres. Refining calculations of part 1 using invoices (price-based) resulted in a net volume of 72,000 litres beer. In further calculations, their midpoint, i.e. a total value of 70,000 litres beer was used for all of Tokelau.

This volume would have been delivered in 30,000 small bottles (355 ml) and 80,00 large bottles (750 ml).

Spirits

Part 1 showed that Taupulega policy differences with respect to alcohol sales are reflected by the Fakaofo store importing only \$3.9k worth of spirits in 2014 (161 litres), whereas Nukunonu's and Atafu's stores' invoices amounted to \$63k and \$129k, respectively, totalling 8,000 litres (revised data).

However, from the (anonymised) Cargo Manifests it is clear that liquor is parallel imported by a range of individuals on all three atolls, raising the total spirits imports to 11,000 litres in 2014.

For the entire year, the manifest data stack up as follows.

Spirits (mostly Vodka and Whisky, some Baileys, Kahlua, Rum)	Percentage of net volume	Nett volume (litres)
Co-op stores	72%	7,916
Private imports	28%	3,084
Total Tokelau	100%	11,000

Solid waste

As calculated in part 1 of this report, examples of items and numbers imported in 2014 that need disposing of are: foam and plastic plates (34,000) or cups (63,000), plastic spoons (35,000), plastic bowls of instant noodles (125,000); batteries (10,000), cigarette lighters (4,900) plastic/aluminium Bongo snacks wrappers (74,000), Zap drink minicartons (55,000); pieces of bubble gum (143,000); nappies (123,000), ladies' sanitary pads (17,000); hair shampoo and conditioner bottles (6,000), water bottles (31,000), cooking oil bottles (21,000). Bottles of spirits (11,000) and small beer bottles (30,000) are also dumped; apparently only the large beer bottles (80,000) are recycled.

There were 7 food items in cans with over 1 metric tonnes imported nett in 2014. They are mackerel in oil, tuna in oil, spaghetti, coconut cream, fruit salad, condensed milk, and pineapple crush/slice totalling 24 tonnes nett in 72,000 tins. With an average tin weight of 40 grammes, that's c. 3 tonnes of metal waste for these items alone. What percentage of this is in fact recycled, is unknown.

Fuel

As pointed out in the first part of this report, the difference in petrol purchased through the stores between Fakaofu (recalculated values NZ\$187k in 2014), Atafu (\$121k), and Nukunonu (\$153k) is significant and easily explained. While Atafu and Nukunonu have one village on their atoll, Fakaofu has a main village, Fale, where most people live and where the churches are; its satellite village Fenuafala has a smaller number of houses plus the hospital and the schools. Particularly the latter require school children to be taken across daily by school boat or private fishing boat, consuming more petrol than on the other atolls. Of the three, Atafu has the smallest lagoon and Nukunonu the biggest.

Analysing the cost situation is complicated by the fact that Atafu had managed to avoid paying tax on fuel for quite some time, as a result of which the complete sales do not show up in the stores' invoices summaries. This made accurate calculation difficult.

Comparing the data sourced from shops' invoices and shipping manifests, for diesel shows a very large discrepancy, the manifests accounting for only a fraction of the amounts invoiced to the stores. This may be because diesel in Tokelau tends to be pumped from the ship's hold into drums on the barges before final delivery in the villages. Such volumes would not show as extra freight in the manifests.

Further fuel calculations using Tokelau Department of Finance records provided results that are essentially irreconcilable with the present study. An internal audit has shown further big differences with records from the Department of Finance and of Transport and Support Services. Until these differences are resolved, it is suggested the fuel data in the present report are better not used.

This was unfortunate in relation to the COP21 Climate Change conference in Paris in November 2015: all countries were asked to prepare Intended Nationally Determined Contributions (INDC) to global carbon dioxide production, with the intention of setting reduced goals compared to baseline.

The on-atoll use of diesel is already much reduced as a result of the installation of solar panels to provide practically all electric power there since 2012. Diesel generators will be used sparingly. But it will be very difficult to reduce diesel use for shipping to and from Tokelau. Even the new ferry *Mataliki* will be using significant volumes of diesel, as will the chartered freighters.

As a guide, the diesel volume for the 2013/2014 Financial Year amounted to 883,772 litres and for 2014/2015 FY was 811,650 litres respectively (personal communication Asofa Fereti, then-Transport Director).

Presentation of results per capita

Per capita calculations of consumption take into account the tabled population segments, taken from the comprehensive 2013 head count; the 2011 Census, and the STEPS sampling conducted by WHO in 2014. Aggregate Tokelau data are presented here only: tabular data first, then discussion.

Dec'13 head count	Number
Total population	1,383
Babies < 4 years old	116
Population 15+	949
Males 15+	458
Females 15-44	294
Females 15-49	337
Working age 15-64	852
STEPS sample age 18-69	790
Adult equivalents, total	1215

Census 2011: smokers 15+	352
Percentage smokers	47.8%

2014 Imports study	Number
Beer litres	70,000
Small bottles 330 ml	30,000
Large bottles 750 ml	80,000
Spirits litres	11,000
Stores	7,686
Taupulega Atafu	230
Private	3,084
Wine litres	504
Cigarettes	3,040,000

Per capita consumption	Number
Average Cigs /head 15+ /day	8.8
Average Cigs /avg smoker /day	18.4
Average litres /head 15+ /week	
Beer (5% alcohol)	1.418
Spirits (40% alcohol)	0.223
Average combined standard drinks /week	12.6
1 standard drink contains 10 g alcohol	

STEPS 2015 18-69 years old	Total
Respondents	408
% smokers	54.7
Average Cigs /avg smoker /day	13.3
% drinking alcohol regularly	57.3

Combining STEPS % and Import data	
Average Cigs /head 18-69** /day	10.5
Average Cigs /avg smoker /day	19.3
Average litres /drinker 18-69** / week	
Beer (5% alcohol)	2.974
Spirits (40% alcohol)	0.467
Combined standard drinks/drinker/week	26.5

**assumes negligible smoking and drinking <18 and 70+

Cigarette smoking

Three million cigarettes imported in 2014 by a population of 949 individuals of 15 years and over gives an average smoking rate of 8.8 cigarettes per day. However, in the 2011 Census, 48% indicated to be regular smokers so based on this, the average smoker would have had 18.4 cigarettes per day.

If instead we use the STEPS sample population of age 18-69 (and neglect any smoking under age 18 or over 69), the average smoking rate over 790 people is 10.5 cigarettes per day. Using the STEPS smokers percentage of 55% would amount to 19.3 cigarettes per day per smoker. While STEPS respondents estimated their own smoking to be on average 13.3 cigarettes per day, it is not unusual for such self-assessments to be under-reported.

So a realistic assessment of the smoking rate in Tokelau would be about a packet of 20 cigarettes per smoker per day on average.

Alcoholic drinks

Alcohol intake

The import of 70,000 litres of beer (5% alcohol) in 2014 for a 15+ population of 949, gives an average consumption of 1.4 litres beer per person per week. Similarly, consumption of 11,000 litres of spirits (40% alcohol) gives an average of almost a quarter litre of spirits per person per week. This can be converted to standard drinks by the formula: Volume in litres X alcohol percentage X 0.789, resulting in 12.6 standard drinks per week on average for the 15+ population.

However, the STEPS data indicate that 57.3 percent of 18-69 years old drink regularly, which for 790 people results in 3 litres beer plus half a litre of spirits per week on average. This is the equivalent of 26.5 standard drinks per week on average. For individual drinkers this annual figure may vary widely – for example some people may drink only beer no spirits, or the latter only at special events, etc.

Energy intake from alcohol

Not only does excess alcohol impair judgement and movement, it can also contribute significantly to the energy intake in the diet. This is because 10 grams of alcohol (the standard drink) contains about 300 kilojoules (kJ) or 70 kilocalories⁴ of energy – almost the same as pure fat. So an average of only 2 standard drinks a day is the equivalent energy of eating a large piece of chocolate cake every day. In a food and drink culture where obesity is a significant problem this is worth thinking about. Note that the STEPS survey found that of the 18-69-year olds, 27 percent was overweight and 63 percent obese, leaving only 10 percent with a “regular” or low body weight.

Glass bottle waste

An extra headache caused by the alcohol consumption is the glass containers: an estimated 30,000 small beer bottles, 80,000 large ones and 11,000 spirits bottles in one year. While some of the bottles are recycled (notably the large Vailima beer bottles), spirits bottles are not, and even a superficial inspection of the atolls just at or outside the edge of the villages demonstrates the extent of this accumulation of whole and broken bottles.

Comparison with New Zealand and international recommendations

From these results it is obvious that both smoking and alcohol consumption are very high in Tokelau, especially when compared to New Zealand standards. Smoking rates there are of the order of 15 percent for the 15+ population, and average about 7 cigarettes per smoker per day (StatisticsNZ 2013).

In terms of alcohol, the recommendation is for (non-pregnant) women to have no more than 2 standard drinks per day and men no more than 3 standard drinks⁵; and have two alcohol-free days per week. So that's a maximum of 10 standard drinks per week for women and 15 for men (<http://alcohol.org.nz/help-advice/advice-on-alcohol/low-risk-alcohol-drinking-advice>).

From the calculation above it appears that alcohol drinking rates in Tokelau are about twice that; this is also a potential contributor to the widespread obesity and other non-communicable diseases.

⁴ Unfortunately kilocalories (1 kcal = 1,000 cal) are now usually called "calories" in every-day (US) language.

⁵ Interestingly the daily permitted purchased in the Atafu store is 2 large bottles of beer for women and 3 for men: in fact 3 times the recommended upper limit as 1 large beer bottle = $0.75 \times 5 \times 0.789 = 3$ standard drinks.

Food and non-alcoholic drinks

Tokelauans live in a potentially very healthy environment that supplies plenty of fish, breadfruit and coconuts. Yet their food preferences reflect a diet of highly processed refined (rather than whole) foods that are now considered “bad” in nutritional terms: high in saturated fat, sugar, starch and salt; and very low in vitamins and dietary fibre such as from fresh vegetables. Combined with very little physical activity and relatively large food portions, all this contributes to the high risk and prevalence of Non-Communicable Diseases (NCDs) in Tokelau, obesity and diabetes in particular⁶.

The main starch staple food in Tokelau is white rice (62.4 metric tonnes in 2014)⁷, potatoes (17.3 t) coming second. Taro are not captured in the stores invoices nor in the manifests. Other vegetables are onions (8.0 t) and carrots (0.9 t). Fresh fruit comprises oranges (3.4 t) and apples (3.0 t). Canned fruit salad in syrup (1.8 t nett) is popular, but a poor alternative given its high added sugar content.

The main forms of protein purchased in 2014 in the store by far, are chicken leg quarters (54.1 tonnes), supplemented by chicken wings (8.6 t), corned beef (7.1 t), salt beef (6.1 t), lamb chops (5.7 t), lamb necks (4.1 t), mutton flaps (3.7 t), and various types of sausages (13.4 t).

The import of mackerel in oil (8.1 tonnes) and of tuna in oil (5.0 t) is surprising given the large local fish catch – which is being quantified in the current Household Income and Expenditure Survey. (Early indications from HIES are that the value of tinned fish represents one-quarter of the total fish intake, fresh fish accounting for three-quarters on the basis on imputed cash value.)

In baking and cooking ingredients, the list is topped by brown sugar (49.4 tonnes), baker’s and normal flour (25.6 t), and cooking oil (21.0 cubic metres). Instant noodles are very popular (8.7 t).

The main non-alcoholic drinks are milk (49.2 tonnes) and milk powder (4.7 t), followed by bottled water (32.0 cubic metres), Just Juice (15.3 cubic metres), and Zap chocolate drink (12.9 cubic metres). All non-alcoholic carbonated soft drinks have since 2013 been banned in all three villages (Fakaofu taking the lead in 2012) – a reason for the WHO to present Tokelau with a special award in 2015. Unfortunately the popular Just Juice contains about the same sugar content as fizzy drink.

Drinks prepared from powder (cf p.8) are also high in sugar, either because of their regular components (Tang, Zap, Milo) and/or because of deliberately added sugar (Milo, tea, instant coffee).

To get an overall idea of individual consumption, the stores food and drink imports in 2014 have been divided by the total population count (1,383) and also by people of legal working age (15-64 years old, 852 individuals) who will have the biggest appetite. This results in a realistic range of average weekly consumption per individual as shown in Appendix E.

Values for the top 40 food items, the top 9 non-alcoholic drinks and various household and miscellaneous items are shown in Appendix E for all of Tokelau. At the request of Council separate calculations were done for each atoll and made available to the Taupulega (confidential Appendix F).

Consumption of the main staples – Dry white rice: 0.87-1.41 kilogram per week (= when cooked: 1.89-3.07 kg/wk) and potatoes: 0.24-0.39 kg/wk; of the main other carbohydrate sources - brown sugar: 0.69-1.12 kg/wk, flour: 0.36-0.58 kg/wk; and of the main protein source (excluding local fish) - chicken leg quarters: 0.75-1.22 kg/wk and chicken wings: 0.12-0.19 kg/wk (values include bones).

⁶ <http://www.health.govt.nz/our-work/eating-and-activity-guidelines/current-food-and-nutrition-guidelines> and <http://www.health.govt.nz/publication/eating-and-activity-guidelines-new-zealand-adults>

⁷ One cup dry white rice (206 g) when cooked becomes 3 cups of 150 g each so the “edible” import is in fact 136 tonnes (62.4*3*150/206).

Cooking oil is the main pure source of oil: 0.29-0.47 litres per week. Note that not all cooking oil is bad (if unsaturated and if not past its expiry date) nor will this volume be consumed entirely - although high in fried bread products and batter. A much greater source of “bad” fat will be hidden in protein sources such as chicken, tinned fish, lamb/mutton, corned beef, and sausages.

Intake of sugar

An effort was made to quantify to total amount of sugar consumed by Tokelauans, not only as refined sugar used in cooking and baking, but also that hidden in the main food categories of the imports top 40 foods and top 10 drinks.

Sugar content was derived from information taken from product labels in stores, in addition to a variety of internet sources, e.g. <https://en.wikipedia.org/>, <http://www.sugarstacks.com>, <http://www.calorieking.com>, <http://www.fatsecret.co.nz/calories-nutrition/search?> <https://www.caloriecount.com>, and various nutritionists’ pages.

While the percentages of sugar components may not be very precise, the table below illustrates that sugar hidden in the diet contributes about 17 percent of overall sugar intake. The main contributors are about 3% each from ‘real’ fruit juice (which contains as much sugar as the fizzy drinks, that are already prohibited in Tokelau), from the chocolate drinks Milo and Zap, from sweet biscuits and from the popular fruit-flavoured drink Tang. Sweetened evaporated milk (50 sugar / 100 g) may also be a big contributor but as we do not know its purchased ratio to condensed (unsweetened) milk an averaged value of 25 g sugar /100 g is used, giving a 1% contribution in the average diet.

Food or non-alcoholic drink item	Sugar content g/100 g	Est. sugar weight (kg)	Sugar diet percentage
Bongo snack	5	370	1%
Brown sugar	100	49720	83%
Bubble/chewing gum (1.4 g each)	78	157	0%
Fruit salad	15	264	0%
Condensed & evaporated milk	25	306	1%
Just juice	10	1528	3%
Milo (powder)	46	1550	3%
Pineapple crush	15	156	0%
Raro	8	48	0%
Spaghetti tins	5	250	0%
Sweet biscuits	25	1739	3%
Tang fruit drink powder	93	2081	3%
Tomato sauce	5	168	0%
Zap chocolate drink	10	1290	2%
Sugar in top items (kg)		59,626	100%

As was done for the main imported food and drink items, consumption of sugar is also calculated per head of overall population and per head of working-age population. This leads to a realistic range of average weekly sugar consumption from 207 to 336 tea spoons per person per week.

In terms of energy intake, it is useful to calculate requirements for the adult-equivalent population, which takes account of the population’s age distribution (see Claro et al 2010). If we do this calculation for Tokelau (Appendix D), the average sugar intake is 944 g (236 teaspoons) per week.

WHO strongly recommends that sugar be the source for a maximum of 10 % of daily energy required, i.e. at most 24 teaspoons (100 g) a day for an adult and 12 teaspoons for children, or no more than 168 teaspoons a week for adults and 84 for children; the ideal intake would in fact be half that at 5% (WHO Guideline 2015⁸ and personal communication Professor Elaine Rush, AUT).

Hence the calculated Tokelau values are of great concern given the prevalence of obesity and diabetes there. The potential effect on children's weight is particularly concerning, as is potential damage to their teeth.

⁸ http://www.who.int/nutrition/publications/guidelines/sugars_intake/en/

- WHO recommends a reduced intake of free sugars throughout the lifecourse (strong recommendation).
- In both adults and children, WHO recommends reducing the intake of free sugars to less than 10% of total energy intake (strong recommendation).
- WHO suggests a further reduction of the intake of free sugars to below 5% of total energy intake (conditional recommendation).

DISCUSSION

Quality of Life is an important topic for Tokelau. But it is not just what the government can do for Tokelauans, it is just as much the choices Tokelauans make in their daily lives that affect their Quality of Life: their health in particular. It is the choices in consumption that this analysis wishes to share. This is done in the hope that with government support, policies will result that can make Tokelauans happier and healthier in a cleaner environment – in short, add to their individual Quality of Life.

Such developments fit in with the outcome document of the 2014 UN Conference on Small Developing Island States (SIDS) of 1-4 September 2014, in which Tokelau was an active participant⁹. Of the “S.A.M.O.A. pathway” document¹⁰, particularly pertinent are the sections on Food security and nutrition (clauses 59-63), Sustainable consumption and production (68-69), Management of chemical and waste (70-71), Health and non-communicable diseases (72-75), Trade (107), and Data and statistics (112-115).

Part 1 of the report, “Analysing the 2014 co-op and bulks stores’ import data into Tokelau”¹¹, provided a wealth of insights into the purchasing behaviour of the villagers in Tokelau. These relate to most foods, non-alcoholic and alcoholic drinks, cigarettes, and solid waste. Limitations of both the earlier study and the present one, are that not all consumption patterns are captured in the co-op and bulk store records. For example, there is no record of trading in clothes, bread, fresh fruit, while the manifests may list larger articles such as fridge-freezers and vehicles (cars, motorbikes). Other than for alcohol, no accurate analysis is possible at this point for such items that are parallel-imported by the villagers.

Together with the co-op and bulk store invoices, every shipment prepared by the Savalalo office of TALO has a Cargo Manifest for use by Tokelau and Samoa Customs officers. The current Part 2 of this project analysed these by allocating HS codes, and a comparison of COICOP and HS data, volumes and weights was attempted. This was mostly successful.

The major value of the second analyses was in validating the analysis of shipping data using two separate sources. Originally there was a discrepancy of 40% in cigarette data, but that discrepancy was reduced to 4% once specific requests for these manifests resulted in them being located.

While confirming the Part 1 data, unfortunately the research further invalidated the research and conclusions in Rush et al. (2012). This is because these authors had analysed the manifests they had been supplied with, that cover only a fraction of the 2008-2012 shipments. Their conclusion of a reduction in consumption over time was incorrect because their dataset was deficient. For example only 17 shipments for all of 2011 were reported, with only a single one in the second quarter of that year; whereas in fact the number for that year was 41, of which 10 took place in April-June.

Subsequent discussion and cooperation with Professor Rush has however helped clarify a number of issues and contributed constructively to the present report: for example the concern with the high sugar imports (for use in baking, cooking, tea and sugar etc) but also that hidden in the popular non-alcoholic drinks such as the chocolate drinks Milo and Zap, and the “fruit drinks” such as Tang.

⁹ Team Tokelau's engagement with the 3rd UN-SIDS conference.

<http://www.tokelau.org.nz/Bulletin/September+2014+SIDS/Booklet+Team+Tokelau+engagement+with+the+3rd+UN-SIDS+conference+ready+for+viewing.html>

¹⁰ SIDS Accelerated Modalities of Action [S.A.M.O.A.] Pathway.

www.ws.undp.org/content/dam/samoa/docs/UNDP_WS_SAMOA-Pathway-web.pdf

¹¹ <http://www.tokelau.org.nz/Bulletin/November+2015/Tokelau+imports+from+Samoa.html>

The Department of Health's roadmap now has a policy that proposes a tax on sugary drinks as it is on cigarettes. In support of this policy, the present report includes a careful analysis of sugar intake.

Average smoking and drinking habits are at the unhealthy end of the spectrum in Tokelau. All these contribute to the high risk and prevalence of Non-Communicable Diseases in the population, for the young and the old – especially when combined with very little physical activity.

The present paper does not provide recommendations for improving the life style and consumption patterns of Tokelauans. Yet it provides for the first time an accurate and reliable baseline of imports. That can be used by for example the Department of Health (DoH), and the Department of Economic Development Natural Resources and Environment (EDNRE) to develop appropriate policies; and then to monitor the effect of those policies by comparison with these data in due course.

Environmental impacts

On the positive side, recycling of organic waste in Tokelau is excellent, all being fed to pigs which are consumed in turn at special occasions. Tokelau is now also practically self-sufficient in terms of solar energy. This has much reduced the need for using diesel on the islands.

However the outlined food consumption produces much solid waste such as packaging and disposable plates, cups and bottles that needs to be got rid of. Tokelau has previously identified waste management as a priority, and several measures for disposal are practised in the various villages. There is a Memorandum of Understanding (MOU) with Samoa by which the latter will take and dispose of solid waste shipped back in. Much of the rubbish however is still burnt and/or buried on-atoll and some is left to pollute the open environment.

The Tokelau Department of Economic Development, Natural Resources and Environment may wish to further peruse the data made available here. Clearly the stores' imports into Tokelau present a potentially large environmental problem that needs to be addressed in a sustainable way. The above figures could be used to monitor the success of solid waste recovery operations, etc.

Not only the volume of solid waste is important, the visual impact of broken drink bottles, plastic bags, foam plates and cups, nappies etc can also be significant. This is an serious point to bear in mind if Tokelau wants to develop its tourism potential. It is suggested that the key target group would be mostly palagi eco-tourists; they will have a very low tolerance indeed for the rubbish that is regrettably so ubiquitous outside the villages on the main islands, and in outer shorelines of motu.

Comparison to historic records

Consumption of both alcohol and cigarettes in the three atolls in 2014 was highest in Atafu, lowest in Fakaofo and about the national average in Nukunonu. This is remarkable in view of the citation ALAC 1997, P.13: "Historically, [these] non-drinking values appear to have been supported most widely on the atoll of Atafu. Of the three Tokelau atolls, this is the one which has been influenced most strongly by the Protestant churches. Reports suggest that even today on Atafu the village councils often do not allow people to drink in public and that drinking must be done only in private homes. Nukunonu, on the other hand, has been influenced by the Catholic Church's generally less restrictive stance towards alcohol. Fakaofo, the third atoll, had a mixture of both Catholic and Protestant churches and stands somewhere in the middle."

Because of their relevance to the present study, a number of extracts from the Wessen et al. (1992) study are appended to the References section of the main report. Their data and the present calculations show how imports of sugar, flour and rice have changed dramatically over time. So did imports of alcohol and cigarettes, as well as chicken eggs that were not part of the traditional diet.

Tables: Comparison of imports over time, from Wessen et al. (1992), with present study.

Imported amounts per person per year	1961	1971-2	1977	1980	2014
Sugar	7 lb	31 lb		69 lb	81 lb
Flour	12 lb			60 lb	41 lb
Rice			47 lb	22 lb	99 lb

Total national imports	1977	1980	2014
Eggs	323 dozen	1,050 dozen	11,385 dozen
Beer	2,538 litres	1,902 litres	70,000 litres
Spirits	182 bottles	1,132 bottles	11,000 litres
Cigarettes	117 cartons	4,540 cartons	15,000 cartons

[Carton of beer 24x355ml or 12x750ml = 9 litres; carton of cigarettes 10x20 sticks]

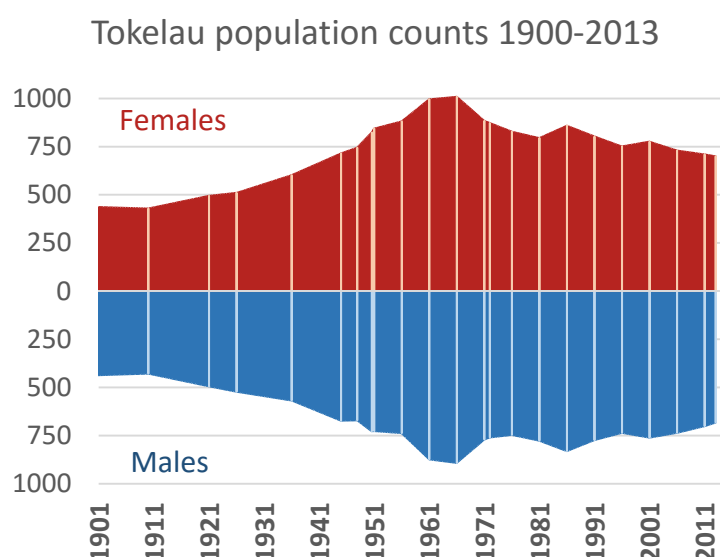
While no further literature research has been attempted at this stage, the above trends provide food for thought, as does the following Wessen et al. (1992) quote:

“In early 1979 the ship bringing imports was unable to visit Tokelau for a five-month period. The following article from Apia , Western Samoa appeared in the New Zealand Herald on 11 June 1979:

“THEY NEVER HAD IT SO WELL BUT ... [sic]

“...the atoll hospitals reported a shortage of business during the enforced isolation. It was reported that the Tokelauans had been very healthy during that time and had returned to the pre-European diet of coconut and fish. Many people lost weight and felt very much better, including some of the diabetics.”

Graph of author's previously unpublished collated census data:
Note that the Tokelau population size has changed relatively little over recent times. So the dramatic increase in consumption of food items, alcohol and cigarettes shown in the tables above, is very real in per capita terms.



CONCLUSION

It's the statistician's job to describe the world in numbers, not to change the world. But the intention is that the numbers provided here are a solid baseline from which change can be monitored.

For example, the Department of Health is proposing policies to reduce smoking by reducing imports to nil in 2021, from 3 million cigarette sticks in 2014 - on average a 20-pack per smoker per day.

We now know quite accurately how much alcohol is being imported into Tokelau, both by the co-operative stores and individuals. An average of three litres of beer plus half a litre of spirits per week (26.5 standard drinks combined) for people who drink is very high, both in terms of alcohol intake as well as in energy intake that needs to be burnt off or else will be stored as body fat.

Better policies could be developed to curb drinking, because current ones may not be working. For example preventing the sale of spirits in the Fakaofu store has not stood in the way of significant parallel imports by individuals; and the 'permitted' sales of beer through the Atafu store are in fact three times the recommended daily upper limit for men and women.

In terms of food, Tokelauans supplement their fish catch by large amounts of protein sources that are considered unhealthy because of the high fat content, and they consume high levels of sugar – now quantified – and refined carbohydrate with low fibre content. Combined with large portions and lack of much physical exercise, obesity is the inevitable result.

This was confirmed by the STEPS survey taken in 2014. Using the body mass index (BMI: body weight in kilograms divided by square of length in metres) shows that 23% of the adult population (age 18-69) is overweight (BMI 25-30) and 67% is obese (BMI>30) – a serious situation. Rates for children are not yet known. The food rankings and quantities provided here can be used to monitor change over time that healthy living policies may instigate and so remove impediments to quality of life.

The rankings may also be used to address food security issues in clarifying what food in what quantities need to be stockpiled for situations where imports are impeded. Because Tokelau life is entirely dependent on food imports from Samoa, this too is where the present study can provide baselines.

With regard to the use of fuel, both the stores and manifest data are insufficient in assessing Tokelau's Intended Nationally Determined Contributions (INDC), an international obligation under the COP21 agreement on climate change. The indications are that diesel use by passenger and supply ships to and from Tokelau far outweigh any local consumption, and will be hard to change.

Environmental impacts are addressed, particularly in relation to food packaging, drink bottles, and disposable single-use materials. There is clearly scope for improving current disposal practices.

Because the imports study also incorporated building materials supplied to the bulk stores, it was possible to get a handle on the financial side. Further analysis is possible but was not undertaken. Once again, the 2014 data are now here to provide useful comparative material for future studies.

[ENDS]

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P.258: "The predisposition of Polynesian people to hyperuricaemia and gout is thought to be strongly determined genetically, but it is influenced by environmental factors such as diet, alcohol use, weight gain, and obesity (Prior et al. 1996b; Stanhope and Prior 1975; Prior et al. 1987).

"... controlling gout should involve weight reduction, as well as dietary restriction of purines coming from red meat, variety meats, and beer.

"Obesity, a condition clearly related to life-style but partly determined genetically, is an important risk factor contributing to a variety of conditions including hypertension, diabetes, and osteoarthritis."

P.288: "It was not until the 1970s that imported foods began to make a major impact on the diet of the population. By 1978, with increased cash available from the Tokelau Public Service jobs and other sources, a co-operative store had been established on each atoll, and since then the range of available goods has constantly broadened"

Harding et al 1986: summary of Tokelau food studies in 1968, 1971, 1976, and 1982 - role of coconuts in diet.

Shorland et al 1969: energy from fat

The 1981 fish catch in FF over 8-week period: weekly average 3384 lb (range 1683-5306) or 4.5 lb per person per week. Over same period, 1482 drinking coconuts and 2311 germinating coconuts were consumed per week, an average of 5 coconuts/person/week."

P.290: "Sugar consumption contributed only an estimated 2 percent of total energy in 1968, but 8 per cent in 1976. In more recent years this trend continued, with 14 per cent of atoll-dwellers' total energy coming from sugars in 1982 . (This may be compared to the 13 per cent estimated for migrants to New Zealand in 1974- 5.) Data drawn from shipping registers verify these findings: while 7 lb . of sugar per person were imported into Tokelau in 1961, the amount increased to 31 lb. in 1971-2 and to 69 lb. per person per year in 1980 . Over the same period, imports of flour increased from 12 lb . per person per year in 1961 to 60lb. in 1980. Rice imports, however, declined from 47 lb. per person per year in 1977 to 22 lb. by 1980.

"Another change has been the importation of frozen foods, which are stored in freezers supplied by the United Nations: mutton flaps, chicken backs, turkey tails, and Australian beef, supplemented in some shipments by ice cream. Some of these meats, mutton flaps in particular, are very fatty. In 1977 Tokelau received 3 lb. of mutton flaps per person; this had doubled by 1980. Imports of chicken backs increased from 0.6 lb. per person per year in 1977 to 3 lb. in 1980. Tinned corned beef (*pihupo*) has become a popular food throughout the Pacific - and Tokelau is exception, with imports of almost 5 lb. per person in 1979. Traditionally, eggs were not included in the diet. In 1977 only 232 dozen eggs were sent to Tokelau, but imports had increased to 1050 dozen by 1980. From 1977 a salty savoury called Twisties has been imported in large quantities and imports of cabin bread and other biscuits amounted to 17 .5lb. per person in 1980.

"In early 1979 the ship bringing imports was unable to visit Tokelau for a five-month period. The following article from Apia , Western Samoa appeared in the New Zealand Herald on 11 June 1979:

"THEY NEVER HAD IT SO WELL BUT ...

"...the atoll hospitals reported a shortage of business during the enforced isolation. It was reported that the Tokelauans had been very healthy during that time and had returned to the pre-European diet of coconut and fish. Many people lost weight and felt very much better, including some of the diabetics."

P.310: "It has not been possible to determine per caput alcohol consumption in Tokelau precisely, since the use of toddy has never been adequately quantified.

"Table 14.6. Imports of alcoholic beverages to Tokelau: data for the three atolls of Tokelau for 1977 to 1981.

	Cartons of beer (9 litres)	Bottles of spirits (1 litre?)
Fakaofu		
1977	2	26
1978	-	-
1979	-	36
1980	510	362
1981	390	204
2014	2,667	1,116
Nukunonu		
1977	280	156
1978	430	372
1979	346	180
1980	1,392	770
1981	500	468
2014	2,111	3,344
Atafu		
No official orders were placed during the period 1977 to 1981.		
2014	3,056	6,541

Source: Office of Tokelau Affairs (1977, 1978, 1979b, 1980b, 1981b), *present Imports study JJ (2014)*.
A carton of beer contains a volume of 9 litres (24*355 ml or 12*750 ml).

P.313: "While in [1977] 56 cartons of derby and 117 cartons of cigarettes were imported, by 1980 imports of derby had declined to 42 cartons and cigarette imports had jumped to 4540 cartons. ... population numbers did not change greatly over that period.

Acronyms used and their meaning:

BEC	Classification in Broad Economic Categories
COICOP	Classification of Individual Consumption According to Purpose
COS	Certificate in Official Statistics
CPI	Consumer Price Index
DoH	Department of Health
EDNRE	Economic Development, Natural Resources and Environment
HS	Harmonised System
IMTS	International Merchandise Trade Statistics
MOU	Memorandum of Understanding
NCD	Non-Communicable Diseases
NZD	New Zealand dollars
NZQA	New Zealand Qualification Authority
OCOG	Office of the Council for the Ongoing Government of Tokelau
SBS	Samoa Bureau of Statistics
SMT	Senior Management Team
SNZ	Statistics New Zealand
SPC	[Secretariat of the] Pacific Community
TALO	Tokelau Apia Liaison Office
TNSO	Tokelau National Statistics Office
VAGST	Value Added Goods and Services Tax
WST	Samoaan tala

Some Tokelauan terms

Aumaga – Working men’s association

Faipule – Member of Parliament for the Atoll

Fatufaepae – Women’s association

Nuku – Village

Pulenuku – Mayor

Taupulega – Village council of elders

Ulu o Tokelau – Ceremonial Head of State (=by annual rotation of Faipule)

APPENDICES

Appendix A (this and opposite page): Example of source data and unit record listings for Cargo Manifests. Note absence of HS codes for assorted goods and personal effects (see also Introduction, page 5).

Parts of Cargo Manifest showing destination and quantities of shipped items, with volumes (m³) and weights (kg) specified, but not costs. Note the high volume/weight of undefined “Assorted goods”. Cigarettes and alcohol are listed as duty-free items in Samoa.

						Load Port: Apia		
Vessel: PB Matua Voy088				Date: 10/07/2014		Destination: Tokelau		
BOL	SHIPPERS	CONSIGNEES	Packages		DESCRIPTION OF CARGO / GOODS	Freight Basis		COMMENTS
			No	Units		Cubic	Weight(kg)	
	DUTY FREE ITEMS							
5629	Talo/Apia	Coop Store Fakaofu	3	ctn	Pall Mall Menthol/Filter	0.531	45	
5631	Talo/Apia	Coop Store Atafu	4	ctn	Pall Mall Menthol/Filter	0.708	60	
5631	Talo/Apia	Coop Store Atafu	1	plts	stc;50cs Vailima Lager 12 x 750	1.387	465	
5630	Talo/Apia	Coop Store Nukunonu	1	plts	stc;50cs Vailima Lager 12 x 750	1.387	465	
5631	Talo/Apia	Coop Store Atafu	1	plts	stc;50cs Vailima Lager 24 x 355mls	1.387	465	
5630	Talo/Apia	Coop Store Nukunonu	1	plts	stc;50cs Vailima Lager 24 x 355mls	1.387	465	
5629	Talo/Apia	Coop Store Fakaofu	2	plt	stc;100cs Vailima Large 12 x 750mls	2.774	930	
			13			9.561	2895	
	BULK DRY GOODS							
5629	Talo/Apia	Coop Store Fakaofu	15	ctn	Eggs x 15 Dozen	0.822	180	
5630	Talo/Apia	Coop Store Nukunonu	15	ctn	Eggs x 15 Dozen	0.822	180	
5629	Talo/Apia	Coop Store Fakaofu	5	bag	Salt Iodised Fine 20kg	0.501	100	
5631	Talo/Apia	Coop Store Atafu	10	bag	Salt Iodised Fine 20kg	1.000	200	
5629	Talo/Apia	Coop Store Fakaofu	20	bag	Sugar Brown 50kg	1.040	1000	
5630	Talo/Apia	Coop Store Nukunonu	10	bag	Sugar Brown 50kg	0.260	250	
5631	Talo/Apia	Coop Store Atafu	50	bag	Sugar Brown 50kg	2.600	2500	
5631	Talo/Apia	Coop Store Atafu	5	ctn	Anchor Butter 20 x 454gms	0.055	20	
5630	Talo/Apia	Coop Store Nukunonu	10	ctn	Anchor Butter 20 x 454gms	0.111	40	
5629	Talo/Apia	Coop Store Fakaofu	6	ctn	Mince Meat	0.062	25	
			412			7.989	5080	
	GENERAL CARGO							
5629	Talo/Apia	Coop Store Fakaofu	9	plts	Assorted Goods	18.252	6541	
5630	Talo/Apia	Coop Store Nukunonu	2	plts	Assorted Goods	4.056	1752	
5631	Talo/Apia	Coop Store Atafu	7	plts	Assorted Goods	14.196	5464	
	Talo/Apia	Tokelau Island	135	pcs	Personal Effects	12.031	601	
			153			48.535	14358	

Appendix A (continued): Unit records prepared for analysis from the Shipping Manifests; these lines cover exactly the same items as shown on the previous page.

Carrier / Voyage	Shipment date	Destination (Individuals anonymised)	UNIT	QTY	Product	Gross Volume m3	Nett Volume litre	Gross Weight	Chapter	Heading	Sub-heading	Commodity	HS code
Matua088	10/07/2014	Coop Store Fakaofu	3 ctn		Pall Mall Menthol	0.531		45	24	02	20	1000	2402.20_1000
Matua088	10/07/2014	Coop Store Atafu	4 ctn		Pall Mall Menthol	0.708		60	24	02	20	1000	2402.20_1000
Matua088	10/07/2014	Coop Store Atafu	1 plts		stc;50cs Vailima Lager 12 x 750	1.387	450.0	465	22	03	00	3108	2203.00_3108
Matua088	10/07/2014	Coop Store Nukunono	1 plts		stc;50cs Vailima Lager 12 x 750	1.387	450.0	465	22	03	00	3108	2203.00_3108
Matua088	10/07/2014	Coop Store Atafu	1 plts		stc;50cs Vailima Lager 24 x 355mls	1.387	450.0	465	22	03	00	3108	2203.00_3108
Matua088	10/07/2014	Coop Store Nukunono	1 plts		stc;50cs Vailima Lager 24 x 355mls	1.387	450.0	465	22	03	00	3108	2203.00_3108
Matua088	10/07/2014	Coop Store Fakaofu	2 plt		stc;100cs Vailima Large 12 x 750mls	2.774	1,800.0	930	22	03	00	3108	2203.00_3108
Matua088	10/07/2014	Coop Store Fakaofu	15 ctn		Eggs x 15 Dozen	0.822		180	04	07	21	0000	0407.21_0000
Matua088	10/07/2014	Coop Store Nukunono	15 ctn		Eggs x 15 Dozen	0.822		180	04	07	21	0000	0407.21_0000
Matua088	10/07/2014	Coop Store Fakaofu	5 bag		Salt Iodised Fine 20kg	0.501		100	25	01	00	0041	2501.00_0041
Matua088	10/07/2014	Coop Store Atafu	10 bag		Salt Iodised Fine 20kg	1.000		200	25	01	00	0041	2501.00_0041
Matua088	10/07/2014	Coop Store Fakaofu	20 bag		Sugar Brown 50kg	1.040		1000	17	01	99	0032	1701.99_0032
Matua088	10/07/2014	Coop Store Nukunono	10 bag		Sugar Brown 50kg	0.260		250	17	01	99	0032	1701.99_0032
Matua088	10/07/2014	Coop Store Atafu	50 bag		Sugar Brown 50kg	2.600		2500	17	01	99	0032	1701.99_0032
Matua088	10/07/2014	Coop Store Atafu	5 ctn		Anchor Butter 20 x 454gms	0.055		20	04	05	10	0009	0405.10_0009
Matua088	10/07/2014	Coop Store Nukunono	10 ctn		Anchor Butter 20 x 454gms	0.111		40	04	05	10	0009	0405.10_0009
Matua088	10/07/2014	Coop Store Fakaofu	6 ctn		Mince Meat	0.062		25	02	02	30	0009	0202.30_0009
Matua088	10/07/2014	Coop Store Fakaofu	9 plts		Assorted Goods	18.252		6541					Assorted goods
Matua088	10/07/2014	Coop Store Nukunono	2 plts		Assorted Goods	4.056		1752					Assorted goods
Matua088	10/07/2014	Coop Store Atafu	7 plts		Assorted Goods	14.196		5464					Assorted goods
Matua089	17/07/2014	Tokelau Island	353 pcs		Personal Effects	32.568		6268					Personal effects

Rates of Tokelau excise tax are applied through invoicing as follows: general Government duty (cf Goods and Services Tax, GST) 8 percent on all goods. plus “sin tax” of 172% on small beer bottles (330 ml), 142% on large ones (750 ml), 146% on spirits and 195% on tobacco (July 2015 values). Increased tax on cigarettes and alcohol in 2017 is meant to further discourage smoking and drinking on the atolls.

Appendix B: High-level listing of Harmonised System codes of Tokelau imports (NZHSC 2013 Chapter). Only 8% of item numbers could not be coded, amounting to 15 percent by volume (in m³) or by weight (in kg) of imports.

When compared with the COICOP analysis of Part 1, the stores invoices data had captured 74 percent of counted items, 42 percent by volume and 57 percent by weight of shipping manifest data.

Row Labels	Count of Product	Sum of Gross Volume m3	Sum of Gross Weight
02 Meat and edible meat offal	116	48.849	41,173
04 Dairy produce; birds' eggs; ...	56	19.487	5,278
07 Vegetables and certain roots and tubers	84	22.422	13,273
08 Fruit and nuts, edible;	36	21.184	3,494
10 Cereals	23	44.414	27,650
11 Products of the milling industry;	25	12.875	9,950
15 Animal or vegetable fats and oils ...	2	0.061	135
16 Meat, fish or crustaceans, molluscs ...	60	15.517	5,132
17 Sugars and sugar confectionery	24	20.919	23,223
19 Preparations of cereals, ... or milk	1	0.009	10
20 Preparations of vegetables, fruit, ...	4	1.196	825
21 Miscellaneous edible preparations	5	1.943	664
22 Beverages, spirits and vinegar	162	97.406	34,083
24 Tobacco and manufactured substitutes	34	19.263	1,635
25 Salt, sulphur... stone... cement	23	221.272	299,890
27 Mineral fuels, oils and [distillates]	46	206.872	124,313
28 Inorganic chemicals...	2	0.022	90
29 Organic chemicals	1	0.156	120
30 Pharmaceutical products	3	4.263	777
32 Tanning or dyeing extracts; ...	2	1.692	584
35 Albuminoidal substances; ... glues;...	2	4.060	6,866
39 Plastics and articles thereof	2	7.025	152
44 Wood and articles thereof	21	132.856	67,898
48 Paper and paperboard; ...	2	0.720	960
68 Stone, plaster, cement...; articles thereof	12	136.494	125,871
69 Ceramic products	3	16.095	12,392
72 Iron and steel	5	12.557	14,233
73 Iron or steel articles	26	395.928	66,749
76 Aluminium and articles thereof	2	5.742	2,280
84 Nuclear reactors, ... appliances	11	29.903	6,515
85 Electrical machinery and equipment...	3	49.998	11,700
87 Vehicles... and parts ... thereof	29	155.591	37,929
89 Ships, boats and floating structures	2	13.042	982
95 Toys, games and sports requisites	1	1.860	466
96 Miscellaneous manufactured articles	2	0.015	7
98 [NZ] Miscellaneous provisions	65	916.301	215,250
99 Unknown	78	472.680	199,904
Grand Total	975	3,110.689	1,362,453
Percentage unknown	8%	15%	15%

Appendix C: Pure and hidden sugar consumption by Tokelauans (aggregate per capita).

REVISED/VERIFIED PART 2	TOTAL TOKELAU				Consumption 2014 per head (all=1,383)	per head (15-64y) working age (=852)	Average weekly consumption		Adult Equiv per week
	Sugar content g/100 g	Est. sugar weight (kg)	Sugar diet percentage	Purchased in 2014 (kg or litres)			from	to	
Food or non-alcoholic drink item					1,383	852			1,215
Bongo snack	5	370	1%	7,402	5.35	8.69	0.10	- 0.17	kg 0.12
Brown sugar	100	49,720	83%	49,720	35.95	58.36	0.69	- 1.12	kg 0.79
Bubble/chewing gum (1.4 g each)	78	157	0%	201	0.15	0.24	0.00	- 0.00	kg 0.00
Fruit salad	15	264	0%	1,761	1.27	2.07	0.02	- 0.04	kg 0.03
Condensed & evaporated milk	25	306	1%	1,224	0.89	1.44	0.02	- 0.03	kg 0.02
Just juice	10	1,528	3%	15,276	11.05	17.93	0.21	- 0.34	litres 0.24
Milo (powder)	46	1,550	3%	3,370	2.44	3.96	0.05	- 0.08	kg 0.05
Pineapple crush	15	156	0%	1,038	0.75	1.22	0.01	- 0.02	kg 0.02
Raro	8	48	0%	599	0.43	0.70	0.01	- 0.01	kg 0.01
Spaghetti tins	5	250	0%	5,001	3.62	5.87	0.07	- 0.11	kg 0.08
Sweet biscuits	25	1,739	3%	6,954	5.03	8.16	0.10	- 0.16	kg 0.11
Tang fruit drink powder	93	2,081	3%	2,338	1.62	2.63	0.03	- 0.05	kg 0.04
Tomato sauce	5	168	0%	3,361	2.43	3.94	0.05	- 0.08	kg 0.05
Zap chocolate drink	10	1,290	2%	12,900	9.33	15.14	0.18	- 0.29	litres 0.20
Sugar in top items (kg)		59,626	100%	59,626	43.11	69.98	0.83	- 1.35	kg 0.94
Teaspoons per week (4 g) range							207	- 336	
Teaspoons per week (4 g) Adult equivalent								236	
WHO recommendation (for 5-10% energy intake)									
adults							84	- 168	
children							42	- 84	

Appendix D: Adult-equivalent population of Tokelau and its atolls (Claro et al 2010).

Adult-equivalent conversion factors for estimated calorie requirements according to age and gender, applied to Tokelau population count of December 2013. Note: Claro et al 2010's group of 51+ is split into 51-64 and 65+ to permit comparison with working age population 15-64									
Age (years)	Calories * (kcal)	Adult-equivalent conversion factor	Tokelau 2013 head count	Adult- equivalents	Atafu 2013	Adult- equivalents	Fakaofu 2013	Adult- equivalents	Nukunonu 2013
Newborns									
0-1	750	0.29	25	7.25	7	2.03	12	3.48	6
Children									
1-3	1,300	0.51	91	46.41	38	19.38	28	14.28	25
4-6	1,800	0.71	84	59.64	27	19.17	31	22.01	26
7-10	2,000	0.78	109	85.02	39	30.42	38	29.64	32
Men									
11-14	2,500	0.98	53	51.94	18	17.64	16	15.68	19
15-18	3,000	1.18	63	74.34	21	24.78	28	33.04	14
19-24 **	2,900	1.14	70	79.8	18	20.52	29	33.06	23
25-50 **	2,900	1.14	208	237.12	56	63.84	70	79.8	82
51-64	2,300	0.9	84	75.6	33	29.7	28	25.2	23
65+	2,300	0.9	45	40.5	16	14.4	12	10.8	17
Women									
11-14	2,200	0.86	51	43.86	22	18.92	21	18.06	8
15-18	2,200	0.86	54	46.44	19	16.34	25	21.5	10
19-24 **	2,200	0.86	85	73.1	27	23.22	41	35.26	17
25-50 **	2,200	0.86	214	184.04	72	61.92	79	67.94	63
51-64	1,900	0.75	95	71.25	30	22.5	39	29.25	26
65+	1,900	0.75	52	39	15	11.25	18	13.5	19
ALL			TOTAL	1383	458	396	515	453	410
15-64			Cf. working age population	873	276	263	339	325	258
* According to Recommended Dietary Allowances (RDA) for 1989;									
** Age brackets used as the reference for establishing an adult's mean calorie requirements;									
*** Additional 500kcal for breastfeeding, according to the RDA;									
# Additional 300kcal for pregnancy, according to the RDA.									
				> (Food and Nutrition Board 10th edition)					
				> (25-50 includes age unknown: 12 male, 9 female)					
				> (ignored: no data)					
				> (ignored: no data)					

Population statistics and consumption by nuku (in 2014)

Dec'13 head count	Number	Atafu		Nukunonu		Fakaofu	
Total population	1,383	33%	458	30%	410	37%	515
Babies < 4 years old	116	39%	45	27%	31	34%	40
Population 15+	949	32%	306	30%	288	37%	355
Males 15+	458	31%	143	34%	154	35%	161
Females 15-44	294	34%	99	25%	73	41%	122
Females 15-49	337	34%	116	26%	88	39%	133
Working age 15-64	852	32%	275	30%	252	38%	325
STEPS sample age 18-69	790	32%	251	32%	251	36%	288
Adult equivalents, total	1215	33%	396	37%	453	30%	367

Census 2011: smokers 15+	352	34%	121	29%	103	36%	128
Percentage smokers Tok - 47.8%		51%		49%		44%	

2014 Imports study	Tokelau	Atafu		Nukunonu		Fakaofu	
Beer litres	70,000	39%	27,000	27%	19,000	34%	24,000
Small bottles	30,000	50%	15,000	50%	15,000	0%	0
Large bottles	80,000	38%	30,000	23%	18,000	40%	32,000
Spirits litres	11,000	59%	6,541	30%	3,344	10%	1,116
Stores	7,686	68%	5,255	32%	2,432	0%	0
Taupulega(*)	230	100%	230	0%	0	0%	0
Private	3,084	34%	1,056	30%	912	36%	1,116
Wine litres	504	43%	216	57%	288	0%	0
Cigarettes	3,040,000	38%	1,140,000	31%	940,000	32%	960,000

Per capita consumption	Tokelau	Atafu		Nukunonu		Fakaofu	
Average Cigs /head 15+ /day	8.8		10.2		8.9		7.4
Average Cigs /avg smoker /day	18.4		19.8		18.2		16.9

Average litres /head 15+ /week

Beer (5% alcohol)	1.418	1.697	1.269	1.300
Spirits (40% alcohol)	0.223	0.411	0.223	0.060
Combined standard drinks /week	12.6	19.7	12.1	7.0

1 standard drink contains 10 g alcohol.

To calculate: volume in litres X alcohol percentage X 0.789 [density of ethanol]

STEPS 2015 18-69 years old	Tokelau
Respondents	408
% smokers	54.7
Average Cigs /avg smoker /day	13.3
% drinking alcohol regularly	57.3

Combining STEPS % and Import data

Average Cigs /head 18-69** /day	10.5	12.4	10.3	9.1
Average Cigs /avg smoker /day	19.3	22.7	18.8	16.7

Average litres /drinker 18-69** / week

Beer (5% alcohol)	2.974	3.610	2.541	2.797
Spirits (40% alcohol)	0.467	0.875	0.447	0.130
Combined standard drinks/week	26.5	41.8	24.1	15.1

**assumes negligible smoking and drinking <18 and 70+

2011 Tokelau Census states 23.1 percent of 15 to 19-year-olds smoked regularly, down from 40.4 percent in 2006.

TOTAL TOKELAU

REVISED/VERIFIED PART 2

1,383

852

Non-alcoholic drink item (by rank)	Purchased in	Consumption 2014	per head (15-64y)	Average weekly consumption		
	2014 (kg or litres)	per head (all=1,383)	working age (=852)	from	to	litres*
1 Tang fruit drink (reconst., 30g/l)	74,600	53.94	87.56	1.04	- 1.68	**
2 Milk	47,960	34.68	56.29	0.67	- 1.08	
3 Milk from powder (reconst. 100g/l)	46,060	33.30	54.06	0.64	- 1.04	***
4 Bottled water	31,870	23.04	37.41	0.44	- 0.72	
5 Milo (reconst. in water, 125g/l)	26,960	19.49	31.64	0.37	- 0.61	****
6 Tea (1 bag per 240 ml cup)	26,035	18.83	30.56	0.36	- 0.59	*****
7 Just juice	15,276	11.05	17.93	0.21	- 0.34	
8 Zap chocolate drink	12,900	9.33	15.14	0.18	- 0.29	
Raro (reconst., 80 g/l)	7,488	5.41	8.79	0.10	- 0.17	*****

TOTAL TOKELAU

Consumption 2014

per head (15-64y)

Average weekly consumption

Food item (by rank)	Purchased 2014	per head (all=1,383)	working age (=852)	from	to	Unit
1 Rice cooked =(450/206)*dry weight	136,217	98.49	159.88	1.89	- 3.07	kg
1 Rice dry, white	62,357	45.09	73.19	0.87	- 1.41	kg
2 Chicken leg quarters	53,186	38.46	62.42	0.74	- 1.20	kg
3 Brown sugar (& 300 kg castor)	49,720	35.95	58.36	0.69	- 1.12	kg
4 Flour, Baker's & Normal	25,575	18.49	30.02	0.36	- 0.58	kg
5 Cooking oil unsaturated	20,952	15.15	24.59	0.29	- 0.47	litres
6 Potatoes	17,340	12.54	20.35	0.24	- 0.39	kg
7 Instant noodles	8,707	6.30	10.22	0.12	- 0.20	kg
8 Chicken wings	8,596	6.22	10.09	0.12	- 0.19	kg
9 Mackerel in oil	8,109	5.86	9.52	0.11	- 0.18	kg
11 Onions	7,980	5.77	9.37	0.11	- 0.18	kg
12 Bongo [snack]	7,402	5.35	8.69	0.10	- 0.17	kg
13 Corned beef	7,047	5.10	8.27	0.10	- 0.16	kg
10 Sweet biscuits	6,954	5.03	8.16	0.10	- 0.16	kg
14 Salt beef	6,047	4.37	7.10	0.08	- 0.14	kg
15 Lamb chops	5,648	4.08	6.63	0.08	- 0.13	kg
16 Sausages: Chicken Franks	5,240	3.79	6.15	0.07	- 0.12	kg
17 Tuna in oil	5,007	3.62	5.88	0.07	- 0.11	kg
18 Spaghetti tins	5,001	3.62	5.87	0.07	- 0.11	kg
19 Milk powder***	4,606	3.33	5.41	0.06	- 0.10	kg

20 Lamb necks	4,086	2.95	4.80	0.06	-	0.09	kg
21 Mutton flaps	3,680	2.66	4.32	0.05	-	0.08	kg
22 Milo (powder)****	3,370	2.44	3.96	0.05	-	0.08	kg
23 Sausages: Pork	3,367	2.43	3.95	0.05	-	0.08	kg
24 Tomato sauce	3,361	2.43	3.94	0.05	-	0.08	kg
25 Oranges	3,360	2.43	3.94	0.05	-	0.08	kg
26 Sausages: Beef	3,258	2.36	3.82	0.05	-	0.07	kg
27 Apples	3,033	2.19	3.56	0.04	-	0.07	kg
28 Butter	2,989	2.16	3.51	0.04	-	0.07	kg
29 Salt, iodised	2,602	1.88	3.05	0.04	-	0.06	kg
30 Tang fruit drink powder**	2,238	1.62	2.63	0.03	-	0.05	kg
31 Coconut cream	1,989	1.44	2.33	0.03	-	0.04	kg
32 Potato chips, Frozen	1,875	1.36	2.20	0.03	-	0.04	kg
33 Mayonnaise	1,858	1.34	2.18	0.03	-	0.04	kg
34 Fruit salad	1,761	1.27	2.07	0.02	-	0.04	kg
35 Condensed & evaporated milk	1,224	0.89	1.44	0.02	-	0.03	kg
39 Crisps, Potato chips, Corn chips, ... Tv	1,190	0.86	1.40	0.02	-	0.03	kg
36 Sausages: Saveloy	1,080	0.78	1.27	0.02	-	0.02	kg
37 Pineapple crush or slices	1,038	0.75	1.22	0.01	-	0.02	kg
38 Bacon shoulder	937	0.68	1.10	0.01	-	0.02	kg
40 Sausages: Vienna	469	0.34	0.55	0.01	-	0.01	kg
6a All sausages combined	13,414	9.70	15.74	0.19	-	0.30	kg
Raro *****	599	0.43	0.70	0.01	-	0.01	kg

TOTAL TOKELAU

Household item (alphabetic)	Purchased 2014	2014 consumption per head	Average weekly consumption				
Axion paste	2,621	1.90	3.08	0.04	-	0.06	kg
Chlorox/Janola	2,171	1.57	2.55	0.03	-	0.05	litre
Fabric softener	2,911	2.10	3.42	0.04	-	0.07	litre
Fly spray	2,346	1.70	2.75	0.03	-	0.05	kg
Napisan	1,524	1.10	1.79	0.02	-	0.03	kg
Protex Soap	2,149	1.55	2.52	0.03	-	0.05	kg
Washing powder	6,535	4.73	7.67	0.09	-	0.15	kg

Bulk store goods

Purchased 2014
Cement 494,400 kg

TOTAL TOKELAU						
Miscellaneous items (alphabetic)	Purchased 2014	2014 consumption per head	Average weekly consumption			
Babies' nappies [84304]	122,824	1,058.8			items	20.4 per week
Baby wipes units (80/pack)	15,920	137.2				2.6 per week
Batteries all sorts	10,050	7.3	11.80	0.14	-	0.23
Beach jandals (pairs)	4,368	3.2	5.13	0.06	-	0.10
Bubble/chewing gum	143,400	103.7	168.31	1.99	-	3.24
Christmas lights	9,648					
Eggs	136,620	98.8	160.35	1.90	-	3.08
Foam/plastic cups	62,560	45.2	73.43	0.87	-	1.41
Foam/plastic plates	33,720	24.4	39.58	0.47	-	0.76
Gas lighters	4,900	3.5	5.75	0.07	-	0.11
Hair conditioner (bottles)	3,696	2.7	4.34	0.05	-	0.08
Hair shampoo (bottles)	2,472	1.8	2.90	0.03	-	0.06
Milk biscuits (20 packs of 10=? kg)	4,400	3.2	5.16	0.06	-	0.10
Panadol tablets	36,000	26.0	42.25	0.50	-	0.81
Paper napkins	20,000	14.5	23.47	0.28	-	0.45
Pareu material	88,536	64.0	103.92	1.23	-	2.00
Plastic spoons	35,152	25.4	41.26	0.49	-	0.79
Poplin (metres)	52,011	37.6	61.05	0.72	-	1.17
Razor blade refill	3,312	2.4	3.89	0.05	-	0.07
Tea bags	108,480	78.4	127.32	1.51	-	2.45
Toilet paper rolls	56,120	40.6	65.87	0.78	-	1.27

Tinned products	imported (kg)	Weight per tin (g)	Number of tins
Mackerel in oil	8,109	444	18,264
Tuna in oil	5,007	185	27,065
Spaghetti	5,001	425	11,767
Coconut cream	1,989	425	4,680
Fruit salad	1,761	410	4,295
Condensed milk	1,224	395	3,099
Pineapple crush/slice	1,038	425	2,442
			71,612